

Microeconomics

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**STRATEGIC BENCHMARKS
OF THE STATE POLICY OF UKRAINE,
AIMED AT IMPROVEMENT
OF SOCIAL SERVICES QUALITY**

Abstract

This paper is focused on the peculiarities of the formulation of the concept of «new products». In particular, the author analyses scientific publications and legislation acts on the definition of the term. We present a sample of basic stages of product modernization, and the method of a comprehensive technical and economic study of the object. Also this given paper offers recommendations on the development of an integrated system of the indexes of production renewal.

Key words:

New products, modernization, technical and economic parameters, functional – cost analysis, obsolescence.

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Introduction

In a market economy every enterprise faces the challenge of increasing competitiveness of its products, the growth rate of developing new products and expanding their range. Performing of these tasks requires the creation of new products and their introduction into exploitation during the minimum period and under the lowest production costs provided to ensure its quality.

Many national and foreign scientists dedicated their researches to the noted questions, namely D. Lvov, A. Borodkin, Yu. Anisimov, F. Dronov, V. Somytskyi, I. Orlova, R. Kolehaiev, A. Konson, E. Mansfield, E. Rodgers, B. Twiss, H. Birman, S. Schmidt, and others.

However, we note that the theoretical and practical bases of innovative activity are insufficiently highlighted in the scientific literature, in particular, it implies the implementation of innovations at the stage of new product development.

The objective of this research is to develop a system of management decisions on the renewal of products under economic restructuring.

Approaches to the definition of «a new product» concept

One of the most important areas of Ukraine's economic transition to market economy is the focus on competitiveness and quality of manufactured products. Also, it should be taken into consideration, that the consumer has the choice among innovations, that it, the producers and consumers have equal rights. Therefore, the analysis of demand for new products becomes very important. The demand is the amount of products that consumers want and can buy at a certain price (out of a series of other offered) for a certain time in a particular market. That is, demand expresses the number of alternatives available for purchasing products at unequal prices under equal conditions. Proceeding from the given definition of demand the following main lines of its analysis are defined:

- volume of demand;
- availability of potential buyers;

- necessity of goods;
- opportunity to purchase;
- price of the offered products;
- sales period in the market.

At the present stage of social development, scientific and technological progress is the main factor for improving efficiency and solving basic social and economic problems. It is commonly known that one of the main STP lines is manufacturing of new products.

While developing the management decisions in this area the question inevitably raises which products should be referred to as the new ones. The products, new to a particular company may appear to be far from modern from the view of national economy, and especially when they are compared with similar functional products available on the world market. The task lies not as much in the renewing of the range as in increasing the production efficiency through design and development of technologically advanced and highly economic models.

Optimization of the management process of the product renewal primarily requires the clarification of the term of «a new product», since at present there is no commonly agreed approach to its definition. In special literature and official documents such concepts can be found associated with the definition of new products and the degree of its novelty, as «radically new products», «the products explored in Ukraine for the first time», «new products», «modernized products», «obsolete products». The most common out of these named is the phrase «new products», although it is treated in literature in different ways.

For example, Russian Academician D. Lvov offers to include into components of new products specifically those developments which are based on the important and effective inventions [1, p. 77]. The manufacturing of a principally new product meets those criteria. In the main mass of the products certain technological developments are used that are not considered to be inventions. Thus, the above definition includes only part of the renewal process into the concept of «new products»

The principally new products are usually implied these that are unique either in domestic or in foreign practice. At the same time the products, which are first explored in Ukraine, in most cases are identified with fundamentally new ones. Illegality of such identification is rather obvious. The products brought to Ukraine for the first time can be both, fundamentally new, and be new specifically to the industry of our country. Inclusion into one classification group of the products with varying degrees of novelty complicates the establishing of grounded proportions between them, also it prevents to make an objective assessment of the results achieved by different groups.

Different definitions of the concepts related to the renewal of products and application of different terminology produced some influence on the content of many official documents regulating the order of innovative activity. According to methodical guidance of high public authorities, the new are meant these products which are produced in Ukraine for the first time, as well as these which are modernized to have qualitatively new characteristics, and are meeting the current level of technology with their technical and economic indicators. In addition, the new products also include the manufactured for the first time in the country component parts that determine basic technical parameters of modern products and which have not yet been used in industry.

The guidelines for statistical reporting recommend regarding these products as new ones that are significantly different from previously manufactured by their design, technical and economic parameters, operational characteristics, and capacities of exploitation.

Absolutely different approach to the concept of new products is taken in the Academy of Sciences of Ukraine. Thus, the new products are implied these that first are used to meet certain industrial or personal needs, and provide social and economic impact, contain the scientific discoveries, inventions and other scientific and technical achievements .

