

## Article

# A Theoretical Model of the Development of Public Citizenship in a Sustainable Environment: Case of Lithuania

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**Abstract:** The main finding of this paper is presented as a theoretical model of the development of public citizenship in a sustainable environment that has been created for the case of Lithuania. Revealing the relevance of this phenomenon and the level of its research, the authors notice that the studies of other researchers lack a holistic approach and present a clearer systematic assessment, presenting research on public citizenship and modernization in a sustainable environment. Additionally, the interaction between these two components and the corresponding directions was not analyzed at all. By naming the existing scientific problem, the authors of the article aim to fill this conceptual and empirical gap. The stated goal and tasks of the article respond to the scientific problem and the achieved results. The authors studied the variables of public citizenship assessment; performed an analysis of social, economic and environmental aspects and substantiated the interaction between the expression of modernization changes and the formation of civil society, distinguishing the factors promoting and limiting community citizenship. Therefore, the authors emphasize that the new theoretical construct proposed in the presented model will help to fill methodological gaps in the scientific literature and, in making practical decisions, will stimulate scientific debate. First of all, the paper discusses the conceptual issues of the expression of modernization of civil society, highlighting and justifying the interaction of social changes and sustainable environment in economic, social, political, environmental, and cultural aspects, presenting the case of Lithuania (The Case of Lithuania). On the other hand, following the document of the Sustainable Development Strategy of the United Nations, the field of progress and resilience of Lithuanian society in a modern society is discussed, identifying and analyzing various criteria that have been empirically tested. The authors noted that the democratic cube model was used to create a theoretical model of public citizenship development in a harmonious environment, and the HDI model (human development index) was also integrated. The model created by the authors systematically explains the analysis of the relationship between the expression of modernization changes identified in the research and the formation of civil society; second, it substantiates the process of interaction between modernization changes and public citizenship, discussing four fields of expression. Practically, the model will help researchers conceptually analyze and empirically study public citizenship; will help public policymakers and implementers to manage effectively, ensuring quality changes in society and managing new challenges, and it will also contribute to the conceptual formation of the country's long-term development strategy.

**Keywords:** model; sustainable; development; public; citizenship



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## 1. Introduction

The modern world faces a double challenge: environmental degradation and social inequality [1]. To solve the problem of environmental degradation, in 2015, the United Nations (UN) approved 17 sustainable development goals, divided into 169 tasks and grouped into three areas: social, economic and environmental. When defining sustainable development, and a sustainable environment, scientists emphasize the active participation of the community [2]. It also emphasizes, and Masser distinguishes, the principles of

sustainable development: partnership and accountability; active participation and transparency; a systemic approach; connection with the future; equality and justice; ecological constraints; the relationship between the local and global scale; and local importance [3]. He singles out active participation as a principle.

One of the cases of active participation of citizens would be the constitutional issue initiated by ordinary citizens in the British Columbia Citizens' Assembly in 2004 [4]. Since then, the idea of including direct input from ordinary citizens on questions of voting rules, constituencies, and other constitutional-level issues has spread to the state of Ontario with its citizens' assembly [5], California [6], and Iceland, which has a participatory constitution-making process [7]. Citizen participation has increased in different areas.

To evaluate the active participation of Lithuanian residents, the Institute of Civil Society monitors the civic power index every year. This index includes four dimensions: civic activity, potential civic activity, perception of civic influence, and risk assessment of civic activity.

However, the limitation of this index is that it does not assess the changes that can occur in a short period of one year.

Historical factors cannot be underestimated when it comes to active public involvement. Lithuania is a post-communist country. According to Dahrendorf's research on social and political transformation in post-communist countries, he found that the clock of civil society runs the slowest: laws can be created and are adopted the slowest, the implementation of economic and political reforms takes longer, and an even longer time is needed for the development of civil society because it requires profound changes in the society's culture [8]. The COST ACTIVITY (CA16229) ENEC (European Network for Environmental Citizenship) report "Conceptualizing Environmental Citizenship for 21st Century Education, 2020", a broad scientific discourse on civil society, has been developed; the main theoretical insights on political, economic and societal dimensions of environmental citizenship construction have been discussed; the role of governance of emerging challenges in modern society has been developed; and the scientific community and new researchers are invited to construct new conceptual ideas and to conduct new applied research on public citizenship from a local to global level [9].

