


“Commercialization of innovations: peculiarities of sales policy at innovation active enterprise”

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Commercialization of innovations: peculiarities of sales policy at innovation active enterprise

Abstract

This study investigates the management process of innovations commercialization and its essence. Nowadays, establishing and ensuring the efficiency of innovations commercialization process is an objective precondition that creates material values. It also creates new demand in the market, shifting the emphasis from the production of enterprises to various management fields, creates new ways of capital substitution and enhances the level of innovation activity profitability. The aim of the research is to analyze indicators and characteristics of implemented instruments of sales policy at innovation active enterprises in order to estimate the influence of sales policy parameters to innovation level. There are many factors and trends that motivate enterprises to search for new ways to ensure their competitiveness. Findings revealed that there is a need to develop new technologies that ensures the profitability growth and activities optimization through capital mobility into areas with higher productivity and profitability. Sales policy is a necessary precondition for operation performance and further development of enterprises. Sales policy parameters significantly affect the level of innovation activity of industrial enterprises. Each of sales policy tools has an individual impact on the enterprise activity dynamics and can have positive or negative effect.

Keywords: business, government, innovations, commercialization, company, industry.

JEL Classification: M20, M21, O31.

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Introduction

The current state of the world economy requires rapid and dynamic development of innovations in the countries. Ignoring the principles of innovative development and investing in non-knowledge based industries lead to a competitive state lagging in global markets. Thus, it is logical that the key factor of state success at the international arena is the level of its innovations. Innovations and technological development are important means of solving social and economic problems at the enterprises of developed countries. The high level of technological development in the post-industrial economy allows the transformation of one resources type into other, as well as stimulation of the new wealth creation process.

Efforts on to reduce the economic gap between developed countries and developing ones determines the need to create a favorable climate for innovations in developing countries in order to stimulate the innovation development of business entities. To achieve this objective, it is necessary to develop and scientifically substantiate the

system of company innovation management, which takes into account the peculiarities of activities being conducted in developing countries and at the same time, allows full usage of positive experience of developed countries. Today, given uncertainties in the market, there are not any guarantees for the return of investment in new products or technologies. However, the methods for leveling risk and increasing the probability of innovative projects success exist. One of these forms is the commercialization of innovations as a separate business process.

1. Literature review

The issues of economy innovation development in general and business entities in particular are widely covered in the scientific literature. However, the problems of innovation commercialization process are examined fragmentally. The issues of innovation commercialization are highlighted in the works of many researchers.

According to Bozeman (1997), commercialization is successful where projects were more likely to lead to a commercialized product if they were initiated by either the companies' R&D manager or by top managers in the company. Commercialization of high-tech products is a process of establishing, selling and progress on the market of high-tech products, which supplies the expected economic effect to the industry. Analysis of statistical, expert and empirical data suggests that the problem for domestic industry is the commercialization of high-tech products, and not its creation (Shpak et al., 2014).

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There is an overview of the concepts describing the technology transfer, diffusion and innovation functions in an organization and how they should be implemented into the strategy and operational activities of a basic research center (Hameri, 1996).

Commercialization has gained significant importance due to its active participation in knowledge transfer, economic growth, job creation and entrepreneurship. Whereas, the role of university incubators and technology parks to excel commercialization has also much evidence. The property development, networking with local and international markets, research and development, firm's clustering, provision of advanced equipment, as well as managerial support are the most important elements to promote commercialization (Jamil et al., 2015). Commercialization is an important issue of increasing economic efficiency. Universities have wide possibilities in developing innovative products, as well as in the process of commercialization of scientific researches (Chukhray & Stegnytskyi, 2015).

Kalynychnenko (2012) has offered marketing approach for commercialization of innovative activity results in the industry, which consists of stages of commercialization, marketing, project management process observance and application of design, scenario and network planning.