Consideration of the above definition enables to draw the following conclusions. The positions of the leading institutions of the country in the definition of a «new product» term contradict one another. Based on the wording of the Academy of Sciences the new products include entirely new products. Requirements of statistical agencies are less rigid. In addition, the grade of differences between the new and previously manufactured products is determined very uncertain.

Select out of the general scope of the planned new products to be first produced in Ukraine does not completely solve the problem of efficiency improvement of mastered products. Inadequate analysis of current trends of research in foreign countries may lead to the supply of manufacturing goods, which after having been developed in 2–3 years will become obsolete and need modernization. The proof of such cases is poor competitiveness of much of the domestic equipment in the world market. Thus, the new products should be considered fundamentally new products which have no analogues in world practice.

While determining the concept of a «new product» it is important to establish, first of all, in what any newly created product could vary from previously manufactured one. To settle this issue, it is good, in our opinion, studying the main stages of the product modernization that is the means of eliminating or reducing its obsolescence and provides an improvement of technical and economic parameters of products.

A consumer while receiving from a manufacturer new capital goods or consumer goods acquires skills of their practical use. After the buyer has accu-

mulated practice and the public recognition of new products then the manufacturer is required to improve the product's technical and economic indicators in order to improve it and adapt to the conditions of exploitation.

On the second stage there occurs a gradual improvement of technical and economic indices of production under the same technical solution. In case of limiting opportunities for improvement of product characteristics within the existing technological solutions, a significant revision of its design, and sometimes the principle of its performance are needed.

At the end of the second stage the technical characteristic of the product still is satisfying the requirements of consumers. However, taking into account the strict law of raising labor productivity and other economic demands, from that point there arises the necessity in a principally new technical solution. This pattern is implemented through using of basic and applied knowledge by a manufacturer, resulting in a new type of product.

One of the methods of improvement of any object at all stages of life cycle is a Functional-Value Analysis (FVA), which is a method of comprehensive technical-economic study of the object aiming at the development of its useful functions under an optimal ratio between their value to the consumer and costs incurred. The FVA method was developed in the United States and was first introduced in 1947 [4]. Engineer Lawrence D. Miles concluded the need to analyze the proportions between the usefulness of certain properties of products and costs incurred for their manufacturing. That analysis showed that the exclusion of unnecessary functions can reduce production costs while maintaining and even improving the quality of products. The Functional-Value Analysis method is used by industrial companies in the U.S., Britain, France and other countries with highly developed market economies. Its purpose is to find alternative products or processes with low cost and high quality. The goal of FVA can be shown in writing as follows:

$$\frac{\Pi C}{3} \rightarrow \max,$$

where ΠC – is the value of analyzed object which provides the aggregate used features;

3 – implies the costs for achieving features necessary for effective utilization.

The object of study is chosen on the basis of the proposed options discussion by attracted experts in specific areas. After the object having been selected, a working group of experts, the most competent in the FVA is made. The head of the enterprise issues a respective decree including the established terms for analytical work performed on certain stages, and responsibilities of each member for a specific area of work. Sometimes, the remuneration for that work can be determined

The Functional-Value Analysis is recommended to involve specialists from different departments who participate in developing, manufacturing, marketing and sales of products. All departments and services of the enterprise supply the group of the analysts with necessary information on the product, as well as they give suggestions for improving its quality and reducing costs for manufacturing. Great importance is given to estimates of consumers (quality, reliability, compliance with fashion, aesthetics, ergonomics, etc.).

The FVA is conducted through several stages, namely:

- 1) preparatory (the object of the analysis is specified);
- 2) information (the information about the subject is compiled)
- 3) analytical (the product features and the cost of their maintenance is studied);
- 4) research (the ideas and solution options of manufacturing in order to eliminate disparities between the functions and costs are considered and estimated);
- 5) recommendation (the most appropriate options for the improvement of the product are selected);
- 6) implementing (results of the recommendation phase are included, and the selected alternative product development is implemented).

In theory and practice the Value analysis the justified ratio between cost and functional expediency must be equal or close to 1. If the cost coefficient is less than 1, the ratio is considered to be more favourable. With the coefficient exceeding 1 it is necessary to take steps to reduce costs.

In the process of evolutionary changes gradual «accumulation of novelty,» occurs which under the laws of dialectical transition from quantity to quality inevitably leads to the emergence of new products.