As Ferrera and Burelli (2019) state, the growth of citizenship awareness makes residents realize that voluntary work and solidarity are the first steps in forming volunteering traditions and developing a civil society [10]. We have to admit that the idea of citizenship formation in Lithuania has been studied by scientists such as Nefas, Grigas, and Žiliukaitė for several decades. It has been observed that some political, city and cultural movements and city initiatives gain momentum while others quickly die down [8,11,12]. The question arises why the rise of Sąjūdis, with his victory in the elections just two years later, became a source of political apathy, disappointment and distrust in government institutions. Accordingly, research shows that as a society modernizes, its attitude towards citizenship also changes. However, it is still unclear what the factors are in modernizing society and to what extent direction, positively or negatively, determines the formation of civil society. Although scientists have conducted some studies on citizenship education, citizenship culture, the influence of citizenship on defense and other issues, one comprehensive study is missing, which would cover more than one aspect but would provide a complex approach to the problem under consideration, especially since the analysis of different elements can give different results. Without examining the whole, but only certain separate parts of it, as Šiliauskas states, the interdisciplinary approach allows us to understand the multi-layered nature of the civil society phenomenon and its poly-functionality [13].

The country's modernization, based on transformations of the economy and economic relations, agriculture and industry, is inseparable from the social, economic, environmental and political environment. Including the fact that the citizen is one of the main factors contributing to changes in society, the question arises of how to evaluate the influence of the expression of modernization on the formation of civil society, and how to develop public politicization?

This article aims to create a theoretical model of civil society education in a harmonious environment after analyzing the impact of modernization (social, economic, and political) expression on the formation of civil society.

To achieve this goal, the following tasks are set:

- Through an interdisciplinary study to investigate the variables that evaluate the citizenship of the society, to perform an analysis of social, economic, and environmental aspects.
- We perform an analysis of the relations between the expression of the identified modernization changes and the formation of the civil society, and create a theoretical model of the face of the society's citizenship, distinguishing the factors promoting and limiting the citizenship of the community.
- The desired result is the creation of a theoretical model of public citizenship education, which will allow us to determine the influence of the expression of modernization on the formation of civil society and predicting the trend of public citizenship education.

In the next part, a review of the scientific literature is carried out on the modernization of the country and its impact on citizenship in several sections: social, economic, environmental and political criteria for societal progress and resilience. The third part presents a theoretical model for the expression of public citizenship in a sustainable environment. The last part discusses the obtained results, discussion, and conclusions.

## 2. Literature Review of the Modernization of the Country and Its Impact on Citizenship

The development of society and the country's economic growth is inseparable from the continuous quantitative and qualitative changes in various economic activities and structures (economic sectors, bars of economic activity, scientific research and experimental development, international cooperation, etc.), which lead to modernization in various aspects. Modernization processes are taking place in multiple sectors of economic activity at the global level and involve more and more world states and operating factors [14].

These processes affect citizenship. Based on an analysis of the scientific literature, it can be stated that the impact of citizenship on Lithuanian society has been little studied [8]. Therefore, although Lithuania undertook to expand citizenship after becoming an independent state, due to the delay in the democratic processes, it was impossible to civilize the society or form citizenship fully [15]. At the current stage of development of Lithuanian society, the impact of citizenship on the state and its relevance in maintaining the country's stability is increasingly emphasized [16].

The concept of citizenship was studied by [17–20], and the theoretical analysis of forms of expression of citizenship in society is examined by [11,21–23], who defined forms of expression of citizenship ranging from assistance to the state to civil resistance. Authors such as [11,16,24,25] examined the concept of societal resilience. Beltman and Mansfield [26], when analyzing the negative factors that influence society's resilience, state it is possible to distinguish [27–29] scientific articles that discuss external and internal threats.

Citizenship is perceived as one of the essential components of social society in achieving common goals for the welfare of society [18]. The European Union defines citizenship as the legal ties of people to the state. The citizen and the state have specific duties and rights towards each other. Active citizenship links the various identities of members and empowers them to participate in society's economic, social, cultural, civic, and political life [30]. In summary, it can be said that being an active citizen means directly contributing to changes in society. However, most community members are reluctant to join cooperative associations to defend or satisfy the public interest rather than the opposite. As Ferreira and Burelli state, the growth of civic awareness encourages residents to realize that voluntary work and solidarity are the first steps in the formation of volunteering traditions and the development of civil society [10]. The concept of Hegel's civil society describes a complex system of economic activity, legal institutions, and various associations [31]. The famous German philosopher said that civil society emerged during the development of the state. We must admit that the idea of citizenship formation among scientists in Lithuania has

been studied for several years [12,23]. It has been observed that some political, civic, and cultural movements and civic initiatives gain momentum, while others quickly die down. Why? Although many studies have been conducted on the topic of modernization of the country and its influence on citizenship, a complex approach that includes aspects of political and sustainable development is missing: social, economic, and ecological influence on the formation of civil society.