Innovation commercialization mainly refers to the process of turning scientific discoveries and inventions into marketable products and services generally through licensing patents to companies or by creating "start up" companies that depend on the assignment of university intellectual property to them (Mohannak & Samtani, 2014). There is a considerable debate regarding the trade-off between universities' involvement in commercialization activities and research output (Markman et al., 2008). Moreover, the industrial and university research worlds seem to become less and less dissimilar, in particular from the 1990s, since they have been developing flexible organizational structures to facilitate knowledge development and transfer (Lee & Gaertner, 1994). Technology transfer refers to deliberate, goal-oriented relations between two or more persons, groups or organizations to exchange technological knowledge and/or objects and rights (Autio & Laamanen, 1995).

According to Phan and Siegel (2006), incubators appear to work best when there is a complementary innovation system at the university, i.e., an "entrepreneurial university". Many firms choose to acquire new technologies and capabilities from academic institutions and other firms in different industries to maintain and enhance their

competitiveness (Ranft & Lord, 2002). According to Rorwana and Tengeh (2015), there is a need for a study that can assess the benefits of offering entrepreneurship as a compulsory module for all university programs.

Using the methods of statistical analysis for evaluating the economic indicators for enterprises including innovation active ones is widespread in economic literature. The research by Abebe et al. (2000, Isotalo) covers basic descriptive statistical and graphical procedures for analyzing data sets. Statistical problems should be viewed within the context of a broad methodological framework, and it is the specific nature of this framework (De Smith, 2015).

At the same time, the views of scientists on the interpretation of the essence of these concepts are controversial. The views on the interpretation of the essence of the innovations commercialization concept, the postulates of the formation mechanism of innovations commercialization, place of this process in the enterprise management system are fundamentally examined in the works of these researchers. The majority of research papers disclose separate aspects of the innovations commercialization, associated with the choice of forms and key participants of this process, the identification of marketing opportunities of innovation products for entity and search for optimal sources of funding the innovation commercialization.

2. Aim of the study

The purpose of the article is to allocate indicators of characteristics of implementation instruments of sales policy at innovation active enterprises, to estimate the influence of sales policy parameters on level of innovation.

3. Results

The Global Innovation Index is the indicator, which determines the degree of innovation activity in the countries of the world. According to the GII, in 2015, Switzerland, for instance, was at the 1st place, Sweden was at the 3rd place, United States of America was at the 5th place, Denmark – at the 10th place, Germany – at the 12th place, Norway – at the 20th place. Poland was at the 46th place among 141 countries (The Global Innovation Index, 2015).

In these conditions, the current reform of scientific and technological complex is based on the principles of constant change of priorities without providing real government support, as well as the demand formation for scientific achievements from the real economy sector and so on. Quite significant barrier to the innovation implementation is also a

lack of financial reserves within the enterprise or group of enterprises and significant costs of innovations implementation. At the same time, ensuring effective development of industrial enterprises today is impossible without innovations. Namely, innovation activity can provide a competitive advantage in international markets for industrial production, considering the state of the equipment, its energy consumption, large capacity of industrial enterprises and the availability of qualified personnel.

In this context, innovations commercialization process has the specific role. There are three key contradictions in the research of theoretical basis of innovations commercialization process. The first contradiction is associated with the views of researchers on the investigated category exclusively as on the sales market of innovations without development of modern innovations. The second contradiction involves the interpretation of commercialization as a tool that ensures the implementation of innovations in the micro level. And the third contradiction discloses commercialization of innovations as a static process, whereas, in practice, it is the dynamic market mechanism that reflects changes in current markets.

Thus, in a general sense, innovations commercialization, firstly, is associated with the real development and innovations implementation, and, secondly, with financial and organizational support of this process. As it was noted, the process of innovations commercialization is characterized by a high degree of risk, as the reaction of potential consumers to developed innovative product is unpredictable (Pavlenko, 2015). Therefore, the

participants of the innovations commercialization process deserve special attention, because the definition of the investigated category varies depending on the perspective of a participant it is considered.

