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Analysis of SMEs in Bulgaria – Assessment of Their Innovation Activities

Desislava Petrova
Faculty of Economics, Department „Management", Technical University of Gabrovo, Bulgaria, E-mail: des_petrova@abv.bg

Abstract. **The main thesis of the report is that the vast choice of planned innovation is given by combining traditional financial and economic assessment approaches innovation, namely through the net present value (NPV).**

The aim is to analyze the situation of SMEs in Bulgaria, to identify the problems facing their development and to formulate recommendations to address them.

Keywords **– innovation, small and medium enterprises (SMEs).**

I INTRODUCTION

Nowadays innovation is key to improving the competitiveness of the company. The survival of a business organization depends on the ability to create and develop new products and implement new technologies, new organization of production, new ways of managing and entering new markets.

Fast growing industry is characterized by the following five types of models [1] (Fig. 1):

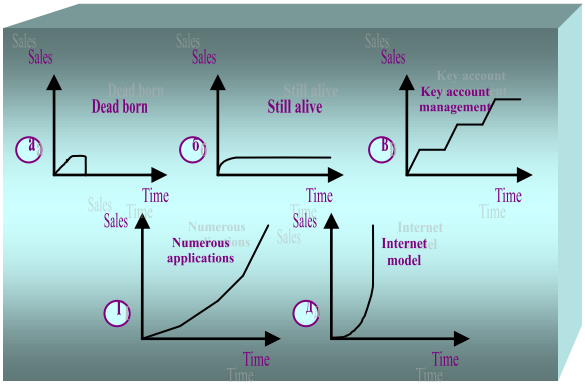

Fig. 1. Fundamental models of companies

„А" (Dead born) - start business ideas; „**Б" (Still alive)** - after starting the business idea, it is not perfect, and there are constant sales and satisfy only a certain range of users; „**В" (Key account management)** - is constantly improving product, maintenance, service, nomenclature, to implement innovations and new technologies, expanding markets; „**Г" (Numerous applications)** - whose clients (users) require specific product development, we have established and producing products that are crafted with new knowledge; „**Д" (Internet model)** - Business development which is characterized by the product-offer, address, price, quantity and number of applications of the product, is implemented on-line in INTERNET space in real time, the delivery is door to door.

As typical examples of models for companies engaged in manufacturing based on a model „**В" (Key account management)** in Microtechnology and „**Г" (Numerous applications)**. They start their business if necessary by market demand. The launch was successful when starting with a series of products and then mass production, because the equipment (machinery, equipment, etc.) necessary large investment, but also need highly qualified staff. Both strategies (Key account management, Numerous applications) for business development of crucial importance:

- Create and update competence, service and communications;
- Work and evolution, probably in larger scale production;
- Guaranteed service and maintenance.

If successful, the companies will develop sustainable, but then there is always risk that they will develop a model **"А" (Dead born)** and model **"Б" (Still alive)**.

Most young companies dealing with micro and manufacture of micromechanical elements (MME) and microcomponents (MC) for a microtechnology (MT) are innovative, not only in technology but also in the management and organizational structure.

Innovative solutions include: staff, motivation with a new concept, marketing to water demand (market) use the findings, achievements and research laboratories and university groups, exclusive contracts with business partners.

In general we can say that the situation is rapidly changing. Innovations are common, and if you want to be good and to prosper, it must be reckoned with them and implement them, even if you have strength and ability to beat them with a team of researchers.

"Small and medium enterprises in the industrial world". Based on studies of various theoretical clarifying the nature, substance and criteria for defining SMEs, we can formulate:

"Small and medium-sized industrial enterprises (SMIEs) are physical and/or legal entities that carry out production activities, independent and autonomous in its legal form, and have a number of employees, annual turnover and/or balance sheet total assets under statutory law in particular country**. "**

On the basis of a systematic approach, we can say that industrial is a multifaceted business entity having social, technical, technological, legal, economic, product, market and organizational and managerial aspects, building and implementing specific policies of different production activities.

II SMALL AND MEDIUM ENTERPRISES IN BULGARIA AND INNOVATION ACTIVITY

According to statistics SMEs do not pay enough money for development (including innovation), which makes the market uncompetitive behavior, both in Bulgaria and abroad. They are inadequately protected by the state and support the development of their productive activity is minimal. Outlined in their strategic documents specific measures for their development remain unfinished or undone. SMEs continue to face difficulties in accessing finance as an imbalance between the three size groups - micro, small and medium enterprises.