### 2.1. Social Cross Section

Some of the researchers in their work describe a harmonious social environment by distinguishing community involvement [32–34]. The other part indicates the factors used to define the social environment: public transport, health and social protection (health and social protection infrastructure), education and science (general, professional and higher education systems, scientific research infrastructure) and public security infrastructure [35,36]. The scientists (Valackienė and Nagaj 2021) emphasize that socially responsible innovations in the ecosystem are extremely important and present a simulation of the interaction between science, society and industry [37]. Several other researchers (Feriha Urfalı Dog and Lerzan Aras, 2019) created the MCSA (City Assessment from Social Aspects) model that evaluates social vitality in cities [38].

The goals of sustainable development, according to the UN, for the social environment are as follows [39]:

- To ensure that everyone has the opportunity to use modern, affordable, reliable, and sustainable energy;
- To promote peaceful and inclusive societies for sustainable development, and provide opportunities for everyone to demand justice and create compelling, accountable, and inclusive institutions at all levels;
- To eliminate all forms of poverty in all countries;
- To achieve cities and settlements that are inclusive, safe, resilient, and sustainable;
- To ensure inclusive and equal quality education and promoting lifelong learning;
- To ensure a healthy lifestyle and promote the well-being of all age groups;
- To achieve gender equality and the empowerment of women and girls;
- To eliminate hunger, ensure food security and better nutrition, and promote sustainable agriculture.

According to data from the Lithuanian Statistics Department, 24.5% of the population in Lithuania lives at risk of poverty or social exclusion. Between the city and the countryside, there is an 8% difference, that is, in the village—25.4%, in the city—17.4%. One of the goals of sustainable development is to eliminate all forms of poverty in all countries, eliminate hunger, ensure food security and better nutrition, and promote sustainable agriculture. The relationship between the natural environment and poverty is a crucial topic in the literature on sustainability and development [40], which is receiving increasing attention among scholars [41–43]. Research is presented in different sections, that is, poverty alleviation through entrepreneurship promotion [44] and local investments [45]. Zhang et al. studied urban–rural migration and found that social protection has a significant positive effect on rural–urban migration while improving fairness, happiness, and a sense of security, promoting rural integration and identity, and promoting urbanization. Therefore, social attitude plays a vital role as a mediator [46].

In the country, most diseases occur due to diseases of the circulatory system (820.3), malignant tumors (275.9), and diseases of the respiratory system (37.9). The average life expectancy, a probabilistic indicator of population mortality, is widely used not only to assess the health of the population, but also the overall level of public well-being [47]. Theorists of mortality and social development consider mortality and the structure of causes of death in general as one of the most important indicators of social development, and sudden changes in the number and structure of the population are often associated with changes in mortality [48].

Education in the context of sustainable development is a component of social capital [49]. This refers not only to the state's education system, but also to the integration of the fundamentals of sustainable development into learning (UNESCO), which aims to change the population's behavior. Global education is an active learning process based on solidarity, equality, inclusion, and cooperation. It aims to provide knowledge on sustainable development, to help understand the challenges of the world and their causes, to understand the impact of local actions on global processes, and to enable people to achieve international sustainable development goals [50]. Melnikas distinguished the creation of a new type of society, perceived as a knowledge society, which reflects the transformation of society itself into a qualitatively unique state [51]. In Lithuania, up to 60.3% of the population aged 30–34 years has obtained higher education.

In Lithuanian state institutions, women work less than men, i.e., in the Seimas—28.4%, in municipal services—31%, and mayors—6.7%.

There is a 28.1% share of energy from renewable resources of the total final energy consumption.

Overall, 99% of the population has access to the public municipal waste management service.

There have been 2.6 registered murder victims per 100,000 inhabitants. A secure environment is the only suitable environment where human rights and freedoms can be realized and developed. The feeling of security determines both the behavior and quality of life of individuals, as well as the social and political stability of the state and the trust of the population in the legal and institutional mechanisms [52].

The National Development Plan for 2021–2030 (from now on referred to as the Plan) was drawn up to determine the main changes that will affect the country in the coming decade, ensuring progress in the social, economic, environmental and security areas. Based on this plan, it is foreseen [53]: to increase social well-being and inclusion of the population, strengthen health, and improve the demographic situation of Lithuania; to increase the social and civic activity of society, participation in voluntary, community activities, mutual trust, social responsibility of society; to strengthen civil society organizations, strengthen social dialogue; to promote collective negotiations and the conclusion of collaborative agreements, strengthen trade unions; to strengthen the psychological and emotional resilience of society; to increase the inclusion and effectiveness of education to meet the needs of the individual and community; to strengthen national and civic identity; and to increase cultural penetration and the creativity of society.