All participants of the innovations commercialization process are divided into three groups: developers, buyers (investors), intermediaries (Pavlenko, 2015). They should be considered in the appropriate unity or the systemic principle, providing for obligatory orientations of each of the representatives to profit from innovation development. Thus, the development team is represented quite widely and involves enterprises, research institutes, groups of researchers and individual inventors. The second group of participants in the innovations commercialization process is represented by the state (government programs, orders and funds), non-governmental foundations and grant makers, venture funds, “business angels”, large and medium enterprises. The group of intermediaries includes consulting companies, centers of intellectual property commercialization and innovations transfer, innovations exchanges, technology promotion centers. The existence and importance of the last group of participants is caused by different approaches of innovation developers to organization of the commercialization process.

According to modern foreign practice, the process of innovations commercialization is presented in generalized form (Figure 1). Each of the presented stages identifies a single business process, which is characterized by a large number of components and complex relationships between them.

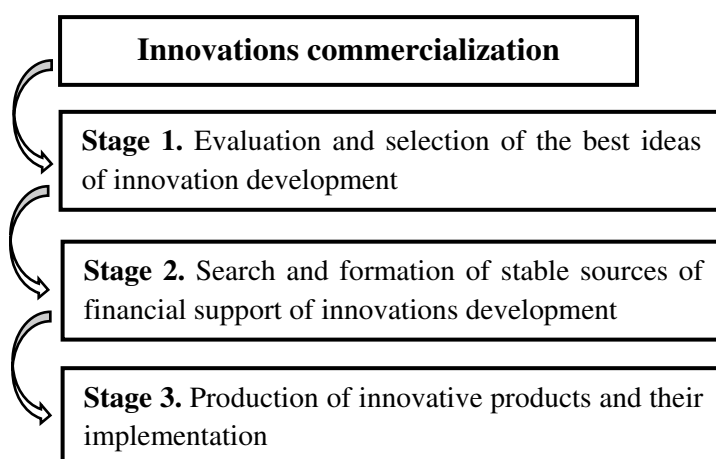


Fig. 1. The process of innovations commercialization

The triangle of support of the innovations commercialization process forms an important basis, which consists of financial, organizational and regulatory support. The foundation of regulatory support of innovations commercialization process is

legislation in the field of technology transfer and intellectual property rights, because the innovation developer may be not its owner. A significant place belongs to the state and private partnership. The state not only creates the legal framework for the developers

of innovations, but also forms the basis for the expansion of entities' innovation activity. Organizational support of innovations commercialization is directly related to favorable conditions in the country for the establishment of cluster research organizations, industrial parks, new companies, etc. This promotes the activity stimulation of research institutions and integration policy in the area of science and technology with the industrial policy in the country.

Financial support for the innovations commercialization process also depends on the state integration in this process, which is manifested in ensuring favorable conditions for venture business, state credit support of small and medium enterprises, support of innovation mediation mechanism between innovations developers and the business community.

On the basis of systematization of scientists' views on the nature of this category, it can be argued that sale is the direction of the company activity, which acts as a:

- ◆ the totality of procedures of products/services promotion;
- ◆ the tool of satisfying the interests of both a buyer and a seller;
- ◆ the totality of organizational and economic transactions and activities;
- ◆ the means of formalizing of bilateral links.

Each of these approaches definitely reveals the essence of sales, but also it has some limitations. Considering the sales as a set of organizational and economic transactions and activities, it is impossible to identify specific types of sales activities and a list of measures to implement. Within the last allocated direction, the authors focus on the dual nature of the category "sales". But the limitations of this approach is that the company activities should be directed only at establishing contacts, whereas logistic procedures that occupy one of the key places in the sales activity of the entity were ignored by the authors.

The list of participants of innovations commercialization, as well as the amount and sources of financing significantly affects the organization and management of this process. For example, not every company has the necessary capacity in order to ensure the cycle of innovations commercialization and own scientific research. This requires participating in research and development together with other participants, having only part of the right for an innovative development, or to purchase innovation and provide its entrance to the market as an innovative product.

