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Determination of Company Financing Efficiency based on Evaluation Indices of Innovation Performance

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Abstract: *The innovative potential of the enterprise is a systemic feature and can be measured by assessing the susceptibility to innovation by mean of innovation and competitiveness. Through innovation policy of the enterprise could be set the management instruments for creation and diffusion of innovation and the stimulation mechanism for the priority innovation projects. The analysis of innovative SMEs' activity, especially their financing efficiency requires, primarily, the evaluation of the theoretical and methodological analysis and evaluation of innovation performance.*
The effectiveness of the innovation projects implementation at national level is estimated in accordance with obtained results and the achievement level of the innovation policy objectives. Thus, macroeconomic outcomes are determined by the effective interaction between subjects of innovative activity, the level of innovative activity dissemination, the level of innovation dissemination and the involvement of the innovation process participants. Therefore it appears opportune to select projects for innovation on the basis of distinct criteria. The criteria for selection of projects should be geared towards meeting the expected results. However, evaluation of the results must be conducted on the basis of the assessment of socio-economic development indicators, social progress and the development of scientific, educational and industrial potential.
Keywords: *innovation, financing of innovation, innovation project, innovative SMEs*

Introduction

The innovative potential of the enterprise is a systemic feature and can be measured by assessing the susceptibility to innovation by mean of innovation and competitiveness. When we are speaking about the innovation policy of the enterprise, we can state that it define the management of innovation creation and diffusion and stimulation mechanism for the priority innovation projects. The innovative activity at enterprise level is represented by all scientific, technologic, organizational, financial and commercial aspects that lead or have the intention to lead to implementation of innovation. Some of these activities are themselves innovations.

1. Aspects of Innovation Activity of Enterprises

Focusing our attention on innovative SMEs especially on their financing efficiency, first of all we have to take in consideration the theoretic and methodological aspects of innovation performance analysis and evaluation. At the enterprise level, performance measurement is done by observing the increase of a set of indicators like: number of employees, profitability, exports, foreign direct investments, level of wage income, level of innovation and labor productivity.

Defining the innovation activity of an enterprise we can state that the innovative potential of enterprise is structured as follows:

- ✓ Products at different levels of production with the aim of implementation or production line extension;
- ✓ Financial, technologic, scientific, technic capacities and human resources for creation or optimization of production;
- ✓ Organizational skills, development, production, selling abilities much higher than competitors.

Shortly, the innovation process can be defined as the totality of consecutive actions for setting and implementing new technologies or the improvement of already existing ones. These processes imply a group of functional departments of the enterprise, including research and development department, marketing, finance and human resources department. The performances of innovation in enterprise depend on the efficiency level of every department.

The most important condition for the implementation of innovation diffusion process is imposed by the existence of an efficient marketing and distribution system, which creates the link between the company and the final consumer in order to adapt to the new necessities of the consumer, to learn the consumers' attitude towards the goods or services existing on the market. This is an extremely, important condition because usually in practice, innovations are defined as: "the creation and placement of products and services that offer to consumer advantages, considered new or improved" [1, 109]. At the same time the most obstacles arisen with the introduction of innovations on the market are explained by specialists by the fact that the innovations are derived from new knowledge and not from consumer necessities, while consumers need not only new products but also some advantages from the goods.

Due to the decreasing length of product life cycle and the continuous risk of products "ageing", the development of new needs, the change in tastes, preferences and priorities of consumers and the increasing competition the economic agent creates new products and is involved in innovation permanent activities.

It is well known that the new technologies have decreased considerably the time of new products appearance on the market. If compared with beginning of '60, the average technology lifecycle was 10 years, in '80 it decreased to 2-3 years, and in last years the time for manufacturing new products, for example in chemical industry, has reached 6 months[2].

The reduction of product life cycle dynamics increases the necessity for innovation especially in economic sector. Think about of the fact that when Apple had introduced on the market the first laptop in this sector were competing more than 10 competitors, 8 years later –there were more than 500.