Culture is a factor of national progress; without modern state development, society's ability to think critically and social cohesion is impossible. Therefore, the development of national culture is a priority of the state, including preserving the values of cultural heritage for the future society, and nurturing and protecting its history, Lithuanian identity, and traditions. According to the authors of the collective monograph, "Development of Multiculturalism Competence in Lithuania: Experience, Problems, Perspectives" [54], research on multiculturalism has been expanding rapidly recently: various aspects related to this topic are examined, including the effectiveness of intercultural training, the application of the appropriate management style in different cultures, leadership in a multicultural environment, developing awareness, knowledge, and skills, intercultural communication, its effectiveness and models, the formation of multicultural teams and the effectiveness of their activities, etc.

National identity is contextual and adaptable to the social environment of society and new needs. The lack of national identity as a collective commonality hinders the achievement of a greater concentration of community. The strategy "Lithuania 2030" aims for 60% of society members to be very proud of their country's identity by 2030. More intensive measures are needed to achieve this goal because, according to 2017 data [74], only 40% of the country's population indicated that they are very proud of their Lithuanian citizenship (in 2020, the target is an intermediate value of 50%) [55]. It is observed that those who participate in culture are more inclined to be proud of their Lithuanian citizenship and vote in elections than those who do not participate in culture. Taking into account the challenges and opportunities created by technological changes and globalization, it is



essential to preserve the importance and active use of the Lithuanian language as a basis for national identity and values, strengthen residents' pride in their country, shape and reinforce Lithuania's image in society, and reveal and present the country's success stories.

## 2.2. Economic Cross Section

- The goals of sustainable development, according to the UN, for the economic environment are as follows [39]:
- Promote sustainable, inclusive and sustainable economic growth, productive employment, and decent work;
- Create resilient infrastructure, promote comprehensive industrialization, and encourage innovation;
- Reduce inequality between countries and within the countries themselves;
- Ensure sustainable patterns of consumption and production.

According to data from the Lithuanian Statistics Department, the unemployment rate in Lithuania is 7.1%. There are more unemployed men (7.6%), while women are 6.6%.

Expenditure on research and experimental development is 1.12% of GDP.

There is a 44.3% share of processed municipal waste compared to the generated municipal waste.

According to purchasing power standards, Lithuania's GDP has increased slightly, by 15%, in the last three years. To achieve greater social solidarity in the country, it is necessary to increase the salaries of the officially employed, given the current economic and financial situation. In the current rapidly modernizing world economy, the growth of labor productivity and the development of well-paid jobs depend on the country's ability to create and use advanced (innovative) technologies in production. This determines the competition for product exports with all countries of the world.

The national progress plan includes distinct directions for the intelligent economy: to move to a sustainable economic development based on scientific knowledge, advanced technologies, and innovation, and to increase the country's international competitiveness; to improve transport, energy and digital internal and external connectivity; to ensure good environmental quality and the sustainable use of natural resources, protect biological diversity, mitigate Lithuania's impact on climate change and increase resistance to its impact; to develop the territory of Lithuania in a sustainable and balanced way and reduce regional segregation; and to strengthen national security [53]. The usefulness and great potential of understanding competitiveness, experimentation, and learning are related to different levels, from product, firm, and industry to group, city, or state, especially in large emerging economies [56]. Researchers have examined the relationship between competitiveness and innovation [57–61].

Infrastructure is essential for economic development and meeting the needs of countries, regions, and cities [62]. Roads, pipelines, airports, railways, power lines, gas pipelines, sewage/drainage systems, information technology and telecommunications infrastructure are usually considered physical infrastructure. Most researchers use physical expressions of infrastructure indicators in their research, i.e., they evaluate the relationship between the length of roads, the size of pipelines, the number of telecommunications lines or the number of telephone subscribers and their impact on economic indicators. However, qualitative indicators are no less important because it is not enough to have only physical infrastructure elements to develop the economic–social system. Their quality (reliability, timely delivery, and ease of use) becomes an important characteristic. The issue of the development and security of energy networks is emphasized in the scientific literature. Energy networks are the city's electricity, heat, and gas supply systems. The dependence of energy networks on one market creates a real threat to the city's economic vulnerability, and the decline of the city's economic power and the loss of companies' competitive advantages due to increased production costs. Researchers have shown that the growth of the length of the road per thousand inhabitants, exports per capital, education expenditure per employee, and physical capital stock contribute positively to economic growth [63]. Road infrastructure

development positively affects economic growth [64–66]. The prominent identified role of road infrastructure is mobility, which ensures the movement of not only people, but also goods and services. Additionally, it also improves access to goods and services in specific markets. However, to achieve the goals of sustainable development, i.e., to ensure good environmental quality and the harmony of natural resource use in countries, sustainable transport goals are set. Sustainable transport aims to ensure that environmental, social, and economic factors influence all decisions related to the transport system [67].

