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THE VIRTUALICS AND STRATEGIC SELF-MANAGEMENT AS TOOLS FOR SUSTAINABLE DEVELOPMENT

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Abstract. The methodological problems and practical decisions related to introduction of sustainability culture into life of the State of Lithuania are presented in this article. The methodology, models and decisions of the article are based on long-term researches and their implementation into governance, economy and education. The methodology of virtual modelling enables to raise certainty of development models of the country. Theoretic decisions of Strategic Self-management (SS) enabled to synthesise purposive homogenous model of SS of the State, the implementation of which could give a substantial push for decision accumulating problems of governance. This decision is related to implementation of self-organisation in each level of governance on the ground of natural SS cycle. The qualitative system of SS is developing by purposively created Public Institution Strategic Self-Management Institute and its innovations works „Strategic Self-Management" (ISSN 1648-5815). SS of enterprises, economy branches and the State are modernised on the ground of this model. The decisions of sustainability culture improvement in maritime and energy economies, problems and results of its implementation are presented.

Keywords: sustainability culture, innovations, virtualics, virtual modelling, strategic self-management, responsible energy, wind energy cluster.

1. Introduction

Lithuanian nation *trying to reach open, just, sustainable civil society and juristic state* accomplished a lot of tasks (The Constitution…). During 17 years of regained independence, it had enough strength to destroy old system of governance and to create a new one. Not only the regained independency became a reality, Lithuania became a full-right member of European Union, United Nations and other world organisations. After separating from joint and doubtful Eastern train, Lithuanian carriage together with other Eastern and Central European countries was connected to the rapid European Union express. Sudden changes not always leave enough time to properly evaluate and explain the principles of higher culture, when trying to prepare responsible decisions (Paulauskas A., Paulauskas S. 2006).

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2. The state-of-the-art, chosen methodological outlook and tasks of the article

One of the most substantial features of higher culture – ***sustainable development*** (SD) is obviously progressive, however, hard to perceive. It has been attracting the attention of scientists for a couple of decades already. It was analysed in *works of A. Buračas, J. Čepinskis, R. Čiegis, B. Melnikas, V. Pranulis, R. Rajeckas, L. Rinkevičius, A. V. Rutkauskas, D. Štreimikienė* etc (Čiegis 2002).

The state-of-the-art scientific research connected with the introduction of sustainability culture into governance of the state of Lithuania is related to some features:

1. *Uncertainty of definition of SD.* Subjects and used concepts are still related to traditional scientific disciplines, such as economy, chemistry, biology, ecology etc, which determine specific outlooks to sustainable development and its terminology. When looking for English term "sustainability" in Lithuanian, up until now the terms of "balance", "consideration", "continuity" and others were used (Čiegis 2002; Čiegis, Česonis 2004). In 2003 it was stopped in front of the term "sustainability"; however, it seems that it is not an ultimate decision. As a result, there are not precise understanding and definition of this phenomenon. Diversity of interpretation of sustainable development sometimes is determined as strength. However, implementing such a undefined phenomenon is still very difficult.
2. *Eclecticism in synthesising the SD models*. Prompts to direct connection of eclectic sides of SD: economic, ecologic and social aspects lead to scholastic and not applicable conclusions.
3. *Outlook on SD as only ethical phenomenon*. Sustainable development is still regarded not as a new quality of life and activity, but as only ethical issue, which should be added to dominating physical and economical outlooks and regulations. In Lithuania the main strategies of developing the State and economy are prepared on priorities of an economical growth. National strategy of SD is prepared as a result of strong requests of EU, but is still additional, not used document (The national…2003).
4. *Unclear appropriation of SD.* There is still a lack of reliable knowledge on mater, how an economical level of the State is related to necessity to introduce sustainability outlooks and principles (Paulauskas *et al.* 2007).
5. *Academic character of the concept of SD.* Academic science still avoids research problems related to practice of policy and governance.

