

METHODOLOGICAL PLATFORM OF THE CONTROL MECHANISM WITH THE ENERGY SAVING TECHNOLOGIES

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ABSTRACT

It was analyzed in the article a methodological platform for the control mechanism construction with the energy saving technologies based on the concept of the "life cycle" and the model of Lewin K. It was considered a classification of the method groups by reference to specific features of the marketing communications support for creation and promotion of the innovative energy saving technologies at the markets with emphasizing of communicational and analytical methods groups.

It is proposed to evaluate the effectiveness of the management mechanism implementation with the energy saving technologies based on the Cronbach & Gleser methods.

Keywords: Energy Saving, Marketing Communications, Control Mechanism, Life Cycle.

JEL Classifications: M5, Q2

INTRODUCTION

In the new millennium, the implementation of the projects of energy supply systems based on the use of the alternative energy sources is actively developing in the world. To form the active behavior of consumers, agents, suppliers, other participants of the market processes, it should be provided a relevant marketing communications support for creation and promotion of the innovative energy saving technologies at the markets. The information vacuum deprives experts of the opportunity to make a relevant estimation of the made decision in the energy saving system. Therefore, in fact, we need the information and methodological support of the mechanism, which is provided by the information support system, namely-the communication support of the control mechanism functioning with the energy saving technologies.

For the development of energy-efficiency technologies it is expedient to carry out studies related to the development and optimization of complex systems of energy supply of facilities, determination of priorities of updating and modernization of energy-saving and environmentally sound technologies on the basis of the formation of a mechanism for managing energy-saving technologies. It is the formation of the theoretical platform of the mechanism (determination of levels, goals, subjects and facilities, tools) allows increasing the level of scientific feasibility of innovation changes in energy-saving technologies in order to minimize the costs of companies.

REVIEW OF PREVIOUS STUDIES

Parsons (2000) applied the concept of “*mechanism*” in the context integrative communication, which influences on the motivation of the system’s subjects, determining them in the ways and means of these desires implementation. Veber (2010) applied the concept of “*mechanism*” as an interpretation for the social act, the most important attribute of which was considered by him “*an orientation at other*”, which provides a mutual expectation of the appropriate behavior of all, who participate in the social relations. Kozer (2006) argued that there function the mechanisms of social stabilization and social disintegration in the societies, which are quite contradictory tendencies of the societies.

Depending on the form the mechanisms of formation are: economic, organizational, and informational. It is necessary to develop namely the organizational and informational component of the control mechanism with the energy saving technologies: creation of information interactive accompaniment (the construction of flexible online information systems) during implementation of modern energy technological developments at the markets of energy service, organizational interaction of stakeholders.

The introduction of energy-saving technology management mechanisms depends on the existing institutional environment. So, in scientific papers Wen et al. (2015), Huang et al. (2016), Cao et al. (2016), Lin et al. (2018), Dong et al. (2015) the experience China and Japan shall be examined in shaping the stimulation of reducing energy saving in industrial enterprises. At the same time the technological and financial barriers shall be separated when introducing energy-saving technologies on the basis of alternative energy sources. The scientists of the countries of the European Union have a slightly different view on the problems of introducing a mechanism for managing energy-saving technologies: the need to create an appropriate attitude of owners and top managers to the tools (Ntanos, 2018a: 2018b: 2018c), tax exemptions from the state (Papageorgiou et al., 2015), the formation of financial support of funds and grants (Mardani et al., 2016), etc. It is also possible to separate studies of scientists in this field of knowledge from other countries. In the paper (Frick et al., 2017) it is considered the formation of a communication support mechanism for managing energy-saving technologies on the basis of stimulating behavior from consumer energy conservation. The work of the American School of Management (Reynolds et al., 2015) is devoted to the research of destructive behavior of consumers when using energy-saving technologies. Komal & Abbas (2015) are studying the impact of financial development on the possibility of introducing this mechanism.

METHODS

The methodological principles for formation of control mechanism with the energy saving technologies are the concept of “*life cycle*” and the model of Lewin (1943). This mechanism, like any process, has the stages of the life cycle: birth (appearance of the mechanism concept itself, carrying out of the necessary studies and receiving of the necessary information), development (mechanism formation and implementation), and prosperity (mechanism functioning) and breakdown (end of the mechanism’s act or moving to the most progressive level).

According to Lewin model (1943), the process of any organizational changes should include 6 steps: recognizing the need for change; defining the goals of organizational changes; statement of the diagnosis, i.e. study of the causes of organizational changes; planning and selection of engineering changes; making changes; assessment of changes.