The country's economic security issues began to be examined relatively recently in the twentieth century. The concept of financial security was introduced by US President Roosevelt in 1934, who created the Federal Committee on Economic Security [68]. Objects of economic security can be the state, society, citizens, companies, institutions and organizations, territories, or individual objects. The main subject of economic security is the state, which performs its functions in the field of economic security with the help of legislative, executive, and judicial authorities. The economic aspect of security is especially evident in the three listed groups of threats to Lithuania's national security: the eighth (economic and energy dependence, economic and economic vulnerability), the tenth (social and regional exclusion, poverty), and the eleventh (demographic crisis) [52].

New data and analysis from the report "New threats to human security in the Anthropocene Demanding greater solidarity" show that people's sense of safety and security is low in almost all countries, including the wealthiest countries, despite years of successful development. Those who benefit from the highest levels of good health, well-being, and education report even more anxiety than ten years ago [69]. To address this gap between development and perceived security, the report calls for greater cross-border solidarity and a new approach to development that allows people to live without lack, fear, anxiety, and resentment. Strengthening national security is considered the highest goal of Lithuania's domestic and foreign policy, which is given priority, and based on the National Agreement "On Lithuanian Defense Policy Guidelines", is committed to consistently increasing the defense of the state of Lithuania, and funds are allocated (2.5% of GDP allocated to defense in 2030) to strengthen cybersecurity and defense, and effectively manage cyber incidents. In implementing the task, it is planned to promote cooperation between the public and private sectors, implement R&D solutions, raise the cybersecurity culture of society (including companies), and strengthen international collaboration—actively participating in the creation of EU cyber rapid response forces, and providing mutual assistance in the field of cybersecurity.

### 2.3. Environmental Cross Section

The goals of sustainable development, according to the UN environmental protection, are as follows [39]:

- Ensure water availability, sustainable management, and sanitation for all;
- Take urgent action to combat climate change and its effects;
- Preserve and sustainably use oceans, seas, and marine resources for sustainable development;
- Protect, restore, and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, stop and reverse land degradation, and stop the loss of biodiversity.

Scientists have published many works on environmental issues [70–75]. It is observed that modernization changes cannot be separated from the problems caused by this process: ecology, environmental quality problems, irrational use of resources, etc. Therefore, including not only the gross domestic product, which shows the economic, social, and institutional dimensions of the country, but also the principles of sustainable development, which also show the dimension of environmental quality, in the evaluation model is necessary, timely, and relevant. According to data from the Lithuanian Statistics Department, up to 94% of the population in Lithuania uses safe sanitation services. There are 5.3 tons of greenhouse gas emissions per 1 inhabitant, a 18.2% share of protected marine areas, and the area of newly planted forests is 882.5 ha. To achieve the UN goals, a national progress plan

has been drawn in Lithuania, based on which it is foreseen [53]: to ensure good environmental quality and harmony in the use of natural resources, to protect biological diversity, mitigate the impact of Lithuania on climate change and increase resistance to its impact; to reduce energy consumption in residential and public buildings and companies, increase the energy efficiency of buildings, and install devices that produce energy from renewable sources; to reduce the vulnerability of natural ecosystems and the country's economic sectors, strengthen the ability to adapt and increase resistance to climate change; and to improve risk management and protection against natural phenomena, and implement sustainable infrastructure solutions. Progress in a society can be achieved by following the new principles of the interaction of "man—society—nature," that is, establishing the principles of social justice, economic efficiency, and nature protection at the same time [76]:

(1) Technological conservation paradigm (the main ideas of this paradigm are also reflected in the dominant social paradigm, according to which humans are above nature or next to it and unconditionally trust science and technology, which can solve all social, economic and environmental problems [77]);

(2) Paradigm of ecological conservation (the use of new technologies and chemicals damages the existing natural environment, so human activity can be effective in the long term only if it adapts to ecological processes and does not exceed the capabilities of natural systems. The elasticity of natural systems is possible up to certain limits, but the closer society comes to nature, the more dependent it is on local natural systems, and the better it must understand those limits [78]);

(3) Environmental protection paradigm (the content of this paradigm consists of the control and prevention of environmental impacts, the assessment of environmental damage, the introduction of environmental taxes, the limitation of the environmentally harmful economic activities of people, and the creation of protected areas; therefore, it is also called neutralizing, or defensive [79]).