Talking about the concept of "innovations", there is still understanding of this very important phenomenon as some new approaches, invent etc. Natural process of innovation as fighting between an Old and a New is not yet discovered and explained.

This semantic search points to much more serious adequacy problems than the meaning of a term. We encounter ***new phenomena of a higher culture***, when integrating the new attitudes of sustainable development into the traditional culture, and it is not easy.

The sustainability culture research in Lithuania was stimulated by the dominant economical culture in the country as well as the technologic culture, which did not give up its positions in many important branches. Based on the technological and economical categories, the regulation of economy is pursued; it is attempted to model the development of the country, which brings up a lot of setbacks, and it aggravates innovations as well as limits the development

possibilities (Paulauskas A., Paulauskas S. 2005; The knowledge… 2006; The Lithuanian 2000).

The main ***purpose*** of the article is to discover and present the problems and decisions of sustainability culture integration into Lithuanian governance and to evaluate outcomes of its implementation applying methodological tools of virtual modelling (VM) and strategic self-management (SS).

The main ***tasks*** are:

1. To present the qualitative model of innovations culture development using methodological instrumentation of virtual modelling.
2. To present the model of strategic self-management as qualitative synthetic system of sustainable development.
3. To explain practical decisions of integration of sustainability culture into Lithuanian governance and evaluate its implementation outcomes.

3. The sustainability as the top innovations culture

More and more assuring the state of the world as qualitative development, we can easier understand the existence of humans as permanent innovations activity, during which they create and implement innovations. The life is the action, quantitative and qualitative transition. Because it is impossible to repeat identically any act, no identical events can occur. Each human act situated on time scale is innovative. Thus **the life is an innovation – creation and application of new actions**.

However, it is not so easy to model the innovations using traditional methodology of metaphysics, which model of the world consists of things, its conditions and relations between them. Virtualics – created in 1985 and developed by S. Paulauskas synthetic metatheory of virtual modelling (Paulauskas S. 1999; Paulauskas S. 2005d). Primarily it was worked out as a theoretical system of dialectical modelling, grounded on concept of **dichotomic relation**. The **virtualics** is grounded on model of **polytomical** relation. The term **virtual** there is used in natural for information society sense as related to informational activity of humans.

According to virtualics, the process of innovation could be presented by the model of natural qualitative leap (Fig. 1). The innovation process consists of three joint parts: the dichotomy of the form *Kf*, the dichotomy of the content *Kc*, and the contradiction *H*. The form of innovation has sense of creation or programming the new quality of action (The knowledge…2006). The content is the process of innovation implementation. Interaction of the form and the content of innovations is going through contradiction between them in the form of resonance sinusoid.

Thus every innovation may transit a full path of development, starting (A) from ideas, growing critical examination and faith in representatives of conventional in culture. After the programme of innovation is formed, its implementation starts in revolutionary point B.

Qualitative character of life represents a culture, which reflects the special mode of interaction of a human with surroundings and with himself. So, human history could be expected as dynamics of innovations culture, which is modelled using trichotomic qualitative model of single virtual relation (Fig. 2). The culture is qualitative level of development, specified with