The first two levels of this mechanism are based on the methodological formation level, while it is carried out the conceptual choice of methodological aspects: general scientific research approaches (system, complex, process, attributive, situational), general scientific control principles (systematicity, feedback, centralization and decentralization, complexity, motivation, efficiency, scientificity and other), general control functions (planning, control, prediction, accounting, estimation, stimulation, regulation, analyses, organization, coordination).

RESULTS AND DISCUSSIONS

In such a case, it is selected the conceptual control mechanism model with the energy saving technologies (Figure 1). The mechanism allows with the control use to realize the process function-to transform the “*entrance*” (the desired position).

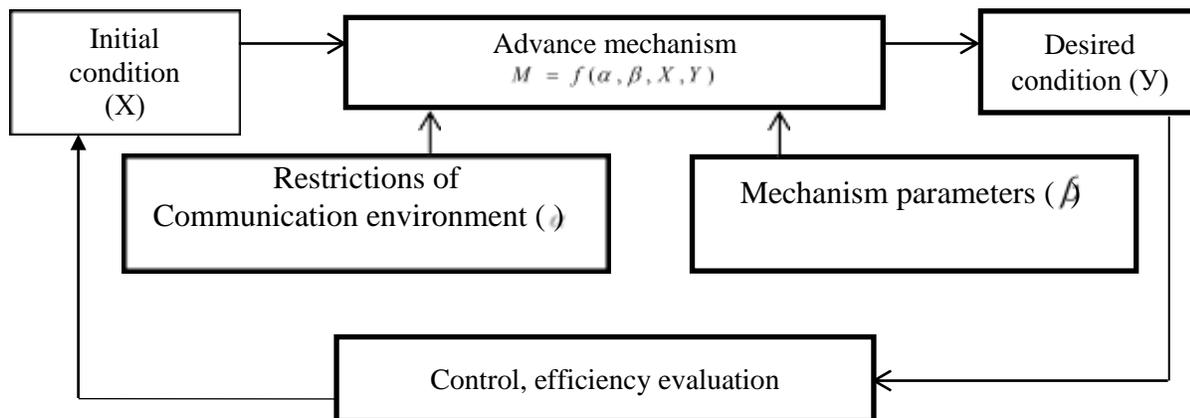


FIGURE 1
CONCEPTUAL MODEL OF THE CONTROL MECHANISM WITH THE ENERGY SAVING TECHNOLOGIES

The formation of the mechanism represents the theoretical and methodological level of the mechanism: election of the object and subject, the formation of goals, the choice of scientific and methodological tools (methods). The implementation of the mechanism consists of two levels: provision (analytical, communicational (informational), technological, organizational, financial and economic, legislative) and realization itself. At the same time, the provision (support) can be both stimulating and discouraging. In providing of the mechanism realization by the appropriate resources (personnel, material, nonmaterial etc.) it is reasonably to apply the theory of alternative costs.

According to the model of Lewin, the process of any organizational changes has to include 6 steps: 1) acceptance of the need for changes; 2) determination of the goals of the organizational changes; 3) diagnosis establishing, id est. the study of reasons of the organizational changes; 4) planning of the changes and choice of the changes technique; 5) changes realization; 6) changes estimation.

On the ground of the “*lifecycle*” approach Levitt (1965) and the model of Lewin (1943), the formation and implementation procedure of the control mechanism with the energy saving technologies consists of 7 stages: formation of the mechanism conception; necessary researches conduction and receiving of necessary information; mechanism formation; mechanism

implementation; mechanism functioning; end of the mechanism's act or transfer to the most progressive level; estimation of economic efficiency of mechanism implementation.

The mechanism's object is the energy saving technologies. The mechanism's subject-is economical agents (business entities, state, energy service companies, etc.). The purpose of the mechanism's introduction-is an activation of the marketing communication interaction of economic agents at the energy and industrial markets of Ukraine through the improvement of communication support.

The main results of the mechanism's construction stages are: the process of the mechanism's formation-mechanism's concept formulation with the indicated target, tasks and restrictions; the stage of mechanism's synthesis-the construction of the structural and logical mechanism model; mechanism's implementation-the creation of the list of reasons, which negatively affect the process of implementation, and the calendar activities on their elimination. With that, these formation processes are accompanied with documentation in the form of the explanatory notes, graphical and mathematical models, which reveal the essence, composition and processes of the mechanism functioning.