#### 2.4. A Cross Section of the Political Environment

An essential condition to ensure the functioning and stability of democracy is the participation of citizens in the state management process [80]. Political science theorists emphasize the importance of various forms of political involvement for the process of democratic governance and point out that voting in national and local elections is only one of many possible forms of political participation. Pateman (1970) states that "we learn to participate by participating" and encourages the development of organizational skills in schools and workplaces [81]. Various forms of expressing an opinion include: contacting politicians, government, or municipal officials and organizations, writing letters, participating in strikes, demonstrations, or protest actions, participating in an election campaign, donating money or supporting specific political forces, representing and signaling the political elite about the civic opinion and position on a particular issue.

According to data from the Political Participation Index [80], the activity or passivity of political participation can be partially described by demographic characteristics: more politically active persons are more educated, have higher incomes, have prestigious professions, and are more interested in politics.

However, some researchers try to identify additional factors that affect political activity; for example, Rosenstone and Hansen emphasize communication with politicians or being in a political environment [82]. They argue that the participation of citizens is significant in the fierce competition between political parties. Other authors suggest that political activism can be based on or created by the community in which one lives [83]. Additionally, this is also influenced by the work environment, the church, and membership in voluntary associations and organizations [81,84–86].

After the Second World War, new international institutions were created (United Nations, World Bank, International Monetary Fund, World Trade Organization, Organization for Economic Cooperation and Development, etc.), which coordinated various areas of world society and worked alongside national authorities. Influential regional organiza-



tions such as the European Union, the Association of Southeast Asian Nations, and many others are being established. A global network of nongovernmental organizations is also being developed and transnational corporations are being created, often economically more powerful than nation states. At the same time, the methods and tools of most of the traditional functions and activities performed by the state are gradually changing, as most of the economic, social, political and cultural processes must be analyzed in a global context. One of the positive consequences of the globalization process is that social policy becomes a global priority [87]. The successful participation of states in international processes also depends on national political, economic, social, and cultural conditions, the model of the administrative system, and administrative capacities. Thus, the main goal of public administration institutions is to find ways to professionally serve the public based on ethical, managerial, productivity and efficiency values, respecting the principle of equal opportunities, combining all this with the constantly changing political environment [88].

The following areas of activity require the greatest attention in the conditions of globalization of public administration [87,89]:

- Implementation and control of quality standards.
- Arbitration of conflicting forces.
- Franchise of management models.
- Balanced provision of services.
- Management of multicultural relations.
- Fostering cultural identity.
- The scientists Dong et al. provided his insight into the field of modernization through digital innovation [90]. Taking into account the European Commission's annual evaluation of the overall digital activity of Europe and the progress of EU countries in the field of digital competitiveness, the digital activity indicators of each EU country are presented, which best reflect the state and development of the country's digital economy. This allows us to evaluate the progress of EU member states according to four leading indicators: access to e-communication, human capital, digital integration, and digital public services. According to the report of the digital economy and society index of this report, as of 2021, Lithuania ranks 14th in 2022 (LT score—52.7) among 27 EU member states (EU score—52.3). The digital economy and society index significantly improves the industrial environment, positively impacting governments' economies and development plans.
- Lithuania is among the leading countries that have created the most technologically advanced public e-services. These measures, which include developing new electronic services and improving existing ones, increase the efficiency of public sector operations and administration and ensure greater incredible progress in digitizing administrative and public services.

To achieve greater efficiency in the system of public sector institutions, the public opinion on evaluating the work of state and municipal institutions is very important. Distrust in state institutions is usually viewed unfavorably due to damage to democracy and economic activity. Still, in the last five years, the population's trust in state and municipal institutions has increased from 51 to 65%.

