

I. Yu. Yepifanova, V. V. Dzhedzhula

**FINANCIAL SUPPORT OF
INDUSTRIAL ENTERPRISE'S
INNOVATIVE DIRECTIONS OF
ENERGY SAVING**



Ministry of Education and Science of Ukraine
Vinnytsia National Technical University

I. Yu. Yepifanova, V. V. Dzhedzhula

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Reviewers:

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Yepifanova, I. Yu.

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The monograph considers the basics of concept formation and selection of innovative business strategies, modeling the level of potential of industrial enterprises, crowdsourcing as part of the intellectual capital of the company; the investment of energy saving measures of industrial enterprises is investigated, the potential of energy saving of industrial enterprises is optimized, the modeling of the efficiency of energy saving policy implementation at enterprises in conditions of uncertainty is modeled; models and strategies for financing innovative energy saving activities are proposed, the process of motivating staff to innovate and the organizational and economic mechanism of energy saving management are modeled.

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INTRODUCTION

In modern conditions, a very important issue to ensure sustainable development is the constant implementation of innovation activity. Taking into account the high cost of energy carriers, the implementation of innovative energy saving activity is a very important issue.

The existing methodological approaches for formulating innovative strategies have been summarized. The content of the innovative strategy has been disclosed. The types of innovative strategies of enterprises have been systematized. The stages of formation of the innovative strategy have been summarized.

The theoretical and methodological approach to the formation of the enterprise innovative strategy has been improved, which envisages the formation and implementation of a strategic map of innovative activity, which will consider different variants of innovative activity flow and will increase the level of flexibility of innovative activity and ability to respond more quickly to changes in external and internal environment of enterprises.

The approaches to defining the essence and components of potential have been generalized. It is systematized the indicators, which determine the potential of the industrial enterprise. A scientific and methodological approach to evaluating the level of potential based on the generalized Harrington's criterion has been proposed, which allows generalizing various criteria and factors that determine the potential of the enterprise, convert them into a dimensionless scale and calculate the criterion of desirability - the level of potential. The gradation of values of the desirability function depending on the values of the function has been proposed. The potential of machine-building enterprises has been assessed according to the proposed method.

The essence of crowdsourcing and its components have been defined; the modern examples of its application in the world and in Ukraine have been researched. It has been determined that this tool is used mainly in the social sphere in Ukraine. The importance of its use in raising the intellectual component of innovation activity of domestic enterprises has been substantiated. It has been established that active involvement of

students in the activity of the enterprise can be very promising for domestic enterprises. For this purpose, enterprises can provide their production facilities for individual practical tasks and students' experimental-design developments, and students will be able to get real practical skills. As a result of such cooperation, the enterprise can use the development and experience of students in their production activities and see potential employees. The practical significance of the carried out research is to develop recommendations for industrial enterprises to increase attention to crowdsourcing as an important source of intellectual capital growth.

The process of investing in energy saving actions of industrial enterprises is analyzed. The main stages of the investment research project implementation have been reasoned, its general methodology has been developed. The example of calculating the optimum program of financing the energy saving actions has been provided for multiple alternative projects.

A mathematical model of the intellectual support of decision making for the evaluation of the efficiency of implementation and operation of energy saving policy of the enterprise under uncertainty conditions with the help of Mat Lab's mathematical package has been developed. The main factors influencing the decision making process regarding the feasibility of implementing energy saving policy at the enterprise have been determined. The aim of the work is to develop expert-modeling system of decision making support for evaluation of the efficiency of energy saving policy under conditions of uncertainty and risk. With the help of the developed system, there has been made the evaluation of the efficiency of the implementation of energy saving policy at Ukrainian enterprises. It has been revealed that the most important factors determining the efficiency of implementation and realization of energy saving policy at the enterprises belonging to the same industry are internal factors and the cost of external sources of financing.

In this paper, the authors have simulated the process of intellectual support for management decisions to determine the sources of funding for innovative energy saving activity. The proposed mathematical model allows to use the concentrated experience of experts for intellectual support of decision-making on the estimation of efficiency of financial maintenance

of innovation activity. The received results show that the evaluation of priority strategic directions for machine-building enterprises in terms of efficiency of financial support of innovation activity will determine a hierarchical structured set of innovation strategies for each enterprise, taking into consideration the available financial support and external and internal environment of the enterprise.

The peculiarities of motivation formation of employees of industrial enterprises to innovation activity have been investigated. The approach to assessing employees' motivation to innovation activity with the use of the Harrington function has been offered. The concept of motivational acceleration of innovations and motivational inertia of innovations has been proposed. Motivational acceleration refers to the period of time in years during which the investment process which is carried out by motivated employees will soon go into the profitability zone compared to the process implemented by non-motivated employees. Motivational inertia of innovation is defined as an additional period of profit-making from the innovation process as compared to the process carried out by non-motivated employees.

The organizational and economic mechanism of energy saving for industrial enterprise is proposed.

The monograph is elaborated for scientists, specialists in innovation and energy saving policy, politicians, entrepreneurs.

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В монографії розглянуто основи формування концепції та вибору інноваційних бізнес-стратегій, здійснено моделювання рівня потенціалу промислових підприємств, досліджено краудсорсинг як частину інтелектуального капіталу компанії; досліджено інвестування енергозберігаючих заходів промислових підприємств, здійснено оптимізацію потенціалу енергозбереження промислових підприємств, здійснено моделювання ефективності впровадження політики енергозбереження на підприємствах в умовах невизначеності; запропоновано моделі та стратегії фінансування інноваційної діяльності з енергозбереження, здійснено моделювання процесу мотивації персоналу до інноваційної діяльності та організаційно-економічний механізм управління енергозбереженням..

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Можна використовувати в локальному та мережевому режимах*

**Єпіфанова Ірина Юріївна
Джеджула В'ячеслав Васильович**

**ФІНАНСОВЕ ЗАБЕЗПЕЧЕННЯ ІННОВАЦІЙНИХ
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21021, м. Вінниця, Хмельницьке шосе, 95,
ВНТУ, ГНК, к. 114.
Тел. (0432) 65-18-06.
press.vntu.edu.ua.

Email: irvc.vntu@gmail.com

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