7 stages of the control mechanism with the energy saving technologies represents three hierarchical levels: preparative (acceptance of the need of changes; identification of the tasks of the organizational changes; diagnosis establishing, study of the reasons of the organizational changes; changes planning and choice of the changes technique)-the stages I-III; changes realization -IV-VI; changes estimation-VII.

The main results of these three stages are: preparatory-definition of the concept of the mechanism with the indicated target, tasks and restrictions; changes realization-construction and realization of the structural and logical model of the mechanism; changes evaluation-explanatory notes, graphical and mathematical models, which reveal the essence, composition and processes of the mechanism functioning. In this conceptual model of managing of implementation of the projects of innovative energy saving technologies as a methodology for marketing purposes, which are associated with the promotion of these projects at the Ukrainian market *via* realization of the concept of promotion and the technologies of this activity.

The formation of the control mechanism with the energy saving technologies represents a theoretical and methodological level of the mechanism: election of the object and subject, the formation of goals, the choice of scientific and methodological tools (methods). The mechanism's implementation consists of two levels: provision (analytical, communicational (informational), technological, organizational, financial and economical, legislative) and realization itself. At the same time, the provision (support) can be both stimulating and discouraging. It is provided in the Table.

| Methods Group | Scientific Tools |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Communication s | Informational interactive support (construction of the flexible online informational systems); advertising; PR, personal sales, DM, sales promotion, exhibition fairs, events and other. |
| Analytical | Expert evaluation method, brainstorming, csituation analysis, media plan, matrix Jel, USP. |
| Technological | Promotion principles and strategies, promotion concepts, creative approach for notification and tools and etc. |
| Organizational | Principles and tools for marketing promotion, media planning. |

| | |
|--------------------------|--------------------------------------------------------------------------------------------------|
| Financial and economical | Budget for the mechanism's introduction, level of economic activity for the company realization. |
| Legislative | State control in energy management. |

The result of the mechanism's synthesis stage is the construction of the structural and logical model of the mechanism of the energy saving technologies. The targets of the mechanism's promotion are the same as the main mechanism's target at the stage of the concept's development-it provides the strengthening of vector of partners collaboration of all participants of the energy service markets of the country, including on the basis of the complex implementation of the interactive dialog within the social and corporate information networks (Nakashydzė & Gil'orme, 2015).

The promotion strategy development should be based in the information space. There are five methods of promotion budgeting: a method for budget calculation on the basis of the promotion tasks and objectives; a method for budget promotion determination as a percentage of the sales volume; a parity method with the competitors; a method for the budget determination on a product's per-unit basis.

In making an assessment of economic efficiency of the suggested approaches, it is necessary to define the validity index (characteristics, which reflects the capacity to obtain the results, which corresponds to the desired goal, and justifies the adequacy of the made decisions). As a calculation basis for rationality of the formation mechanism's use, it is proposed to use the methodology of Cronbach & Gleser (Cronbach & Gleser, 1957; Hilorme et al., 2018).

CONCLUSIONS

The management decisions, which are made at the initial stages of the control mechanism implementation with the energy-saving technologies, significantly affect the communication efficiency of marketing promotion of the energy-saving technologies, the mechanism implementation duration and cost, the cost of the deferred decisions and, accordingly, economic efficiency. The formation of an organization and information control mechanism with the energy saving technologies at the markets of goods and services in the world will lead to the following positive changes: stimulation of the interest and motivation to the innovative energy saving technologies; by the subjects of promotional marketing-increasing of the activity and independence level, the analysis skills development and activities reflection, the development of the cooperation desire, empathy. It will allow realizing of the communication support during implementation of the projects of the energy saving technologies.

The mechanism improving (transfer to the most progressive level) is possible during organization of the new types of the communication links for promotion of the energy saving technologies, the formation of the wide use policy of the promotion BTL-tools, introduction of the interactive technology "clouds" into the technology of the promotional marketing organization.

The improving of this mechanism represents a creative process of the constant training and improvement of the subjects of the promotional marketing processes on the basis of the new values and strategic vision, instruments of its implementation.

The prospects for further development of the results of the study are that the achievement of favorable market positions in energy markets is ensured by the systematic introduction of modern innovative technologies, which undoubtedly has a mechanism for managing energy-saving technologies. The competitiveness of such facilities is ensured by synchronization and

redistribution of energy costs and greater productivity of generation of energy flows. Energy and economic security of the operation of companies is ensured precisely on the basis of the use of the achievements of advanced innovative technologies in the field of power engineering. Prospects for further research in this area are the evaluation of the organization and coordination of marketing logistics services in innovative energy networks.

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