### **3. Theoretical Model for the Development of Public Citizenship in a Sustainable Environment**

As already discussed, public participation is one of the most powerful tools for achieving fundamental democratic values such as legitimacy, justice and governance efficiency. Carefully designed, and not manipulated, participation can be an effective tool for achieving reasonable control. The democratic cube and human development index models are used to create a theoretical model of the development of public citizenship in a harmonious environment. The principles of the democratic cube model are integrated into the theoretical model of the development of public citizenship in a pleasant environment due to the three dimensions through which public participation in the governance of a democratic state is

depicted, i.e., (1) Who is involved? (2) How do they communicate and make decisions? (3) How do they influence public decisions and actions? The principles of sustainable development are included, to which the following factors/indicators are applied:

**Social environment:** Human social development index; global happiness index; sustainable society index (according to Sustainable Society Foundation, 2018); globalization index (according to KOW SWISS Economic Institute, 2018); income distribution (according to Eurostat, 2018); rankings of higher education institutions (according to Shanghai Ranking Consultancy, 2018); a public indicator of lifelong learning (according to Eurostat, 2018); index of political power (according to the Civil Society Institute, 2018); participation in cultural activities; average healthy life expectancy, etc.

**Economic environment:** Index of integration into foreign markets (according to The World Bank, 2018); business environment index (according to The World Bank, 2018); gross domestic product per capita for purchasing power standard (according to Eurostat, 2018); business renewal (according to Versli Lietuva, 2018); by the share of creation of new companies (according to Eurostat, 2018); business investments in scientific research and experimental development (according to Eurostat, Eurostat, 2018); university–business cooperation (according to World Economic Forum, 2019); cumulative innovativeness index (according to the European Commission, 2019); patenting rate (according to the World Economic Forum, 2019); and world competitiveness index (according to the World Economic Forum, 2019).

**Proposed/applied state efficiency indicators (management field indicators):** Corruption perception indices (Transparency International, 2018); state regulatory policy—the ability to form and implement appropriate policies (according to The World Bank, 2018); E-Government Development Index (according to United Nations, 2018); and democracy index (according to The Economist Intelligence Unit, 2018).

**Environmental protection:** Proportion of the population using safe sanitation services; water use efficiency; the extent of the implementation of complex water resources management; the intensity of the amount of greenhouse gas emissions from energy consumption; the amount of greenhouse gas emissions; forestry; the area of protected natural areas compared to the size of the country; and the place of new planted forests.

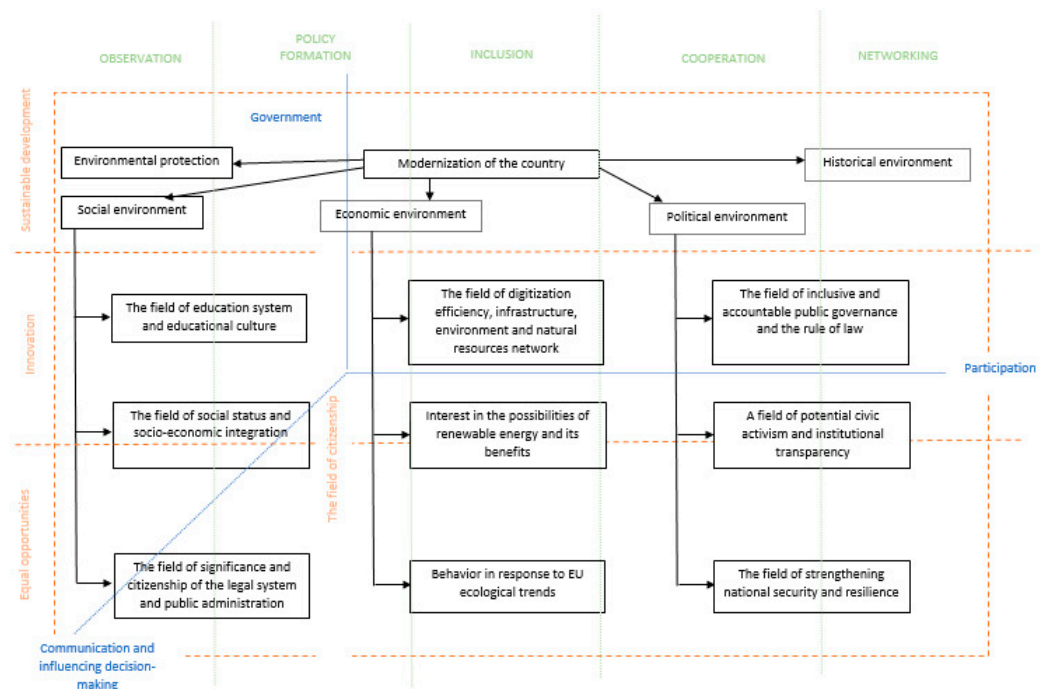
The principles of the Human Development Index (HDI) model are integrated into the theoretical model of the development of public citizenship in a sustainable environment due to a measure of generalized average achievement in the main dimensions of human development: a long and healthy life, knowledge and a decent standard of living, in addition to inequality, poverty, human security, empowerment, etc.