2. Indicators Used in Assessing an Enterprise's Innovation Activity

The creation of enterprises associations, the commercialization of intellectual property as intangibles, the development of external economic relations, the adherence to different unions and the signing of different agreements only emphasize the importance of innovation for the increase of economic potential.

In this case, it becomes crucial not only the comparative evaluation of economic performance but also the analysis of organizational and economic activities that have contributed to calculate the innovation indicators. The need for innovative research processes, existing at the enterprise are conditioned by the fact that the data obtained for a range of innovative projects can be taken into account for designing and implementing other innovations.

Based on the functional organization of economic activity, we analyze a number of factors that allow the evaluation of enterprise's subdivisions activity for achieving the objectives of innovation activity.

- *Qualified scientific personnel indicator (Ip):*

$$I_p = \frac{V_{a(f)}}{V_{a(p)}} x100\%$$

where:

Va(f) – de facto volume of research and development activities performed by the enterprise without the involvement of external organizations (in LEI);

Va(pl) – the total volume of research and development activities performed by the enterprise without the involvement of external organizations (in LEI).

The indicator of qualified scientific personnel is aimed at professional performance evaluation and innovation capacity of the enterprise subdivision. It allows us to answer the question about the level of independence with which analyzed enterprise can conduct research and development activities implying their own staff.

Before approving innovative projects the company will conduct a feasibility study that will help them to decide on the methodology of preparation and development of new technologies or the improvement of existing ones. Also, the company will decide whether to support the development of innovations inside or purchase them from outside or may choose joint development with other companies. In the first case, the company usually establishes a strategic partnership with specialized research organizations and engineering. At the same time, the company largely deprived of the opportunity to develop their own innovation infrastructure.

In practice, if the scientific and technical products of an independent scientific organization can be sold on the market, the result of innovation can be considered superior to other and its cost in the total purchase is much possibly smaller.

Thus the indicator of qualified scientific personnel determines the qualification level of research staff of the company. The patent portfolio represents a collection of intellectual work results of the entity that is presented in the form of patents and licenses for invention, industrial designs and models, utility models, trademarks and service marks, money, programs and computer databases. Therefore, depending on the structure of staff, innovative companies can make plans on forming its own patent portfolio. Thus, the innovating enterprise can forecast the activity regarding its portfolio of patents, depending on the qualification structure of its personnel.

Another important indicator for real and perspective efficiency evaluation is the *forecast of innovation volume on market* and development pace of demand for consumption and the product life cycle.

- *The indicator of marketing forecast (Ir):*

$$I_r = \frac{V_{pi(f)}}{Vpi(pl)} x100\%$$

where:

Vpi(f) – planned sales of innovative products. (value in Lei);
Vpi(pl) – de facto sales of innovative products (value in Lei).

The marketing forecast indicator reports on achieving outcomes of innovation trading efficiency. If marketer's forecasts do not materialize, then are needed the investigations to determine the possible causes beginning from the sales price fixing and finishing with the research methods used by the executors. Conversely, when the estimated sales volume is almost identical to the real one, then for the development of new innovation projects would be logical to use and, if possible, to legalize those methods that have been developed and applied already in the enterprise.

Marketing forecast indicator shows the level of reliability of market research reports on innovative products. It is very difficult to estimate the size of the consumer market and effectively locate the commercialization of products or technological innovation. For this, can be used various methods of research and different marketing approaches. Depending on the accuracy of marketing forecasts at the time of innovation, businesses can plan accordingly the changes in sales volumes, market size, and rate of further innovations market development.

- *Investment funds consumption indicator (Ic):*

$$I_c = \frac{Fi(f)}{Fi(pl)} x100\%$$

where:

Fi(f) - investment funds effectively spent on implementing innovative projects (lei);
Fi(pl) - investment funds planned for subsequent implementation of innovative projects (lei).

In practice, often, there are cases where companies are forced to suspend funding for innovative projects, initiated for undetermined period of time, because of lack of funds for their completion. For determination of necessary investment resources for creation and development of new technologies for financial planning department are very useful data on the structure of the investment fund deficit (or potential savings) of the previous innovation project for determination of investments needed for the creation and development of new technologies.