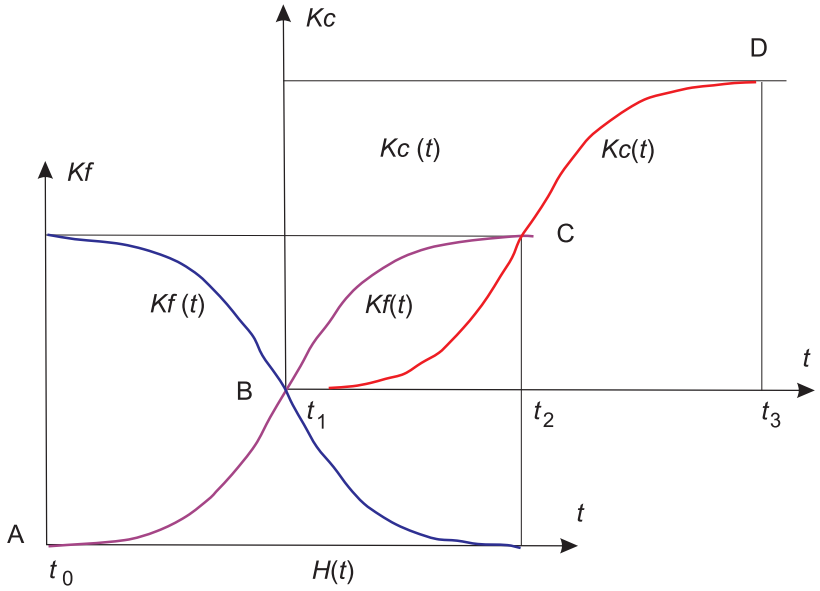

Fig. 1. Qualitative model of innovations

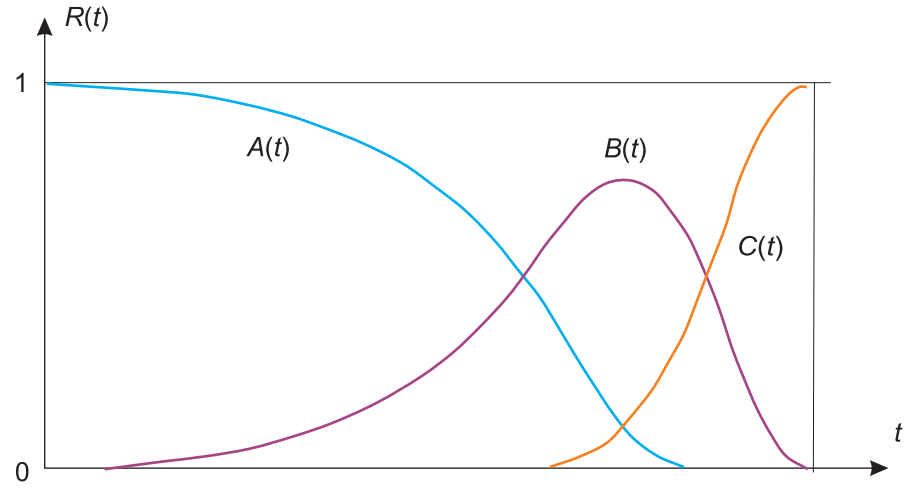

Fig. 2. The qualitative model of innovations culture transition

Table 1. Qualitative matrix of innovations culture

Innovations culture → Features of human activity ↓	Physics	Economics	Sustainability
Paradigm	Material activity	Economic value	Sustainable development
Methodology	Metaphysics	Economics	Virtualics
Quality	Natural economy	Business	Strategic self-management
Means	Things	Money	Knowledge
Knowledge concept	Information	Economic data	Innovations

some grade of extropy[1], certainty, independency or freedom. The virtualics have necessary measurement tools for that. On a historical scale we could expect the three-level transition of innovations culture $R(t)$: physical $A(t)$, economical $B(t)$, and sustainable $C(t)$ (Paulauskas S. 2005b, 2005c):

$$R(t) = A(t) + B(t) + C(t).$$

On the historical flow, the qualitative changes of theoretical paradigms occurred from **material activity** (work), **economic value** and **sustainable development** (Table 1). Methodological outlooks to human activity are transiting **metaphysics**, **economics** and **virtualics**. The quality of activity is improved by transiting **natural economy**, through **business** till it enters into the stage of **strategic self-management**. The means of activity were developed from **material things** till **money**, while it enters the quality of **knowledge**. In the near future the knowledge will become the main tool of human activities.