Analysis of the product obsolescence

Most of the known publications on the chosen topic determine the following features as the evidence of novelty: the composition of used raw and materials; production technology; construction of a product; consumer intended use; consumer properties [2, 3 and others]. Based on the known position of social needs as the main incentive of the people, the main attribute is a consumer intended use. Thus, the following conclusion is made: if the object satisfies, or rather creates the need for better quality product then these products should be attributed as the new ones.

As for the products that meet or form a new need, then such a conclusion is beyond doubt. However, it has the practical value at the level of the economy as a whole. In applying to individual businesses that have defined production profile, this product is unlikely to appear. In this case we can talk only about products that better meet the previous requirement. In respect to such products the conclusion about their belonging to the new products is controversial.

If you focus specifically on the given feature of novelty, then the line between modernization and renewal of products obliterates. Therefore, to decide objectively which products could be taken for the modernized, and which should be referred as the new ones will be extremely difficult. In addition, when planning research there often raises the question of optimizing the degree of the products novelty. The creation of fundamentally new models that provide a considerable effect is associated with a significant risk, also with the long period of design and development, and with great costs. Modernization enables to easier implement existing benefits, requires less cost and does not require lengthy and expensive research. In such situations it is desirable to determine the optimal degree of novelty of generated products.

Modernization of previously mastered products should not, in our opinion, be considered as a component of a new product. The current procedure for assigning the goods to the new ones is controversial not only from theoretical positions. It makes impossible to really assess the correlation between the introduction into production a principally new product and modernization of previously mastered items. It seems more feasible to establish a separate planned task of designing and developing of modernized models of the manufactured products.

The study of special literature on the subject showed no single approach to the considered problem. Many authors do not argue their proposals, and without sufficient justification of the term «novelty» determine the half-term manufacturing of a new product [5, etc.]. If the product is made for, say, 8–9 years, it may be considered new for the first 4–5 years. Opposite to this, prof. V. Somynskyi. considers a product to be modern for 5–7 years [6, p. 146].

A more reasonable, in our opinion, is the point of view of authors who argue that the period of products novelty is conditioned by the onset time of its obsolescence [2, 3 and others]. However, this concept also has many discussion points. In particular, the problem is not solved concerning the methods for determining the term of obsolescence. With the rapid pace of scientific and technical progress sometimes the products are becoming obsolete much quicker than the preparation for their production is completed. In principle, this option is not excluded completely, but, nevertheless, the following fact should be taken into consideration: if the term of obsolescence is in direct dependence on the volume of products manufactured according to new technical models, then, first, a situation occurs when slowing down of technological progress appears as a positive phenomenon that reduces the data requirements. Secondly, the problem as such for

the definition of the term for «obsolescence» decreases, as the new technology enables the vast number of these products.

While answering the question about the obsolescence onset we should be guided by the fact that the products lose their barter value as the products of similar characteristics are produced in a cheaper price, either more efficient products begin to compete them. It is just that division that puts everything in its right place, i. e. the beginning of price reduction of the manufactured products either the emergence of new, more efficient samples suggests the obsolescence of existing models. Thus, the maturity of existing products obsolescence should be determined from the moment when the cheaper and more efficient models appear, and the economic benefits of the latter are confirmed by calculation or by production tests. Accordingly, the period is determined during which the product is considered new. It will match the difference between launching products into production, i. e. the emergence of new economically more advanced models that meet the requirements for new or improved products, and the period of the obsolescence onset.

Conclusions

Thus, within the scale of the entire economy, different types of products differ from each other in the terms of the obsolescence. The definition of at least the average periods is very important for planning research and development works with the aim of timely creation of a certain counterpart.

For the product manufacturers the terms within which the product is considered new, have a slightly different meaning. They are mostly associated with the need to eliminate in one way or another the negative influence of the difficulties faced during the development of modern models of performance produced on the results of the activities. Therefore, the analysis is required of the share of new products of the first (second) year of its manufacturing, and the correlation of the latter with the extra costs that are recoverable, and also the identification of the impact the production of new analogues produced by years of development on the cost of total product output.

On the other hand, it would be illegal to limit with the analysis of the share of the first year production because time is needed for the new product samples showed their competitiveness in the market that would result in the increased demand. In other words, the impact the products renewal produce on the change of the share of high quality products occurs with a defined time lag. Hence the need arises for calculation of products renewal indices for the period of more than two years. In addition, many studies indicate that the typical period for achieving the project production volumes of new models for most busi-

nesses is three years. Thus, to analyze the dependence of summarized performance indices of the enterprises on the change of the products renewal level it is also good to differentiate the latter in the time aspect.

Summarizing the above, we can conclude that for practical use of these proposals the management of innovation activities needs developing of the integrated index system of the product renewal.

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