Summarizing the development of public citizenship in a theoretical model (Figure 1) of a sustainable environment, it can be said that it was constructed by conceptualizing the scientific literature, the theoretical insights constructed by the researchers, and the empirical data of the research conducted (two waves).

First, the model systematically explains the analysis of the relationship between the expression of the modernization changes identified by the study and the formation of civil society.

Secondly, it underpins the process of interaction between modernization changes and public citizenship through four fields of expression.

Monitoring would ensure and enable the availability of information to the general public so that community members can provide feedback and contribute to change. This would help public policymakers implement changes based on citizens' evidence and ideas to generate decisions. The design of the model presents an integrated system of indicators, identifying the factors promoting and limiting the citizenship of the society; allows for conceptual analysis and empirical research on how to strengthen citizenship and purposeful management, ensuring quality changes in society, managing new challenges, and contributes to the conceptual formation of Lithuania's long-term development strategy and the application of new national development scenarios in the field of cybersecurity; and at the state level, it helps ensure public safety and resilience.



**Figure 1.** A theoretical model of the development of public citizenship in a sustainable environment.

#### 4. Discussion

For the development of public citizenship to become more than a conceptual construct, it is crucial to develop and refine a system of indicators, components, and factors that can evaluate studies of public citizenship and modernization in a sustainable environment [1,4,5,8,11,12,15,22–25,46,68]. The current study used SEM to test a theoretical model adoption and address a significant gap in the existing literature. The authors investigated the evaluation variables of public citizenship, analyzed social [2,14,18,32–34,41,48,49,62], economic [6,8,11,40–42,45,60,70,78] and environmental aspects [32,40,44,58,73–79], and substantiated the interaction between the expression of modernization changes and the formation of civil society, distinguishing the factors promoting and limiting community citizenship. Additionally, empirical findings confirming the composition of the components of public citizenship and modernization, and their interrelationships become an essential approach for forming public citizenship in a sustainable environment as a theory.

**Theoretical implications:** The model created by the authors, unlike other theoretical models of society analysis, systematically explains the relationship between the directions of expression of modernization changes identified in the study and the criteria for the formation of civil society; secondly, it substantiates the interaction process of modernization changes and citizenship, and discusses four areas of expression: social environment; economic environment; political environment; and historical setting. The model is constructed after analyzing statistical data and conducting a detailed case study of Lithuania. This is our new theoretical concept.

**Practical implications:** our study will help researchers conceptually analyze and empirically study public citizenship; it will help public policymakers and implementers to manage effectively, ensuring quality changes in society and managing new challenges; and it will also contribute to the conceptual formation of the country's long-term development strategy.

**Limitations of this study and directions for future research:** in the future, the authors plan to conduct a longitudinal study to verify the model's effectiveness in a long-term perspective (three-five-year period), monitoring the indicators of societal change, progress and resilience in a sustainable environment.

## 5. Conclusions

Summarizing the analysis of secondary statistical data, which indicates and shows how the modernization of society is determined by intelligent management, and the interaction between the public sector and citizens, it can be said that e-services are particularly important for the socio-economic development of the country, strengthening citizenship, developing the data economy and the common digital market, and especially ensuring the safe and free movement of data, as it reduces costs and barriers to the smooth functioning of the single market.

The growing trend in the number of companies and societies using e-services indicates that the importance of e-services will continue to grow and that public sector organizations will have an ever-increasing extent. When e-services are developed, fundamental human rights, such as freedom of expression, privacy, and the right to personal data protection, must be respected, supported, and enhanced. Although Lithuania has made progress in many valued areas, some areas, such as human capital, access to communication, and use of Internet services, are still below the EU average—it is necessary to remove the reasons that are hindering the state's digital transformation processes, with the goal that as large a part of business and society as possible directly feel the benefits of digitalization.

Indicators of socioeconomic conditions show that the socioeconomic differences between the country's regions and within the areas do not decrease in Lithuania. The main reason is the uneven territorial economic development. It is essential to improve the population's digital skills and invest in the retraining and upskilling of the workforce. Although the country has been accumulating experience in digital transformation initiatives for several decades, it is ineffective in overcoming the challenges of the state's information resources infrastructure, fragmented cybersecurity assurance, and the openness and efficient sharing of public sector data between different sectors of the economy. Public electronic services differ in maturity levels, and services are not adapted to foreign entities, persons with disabilities, or communication difficulties. Society's weak digital abilities limit the effective use of public and administrative services and reduce the opportunities to participate in the market successfully.

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