The sustainability is a natural condition of inanimate and lively nature functioning and development, which is constantly maintained by regularly operated **self-regulation mechanisms** (Paulauskas S. 2005a). Sustainability and regeneration is typical for nature now as well. However, when developing the progress of science and technology and when it gained the power, Homo sapiens because of not measured ambitions and lack of sagacity more and more menaces the nature renewing processes and himself in the latter centuries. Only recently he started to realise, that we live in a closed system, where the resources for maintaining the ecosystem are limited. So, the pause was given about the whole interaction with environment quality – culture.

The sustainable culture of innovations is a manner of interaction between the individuals and society with environment, the capabilities to harmonise the development according to the criteria of harmony and responsibility for the present and future generations (Makštutis *et al.* 2007). The sustainable development methodology and culture in the European Union distinguishes by the objective to take stock in the economical, environmental protection and social priorities by emphasising the responsibility when making decisions for future generations.

[1] *Extropy* – opposite to *entropy* and it reflects *the measure of certainty* (1)

4. The strategic self-management as qualitative synthetic system of sustainable development

Anthropocentric world model consists of a general relation connecting two sides: **the human and his surroundings**. Natural matter of this relation is **human self-management** respecting these surroundings. **Behaviouristic** interpretation of a human being is too uncertain and does not give us enough knowledge for an efficient action. Its necessary to go deep into the level of **self-regulating mechanisms** of human being where the keys are located in the lock of many human and social secrets (Paulauskas S. 2005a).

The longitudinal sociological research enabled to discover the regularity that self-management structure and efficiency of society is nearing a structure and efficiency of self-management of live organisms (Paulauskas S. 1999).

The natural self-management cycle of live organisms consists of 4 strongly specialised stages: 1. Programming of action (function of brain); 2. Decision–making (function of the will); 3. Implementation (function of spin); 4. Monitoring (function of senses) (Fig. 3).

In Lithuania, as in many democratic countries, self-management cycle is not working in the best mode, because each function of self-management is not fully specialised and separated.

Administration should execute two functions at the same time: programming and implementation. This conditioned domination of an easier function of implementation.

Having enough administrative abilities, executors not always have competence and wishes to do a specialised work of programming, which requires knowledge and abilities of modelling, forecasting, programming of development. In a live organism this function is assigned to the brain, specialised in programming actions.

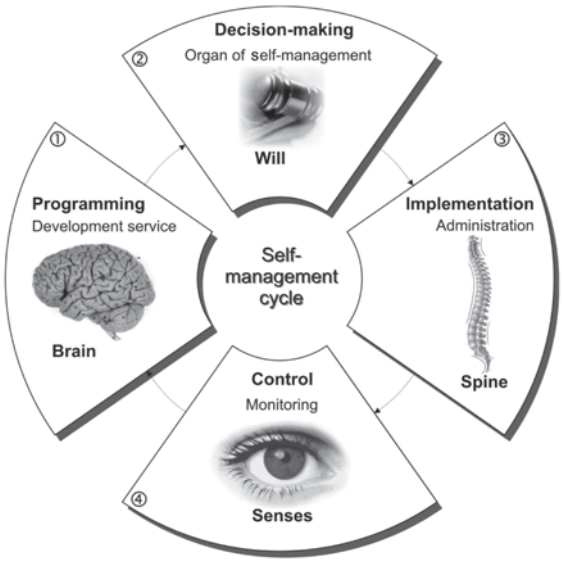

Fig. 3. Self-management cycle of a live organism

On the other hand, executors are not interested in working out the programme, which could ask them more effort in work and development. Executors (the spine) are not interested in having a very innovative programming unit. Because of some reasons the self-management cycle of the society does not turn so quickly compared to a live organism, and society does not use possibilities of a faster development.

Based on natural self-regulating mechanism of a live organism, the method of strategic self-management was constructed. The created model of homogenous society was named **Democratic Self-Government** (Paulauskas S. 2000). The model is targeted to reach qualitative state of the society, every level of which is arranged in a kind of strategic self-management. The programming function should be separated from administration and concentrated in development service. This will open the possibilities to incorporate the science and innovation facilities of the society into self-management cycle. The activities of self-management organ should be concentrated only on responsible and competent decision-making. The true monitoring is obligatory to guarantee the best possibilities of social organisations development.