Investment funds consumption indicator characterizes, to some extent, the financial security, and management of revenue and expenditure for the development and implementation of new technologies and improving existing ones. In case the company does not have sufficient own resources, one of the possible sources for financing the innovative development of enterprise can become extraordinary income from the sale of licenses for technologies created by the enterprises.

- *Resource savings in the production process indicator (Iec):*

$$Iec = \frac{Cef}{Cpr} x100\%$$

where:

Cef - the effective cost of production and sales of innovative products (lei);
Cpr - expected cost of production and sales for innovative products (lei).

Price planning for innovative products and, therefore, prediction of needed size of working capital is a challenge for those responsible for strategic planning. After the implementation of innovative projects, it is very important to control several cost associated parameters and to highlight the benefits of the project. It is also reasonable to calculate the effectiveness of used methods and their quality, the organization level of the workshop for creation of innovation.

Resource savings in the production process indicator characterizes indirectly, the control flow of the raw materials supply process, electricity and other production and sales costs. By planning the growth of corporate portfolio and company's production line extension through technological and product innovation, it is reasonable to consider the economic potential of the company and the ability to effectively manage production resources.

- *Project time frame indicator (Irp):*

$$Irp = \frac{Cef}{Cpl} x100\%$$

where:

Cef_f - effective use of time for innovation project (months);
Cpl - planned time for innovation project (months).

Trading innovations during planned time frame and even in a very short time will contribute to the rapid release of new products on the market and, consequently, will make it possible to obtain high profit in a short period of time. For every innovation project when developing products and implementing new elements is very important to minimize the time as much as possible, because the compliance with the set time frame is critical but howevere sometimes the projects could delay dozens of months.

The project time frame indicator not only characterizes the enterprise capabilities to carry out programs and plans for projects within the deadline, but also to realize the accelerating technological innovation and commercialization of products and increases intangible assets. Launching on the market the new technological innovations and products earlier than competitors allow the company to take advantage of the priority of "first mover" [3]. This in turn reflects positively on the company's prestige and reputation as the innovator and substantially increases its value.

- *Innovational development performance indicator (Ipf):*

$$Ipf = \frac{Vnet}{Vef} x100\%$$

where:

Vnet – net income earned by an enterprise from carrying out innovation (lei);
Vef – income received by an enterprise from sales (lei).

Innovational development performance indicator can be used to assess the economic value of the company. When evaluating the effectiveness of a new technology or a new product is important to consider the impact on financial results and to determine the contribution of innovation in enterprise income formation.

Conclusions

For optimization of innovative activity in Moldova are needed both traditional forms of state support and a complex of services used in world practice, granted to innovators and oriented to overcome the so-called "exploitation period" that means the period between the invention and technology implementation.

In this context, it is mandatory to provide the informational support and some consultations when filling in the application for patents for domestic and international inventions, cost coverage, protection of property rights of any fraud attempts.

Referring to Moldova, it is necessary to draw attention to the social function that innovative small businesses have: in transitional conditions, on the one hand, they are able to provide jobs for qualified specialists, on the other hand, they generates high demand of knowledge, especially in the real sector. This creates the opportunity to keep active both scientists and scientific schools.

Funding programs held by public state and local budgets and off-budget specialized funds are less accessible for innovative enterprises of the Republic of Moldova or are not very popular among them. One reason is drawing both long and complicated application project and reports on project achievements.

The effectiveness of the innovation projects implementation at national level is estimated according to the obtained results and the progress of the innovation policy goals. The macroeconomic results are determined by the effective interaction between subjects of innovative activity, the degree of diffusion of innovation and stakeholder participation in innovation process. Therefore, it is appropriate the innovation project selection based on different criteria. The criteria for the selection of projects should be geared towards meeting the expected results. However, performance evaluation should be conducted based on the evaluation of socio-economic indicators, social progress, and development of scientific, educational and industrial potential.

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