In this context, the development and the number of research institutes operating in the country play the important role. Such organizations may differ in form of ownership and subordination. As experience of

developed countries shows, they are able to provide the innovations market in full volume with new ideas, technologies and knowledge. The most important is the effectively established mechanism of technology transfer into the business environment through appropriate channels such as engineering, leasing, franchising, licensing, patents, technical training and industrial cooperation. This directly affects the innovative business cycle "developer – producer – consumer".

It is important to understand that all participants in the innovations commercialization process are closely linked and should cooperate at every stage of this process. This helps to avert disputes and significantly increase the efficiency of results.

In today's competitive environment and intensification of market reforms sales become final and the most responsible stage of providing consumers and customers with necessary goods. The majority of industrial enterprises choose the path of independent innovation implementation without proper assignment of intellectual property rights. This determines the relevance and necessity to study sales of innovative products at the enterprise as the final stage of the innovations commercialization.

As a marketing activity, sales are characterized by complexity and systematicity of business processes. Therefore, it is considered as a set of organizational and administrative decisions on creating demand and stimulating of products sales to maximize meeting the needs of customers in conditions of uncertainty factors of external and internal environment for both the seller and the buyer. In the narrow sense, sales are considered as a process of production realization to the consumer.

Distribution is an element of marketing, when it creates an integrated complex of made decisions in the sphere of customer's service. Strategic problems of distribution are situated on a contact of logistics and marketing (Kotler, 1998).

Combination of logistic instruments with marketing concept of influencing market could be a starting point to form proposals of a better, improved product by adding new values for clients. These proposals might be, e.g., planning and introducing of logistic systems, maintaining the constant internal transport or after sales service. It was also noticed that effective logistics is the significant part of marketing strategy enabling to get competitive edge (Barcik & Jakubiec, 2013).

That is, marketing precedes sale, because, through the introduction of marketing activities, the production of goods to meet the needs of consumers takes place. And sales activity is directly intended to implement a product that is has produced at the moment. That's why marketing activity is much more flexible on sales.

It can be argued that the organization and management of sales activity is based on the functions of marketing. On the other hand, sales provide feedback from the market, because the effectiveness of this activity depends on the dynamics of demand for products, customer preferences structure and consistency of its output.

Planning of expenses for sale is one of the basic components in general marketing conceptions at the enterprise (Olefrenko, 2016).

Effective sales policy of innovation active enterprises is a necessary condition for their successful operation and further development, as their products are new to market and require additional efforts to promote them. For determining the key factors of its effective implementation, the most relevant parameters of influence should be determined. Primarily, we will identify indicators of characteristics of sales policy implementation instruments of innovation active enterprises. It is proposed to use the following.

1. The share of sales costs of innovative products in the total sales costs. This indicator shows the amount of sales activity funding associated with the implementation of innovative products. Action essence of this tool within the implementation of sales policy is in the direction of funds spending (increase or decrease) for the implementation of innovation products.
2. The ratio of sales costs of innovative products to profit from the sale of innovation products. This indicator shows the economic impact of sales activity. It is also associated with the formation of the budget to finance the sales costs of innovative products.
3. The number of managers who passed advanced training on the profile of innovations in the total management of the company. This indicator describes personnel policy of the enterprise and financing instruments, but within the costs for additional training of personnel.
4. The share of innovation products sales to the 3rd largest customers to total sales of innovation products.

5. This indicator shows the level of sales diversification of enterprise and its possible dependence on a limited number of customers. The tool for implementing sales policy is an extension of the customer base and assimilation of new markets. Quantitative assessment of this indicator is suggested to carry out through binary indicators, namely: if the share of innovation products sales to the 3rd largest customers to total innovation products sales is less than 25%, the index gets the value "1", if more, it gets "0". Accordingly satisfactory situation is assigned a unit value, and unsatisfactory – zero.