The technology of strategic self-management consists of methodological and operational parts (Fig. 4). In the first part the next tasks are defined: analysis of self-management subject,

Fig. 4. The procedure of strategic self-management

preparing a technique of monitoring, modelling a development process, long-term forecasting, setting targets, evaluation of efficiency of provided means. In the second part next procedures are performed: diagnostics, evaluation, forecasting, planning, decision-making, implementation and control.

5. The decisions for integration of sustainability culture into Lithuanian governance

Strategic self-management decisions gave possibilities to find the right solutions in very important spheres of Lithuanian state – energy, maritime economy, education etc. The models of clusters were worked out; they were arranged in the mode of strategic self-management. According to our proposal, the Lithuanian Fishery law was accepted and Lithuanian Fishery council established in 2000 (Paulauskas S. 2000). It gave a possibility to normalise administration of national fisheries by defining legal procedures for coordinating state regional authorities, business, science and public organisations as well as starting democratic talks on the strategy of fisheries and its implementation.

By our initiative, the Lithuanian maritime economy development programme was prepared in 2000, where implementing the sustainable maritime economy model was foreseen (The Lithuanian…2000). Project of Lithuanian maritime cluster was prepared in 2000. The joint-action group estimated the prepared study well, and it recommended applying its models when solving the partial tasks of maritime economy development. However, the maritime cluster of horizontal regional complex did not correspond to the official vertical economy

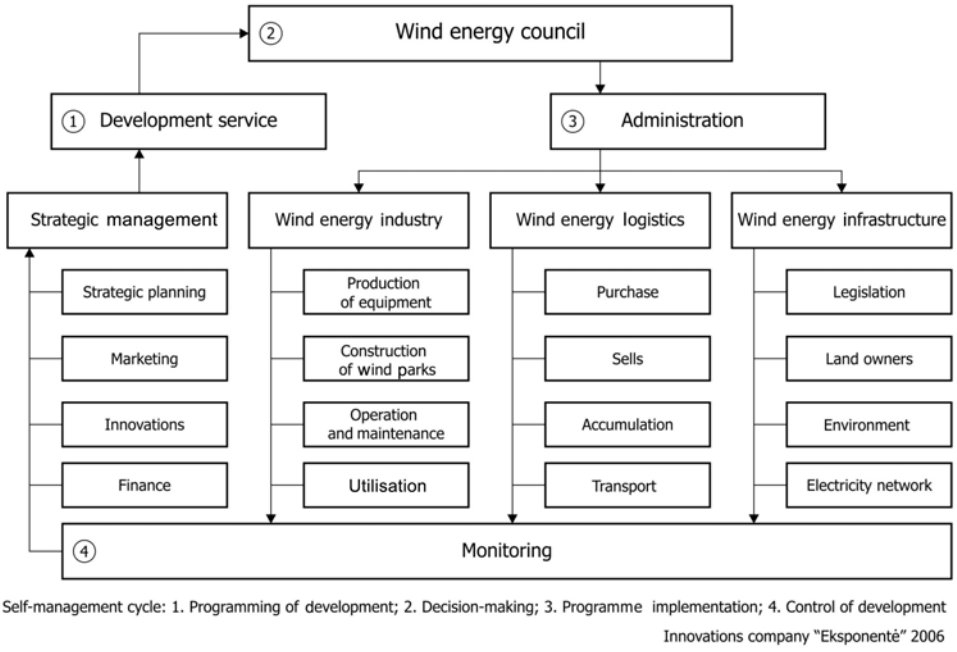

Fig. 5. The structure of Lithuanian wind energy cluster

management structure. That is why, the time for implementing the sustainable maritime economy model has not come yet.