Research on the effectiveness of small and medium-sized industrial enterprises in various aspects due to specific indicators that identify it, it is hard to generalize the macro. Companies themselves are rarely calculated efficiency when planning their activities, leading to frequent losses and even bankruptcies. The presence of various criteria and evaluation indicators are not meeting their full use in practice, confirming the need to create mechanisms for their implementation in small and medium-sized industrial enterprises. Evaluation of the effectiveness of the activities of small and medium enterprises (SMEs) do not contribute to improving the quality of decisions and the criteria used to evaluate the performance of small and medium enterprises need systematization and their inclusion in the generalized approach to evaluate their activity [3].

Due to its size and market presence SMEs in Bulgaria's economic stabilization and progress. Together, they are under pressure from various institutions, which hampers their development. This is a prerequisite for subsequent analysis and development of tools with which to tackle the problems identified. Small and medium-sized industrial enterprises can form a competitive advantage in a different way and take advantage of this in order to grow and survive. One approach to determining the competitive advantage is the evaluation of the effectiveness of the activities. Thus justifying the need for development of an application tools with which to carry out this assessment.

"Innovation is based on knowledge. Is associated with a new product, process or technology that is measured by degree of novelty of the company and / or market. Following the introduction of innovation enhancing the competitiveness of the enterprise (firm), industry, the economy and increase consumer satisfaction. Innovation is a creative process. It is also a result of the process, which is based on innovation."

- Innovation is seen as a continuous process of creation and innovation.
- Innovation by linking integrative process which includes creation, design, implementation, adaptation and use.

Innovation is such a behavior in which there is something that has not been created. For the entity it is always unknown until the time of its introduction. This does not mean that it is necessarily some absolutely new, unknown to anyone until now.

When it comes to innovation, the term is associated with something positive and progressive. Through her achieve intellectualization of labor, improve working conditions, raising the level of education and culture, better satisfy the needs.

Own R & D and technology transfer are two ways used in the implementation of innovation policy. Technology transfer can be effected in the following manner [2]:

- Transfer from local and foreign companies to others;
- Transfer from research organizations (universities) to companies;
- Transfer from firm to research organizations (universities).

Innovation is bringing success and the result of innovation and is associated with growth and development. Satisfaction, quality, performance, price, time and competitiveness are the goals and results of the implementation of the innovation.

Innovation, whatever their field of application is associated with novelty, which must be especially valuable for the company as it implements it. The essence of innovation because of the specificity of its expression, allows for multidimensional interpretation, leading to the formulation of new questions that should be addressed.

The innovation process is creative, cyclical, complex and expensive process, the result of many interrelated activities by type and specificity depend on the size of the innovation project and not always innovation. Implement them in their entirety and complexity requires specific knowledge and skills. Innovation can be called any activity carried out for the development and implementation of innovative project or plan.

There is increasing innovation activity of SMEs in Bulgaria, but it is well below the average for the EU countries.

The largest share of innovation in Bulgaria organizational and marketing. In small and medium-sized industrial enterprises innovation is associated with improvement of products, processes, technologies, and less radical innovations.

Innovation policy is declared priority of countries - members of European Union. For Bulgaria, this is reflected in the strategic documents for the development of the country, but practical steps for their implementation are not enough.

Based on the analytical study has found that small and medium enterprises do not allocate enough resources for innovation.

"Investment and financing of innovation and innovation in small and medium-sized industrial enterprises"

The most commonly used financial indicators for optimization activities, including innovation are: *net present value (**NPV**), internal rate of return (**IRR**), Profitability Index (**PI**), payback period on investment (**PBPi**).* That they are included in the traditional approach to assessment and analysis of inputs into innovation and innovation. Net present value (NPV) is the difference between the amount of the discount required rate of return and net annual flows and investment costs. Calculated by the following formula [1]:

$$NPV = \sum_{i=1}^{n} \frac{C_i}{(1-r)^i} - C_0$$

Where:

C_0 - Initial investment;

n - Number of years in the discount period;

r - Discount rate, characterizing the rate of return on alternative investments of the same risk class.