6. The absence of conflicts with customers. This indicator shows such an important aspect of sales policy as communications and the quality of after sales service that forms the image of the enterprise in future. The tool of sales policy implementation in this context is the strengthening the work with personnel and establishing efficient communications with consumers. Quantification assessment of this index is performed using binary characteristics. Thus, in the absence of disputes with customers indicator gets the value "1" and, in case of availability, "0".

The algorithm of implementation of scientific and methodical approach to formalization influence parameters of sales policy on the level of innovation activity of industrial enterprises may be represented as follows.

Stage 1. Analysis of characteristic indicator of effective implementation of innovative products by enterprise (sales profitability of innovative products), and mathematical formalization of cyclical components of its development.

Stage 2. Determining the impact of characteristic indicators of sales policy instruments of enterprise on the indicator of effectiveness of innovative products implementation.

Assessing the impact of sales policy parameters on level of innovation activity of LCC "Turbomash" is grouped in the Table 1 and analytical presentation of the results is formalized using the equation 1.

Table 1. Results of statistical analysis of dependence profitability of innovation products sales of LCC "Turbomash" of influence instruments on this indicator

Indicator	Coefficients	Standard error	t-statistics	Lower 95%	Upper 95%
Y-intersection	0.1945	0.0232	8.3798	0.1410	0.2480
The share of sales costs of innovation products in the total sales costs (K_1)	0.2314	0.1898	1.2189	-0.2064	0.6692
The ratio of sales costs of innovation products to profit from the sale of innovation products (K_2)	0.1650	0.3275	0.5038	-0.5903	0.9203
The number of managers who passed advanced training on the profile of innovations in the total management of the company (K_3)	-0.1621	0.1497	-1.0828	-0.5074	0.1831
The share of innovation products' sales to the 3rd largest customers to total sales of innovation products (K_4)	0.0083	0.0073	1.1476	-0.0084	0.0250
The absence of conflicts with customers (K_5)	0.0104	0.0079	1.3140	-0.0078	0.0286

$$SPIP = 0.1945 + 0.2314 K_1 + 0.1650 K_2 - 0.1621 K_3 + 0.0083 K_4 + 0.0104 K_5, \quad (1)$$

where *SPIP* is sales profitability of innovation products.

Coefficients of the equation allow to approve the advanced growth of the share of sales costs of innovation products in the total sales costs compared to all other indicators. Increase of this index to UAH 1000 increases the profitability of innovation products sales at 0.2314%. Hence, the direct interdependence of costs to innovation products sales in the profit from the sale of innovative products and effective indicator is identified.

Conclusion

On the basis of the research, the key principles of innovations commercialization at industrial enterprises are investigated, indicators of characteristics of implementation instruments of sales policy at innovation active enterprises are allocated, the influence of sales policy parameters for level of innovation is estimated.

The need for more funding of sales costs of innovation products of LCC "Turbomash" that with an increase in the proportion of these costs in the profit from the sale of innovation products will improve the financial result of the company. Another trend is also the increasing number of managers who passed advanced training on the

profile of innovations in the total number of management. Despite the small size of the company and staff, the costs of advanced training of personnel are too burdensome and lead to a decrease in profitability of innovation products sales at 0.1621%. Accumulation of sales volumes of innovative products in a limited number of customers has a positive impact on the resulting indicator. The share of innovation products sales to the 3rd largest customers to total sales of innovative products increases the profitability of innovative products sales at 0.0083%. Minimizing of disputes with customers has a positive impact on the growth of sales profitability of enterprise innovative products.

Thus, sales policy parameters significantly affect the level of innovation activity of industrial enterprises. Each of the sales policy tools has an individual impact on the enterprise activity dynamics and depending on the policy specifics and actions of enterprise management may have positive or negative effect. Developed scientific and methodical approach may be the basis for identifying the most effective sales policy tools of innovation active industrial enterprises. It will generate further tactical and strategic plans for leveling weaknesses in its implementation.

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