The most hopes to explicate the holistic maritime economy model appeared in 2004, when Lithuania joined the EU, where by the principles of sustainable development, regional development, the creation of knowledge society the whole strategic management system is based. On March 2, 2005 the European committee announced that it started the consultations concerning the future EU maritime policy and that it prepares an advisory document – Entire Europe's maritime policy (Entire Europe's…).

The Lithuanian Wind Energy Association was founded aiming to establish the strategic self-management system and cluster of national wind energy in 2002 (Fig. 5) (Paulauskas A., Paulauskas S. 2005a, 2005b).

The Baltic Memorandum on Responsible Energy, prepared according to principles of strategic self-management, was signed by chairmen of Wind Energy Associations of Estonia, Latvia and Lithuania Jaan Tepp, Paulis Barons and Stasys Paulauskas during the Energy forum „**Investing and Financing Renewables. Wind Power in the Nordic & Baltic Region**" in Oslo on May 30, 2006[2] (Paulauskas *et al.* 2007):

We, hereunder signed representatives of Wind Energy providers of Baltic States - Estonia, Latvia and Lithuania,

bearing responsibility for sustainable and long-term supply of safe, reliable and available energy to people and enterprises,

stating that institutions of governance and self-management, science institutions and energy enterprises have achieved a lot striving to ensure stable and reliable supply of energy and rational fulfilment of energy needs,

remarking that enlargement of European Union and integration into economic structures of global market encouraged us to pay more attention to speeding up reforms in energy sector, dispose energy producing in generators which, grounded on unreliable technical decisions, adopt principles of sustainable development and increase the use of renewable energy sources;

acknowledging that due to the lack of clarity in development perspectives, conventional energy conditioned imminent climate changes, rapid increase of oil and gas prices and increasing dependence on providers of these types of fuel, centralised energy system will be incapable of ensuring reliable and stable supply of energy in affordable prices, and

seeking to create favourable opportunities to provide people of European Union with safe, ecological and socially acceptable energy, **we shall undertake**:

1. Take specific actions to consistently transform dominating conventional energy system grounded on priorities of technical, production and economic growth into **responsible energy system**, in which economic, environmental and social aspects would be harmonised and directed towards ensuring long-term prosperity of people.
2. Seek to create and implement **Strategic Self-Management System of Responsible Energy of European Union**, which would be able to constantly debate, investigate, create and simulate various future scenarios of energy evaluating and basing them primarily on principles of social benefit, environmental and green accounting.

[2] http://www.energyforum.net/feature/feat287.shtml

3. Support creation of energy system based on principles of **positive – renewable energy**, which would allow to provide residents, business enterprises and public institutions with the most secure and most convenient, regarding to supply and electronic regulation, form of end-use energy – electricity; we hereby would reject dangerous for environment and people nuclear power plants and constantly reduce combustion of oil, gas and other materials for water heating and energy production.
4. Support consistent reformation of centralised **electricity supply into decentralised**, as closely as possible attached to consumer, energy system, which uses wind, solar power and other sources of renewable energy; in order to flatten fluctuations of electricity consumption, the Pumped Storage Plants and other modern decisions must be adopted.
5. Guide reformation of centralised electricity transmission and distribution grid in such a way that nearing of electricity production to consumers would help create opportunities to reduce costs of electricity grid and energy prices for the end-users; in order to restore wind energy traditions of the sixteenth century, create opportunities, with regard to local and regional principle, to establish wind power plants near every town and settlement, which would be collectively funded by local self-management institutions, business enterprises and residents.
6. Seek to improve legal basis of energy in such way that this sector would be regulated by energy law written in language understandable for consumers; renounce gas, heating, electricity and other discrete laws and statutory acts that entrench monopolistic interests of producers and energy centralisation.
7. Initiate consolidation of energy enterprises and relevant institution into **Cluster of Responsible Energy of European Union**, establish **Council of Responsible Energy of EU** and departments of development and administration, and found **The Technological Platform of Responsible Energy of European Union**.
8. Guard that funds dedicated to development of energy sector and also support of the Structural Funds of the EU would be directed towards development of responsible energy, research of modern scientific decisions for energy, innovation, project implementation and enlightening of society about the issues of responsible energy.
9. Support and develop international cooperation in the field of responsible energy, initiate international projects and invite specialists of other states to foster energetic prosperity of people and preservation of environment for the current and future generations.
10. Invite all concerned institution, political parties, enterprises and establishments to join the memorandum of responsible energy.