If **NPV> 0**, the project should be implemented.

If **NPV <0**, it must be invested in this project.

If **NPV = 0**, the project is neutral (indifferent) to the company.

The internal rate of return (IRR) can be calculated again by trial and error.

$$IRR = r_1 + (r_2 - r_1) \times \frac{NPV_1}{NPV_1 - NPV_2}$$

Where:

r_1 - internal rate of return (IRR), which net present value is positive;

r_2 - internal rate of return (IRR), which net present value is negative.

$$NPV_1 = r_1$$

$$NPV_2 = r_2$$

Profitability index is very good and preferred method. It is the **ratio between the sum of the present values of annual net flows and the amount of the investment cost** (IR), i.e.:

$$IP = \frac{\sum_{i=1}^{n} \frac{CF_i}{(1+r)^i}}{ИР}$$

The higher is the IP, the better is the investment project.

If $IP > 1 \rightarrow NPV > 0$.

If $IP < 1 \rightarrow NPV < 0$.

If $IP = 1 \rightarrow NPV = 0 \rightarrow IRR \equiv PZ$.

The discount period of return (PPd) is the inverse of the index of profitability (IP). Formula is:

$$PP_d = \frac{ИР}{\frac{\sum_{i=1}^{n} \frac{CF_i}{(1+r)^i}}{n}}$$

and therefore

$$PP_d = T_0 + \frac{CF_i^d - CF_{i-x}^d}{CF_i^d}$$

In determining the appropriateness of the proposed innovation and related activities can be used in static and dynamic methods. Because of the failure to take account of the change in the value of money prefer the dynamic methods. Typically applying multiple indicators for planned innovation activities. The most commonly used indicators are net present value, internal rate of return, payback period and profitability index. The different methods used to implement one or the other approach can lead to contradictory and mutually exclusive outcomes that hinder decision for the future of innovation.

In the application of real options when evaluating innovation and innovation is examined and analyzed on the real options approach as a means of evaluating investments in real assets, in particular - to the innovation and related activities. Identified key parameters, limitations, advantages and disadvantages in using real options to evaluate the innovation.

In Bulgaria through real options analysis (**ROA**) is not popular. In support of this assertion were formulated following reasons:

- A relatively small number of publications in Bulgarian, in which to present the advantages of this approach compared to other known approaches;
- The absence of a methodology for the application of **ROA**, developed an accessible language for managers;
- Knowledge of mathematics and statistics needed by managers to implement **ROA**.

The main advantages of the approach are optional: an opportunity for expanded research unit in assessing the appropriateness of investing in innovation can be evaluated on innovation stages of planning and implementation; the possibility of measuring the flexibility offered by incoming information or the separation of what is happening on different stages of implementation; ability to reduce uncertainty in the light of incoming information.

III Conclusion

In a constantly changing environment assessment of flexibility in developing innovative projects and in corporate behavior is in correlation with the survival and development of small and medium-sized industrial enterprises.

In considering innovation and activities associated with it, an opportunity to be realized, not as an obligation, a prerequisite for a more precise estimate of the potential outcome. The determination of the expected financial benefits requires the application of appropriate methods and approaches by which to account the uncertainty of the environment.

Successful development of small and medium-sized industrial enterprises is only possible if the company management is convinced of the need for detailed

planning and exploring possible alternatives for the

On this basis, an analysis of real options as an opportunity to supplement and enrich the evaluation of innovation and related activities.

One of the key aspects to assess innovation in small and medium-sized industrial enterprises is determining their economic viability. It was found that the implementation of innovation can be represented as a complex system of actions, tools and technologies that are reaching the strategic goals. Often the economic viability of innovation is presented as part of the entity's performance, including small and medium industrial enterprise. There are various instruments that are used to determine the feasibility and cost effectiveness financial decisions related to innovation.

Innovation activity of Bulgarian small and medium-sized industrial enterprises rarely developed as a long term company policy and mostly confined to implementation of innovation and related activities. reorganization processes and improvement of product creation.

The analysis of innovation policy in Bulgaria tends to confirm the alleged leadership of innovation in the formation of a competitive business, although the measures for their encouragement and development are inadequate.

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