35 participants of the conference, same as Secretary General of World Wind Energy Association Stefan Gsänger, president of Polish Wind Energy Association Maciej Bartmański and other high representatives of energy community supported this honored action of responsibility. European Commissioner of Energy Andris Piebalgs attaches great importance to the development of renewable energy and very much appreciates this initiative.

6. Conclusions

1. The innovations culture of Lithuania is still based on physical and economical quality of society interaction with surroundings.
2. The term "sustainable development" is interpreted as unclear innovation, mainly related to ecology. There are not defined connections between quality of sustainable development as ongoing innovative kind of self-management of society and actual kind of governance.
3. Legislation of the State of Lithuania is grounded on quantitative positions, so the self-management structure is non-homogenous – implementation of self-management cycle differs in the State, counties, towns and districts, same as in enterprises and organisations. This wide interaction of sub-organisations results in permanent noise in self-regulating mechanisms of the society.
4. Development possibilities are reduced, because functions of programming are not separated from functions of administration; science and innovations forces are not included in to self-management cycles of the society.
5. There is only one way to insure the implementation of Lisbon strategy – to innovate governance according to model of strategic self-management. The new qualitative constitution and legislation of strategic self-management is required, the same as right positioning of functions of governance in self-management cycles of society.
6. The applied research and practice of use and implementation of strategic self-management projects confirm that democratic self-management is right and efficient decision seeking to eliminate troubles from the way of sustainable development innovation in Lithuania, the same as in other countries with analogous democracies.

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VIRTUALIKA IR STRATEGINĖ SAVIVALDA KAIP DARNAUS VYSTYMOSI ĮRANKIAI

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Santrauka

Straipsnyje pristatomos darnos kultūros įgyvendinimo Lietuvos valstybėje metodologinės problemos ir jų praktiniai sprendimai. Ši metodologija, modeliai ir sprendimai pagrįsti ilgalaikiais moksliniais tyrimais bei jų praktinio įgyvendinimo valstybės savivaldoje, ūkinėje veikloje ir švietime patirtimi. Virtualiojo modeliavimo metodologija leidžia didinti šalies raidos modelių apibrėžtumą. Teoriniai strateginės savivaldos sprendiniai padėjo susintetinti vienalytį visuomenės strateginės savivaldos modelį, kurio įgyvendinimas galėtų padėti sprendžiant susikaupusias savivaldos problemas. Šis sprendinys susietas su natūralaus strateginės savivaldos ciklo įgyvendinimu kiekvienu visuomenės savivaldos lygmeniu. Kokybinė strateginės savivaldos sistema yra tobulinama tuo tikslu įsteigtame Strateginės savivaldos institute ir jo leidžiamame naujadaros leidinyje „Strateginė savivalda“ (ISSN 1648-5815). Remiantis šiuo modeliu, tobulinama įmonių, ūkio šakų ir valstybės strateginė savivalda. Straipsnyje pristatomos darnos kultūros tobulinimo jūrų ir energetikos ūkyje problemos, sprendimai ir jų įgyvendinimo rezultatai.

Reikšminiai žodžiai: darnos kultūra, naujadara, virtualika, virtualus modeliavimas, strateginė savivalda, atsakingoji energetika, vėjo energetikos klasteris.

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