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Methodical Aspects of Pricing for New Industrial Production

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Abstract. In modern conditions of economic and technological development enterprises have to update their products constantly (to modernize existing products and to develop completely new). Therefore, the problem of the new products pricing becomes relevant and urgent. The article considers the dynamics of production volumes in different industries, which confirms the relevance of the selected topic; theories and approaches to the of the different degrees of novelty and uniqueness products pricing; limitations and peculiarities of it application are considered. On the basis of the theoretical materials, as well as on the results of discussions with the industrial enterprises of the Sverdlovsk region, a information support model of the pricing process using the cost pricing method is proposed.

1. Relevance of the problem

Machine-building enterprises (as a part of one of the most important sector of the national economy) are working within the framework of the established specialization both in the conditions of the "free" market (producing civil products) and carrying out the defense order (producing military equipment). The current foreign policy situation has increasев the production of both civilian and military products.

The growth of the country's GDP, including the growth of manufacturing production, does not directly indicate an increase in the volume of new or innovative products. For this purpose, it is necessary to analyze the innovative component of production growth. The statistics that allow to estimate the dynamics of innovative goods production is presented (figure 1).

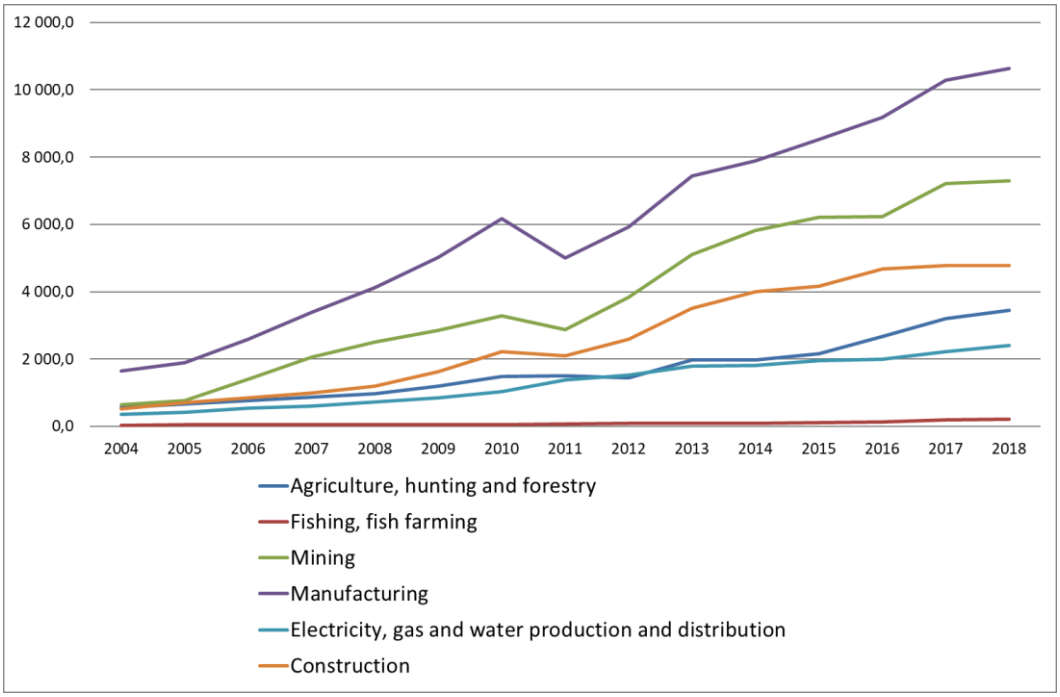

Figure 1. Dynamics of innovative goods, works, services newly introduced or subjected to significant technological changes and the period from 204 to 2018, RUB million [1].

From the above data it can be concluded that the volume of innovation in manufacturing, including machinery, is constantly increasing. The increase in production volumes, the changes in assortment caused by the economy structural changes lead to the need to improve the existing pricing system for new (modernized) products for the enterprise.

In this article and during our research we are using the term "new products" as a synonym to the term "innovative products", which is now widely used in various official and scientific publications.

2. Pricing methods in modern scientific literature

During the analysis of scientific and educational literature it was revealed to what methods of pricing more attention is paid. On figure 2 it is provided the frequency of discussion of different pricing methods [2,3,4,5,6,7,8].

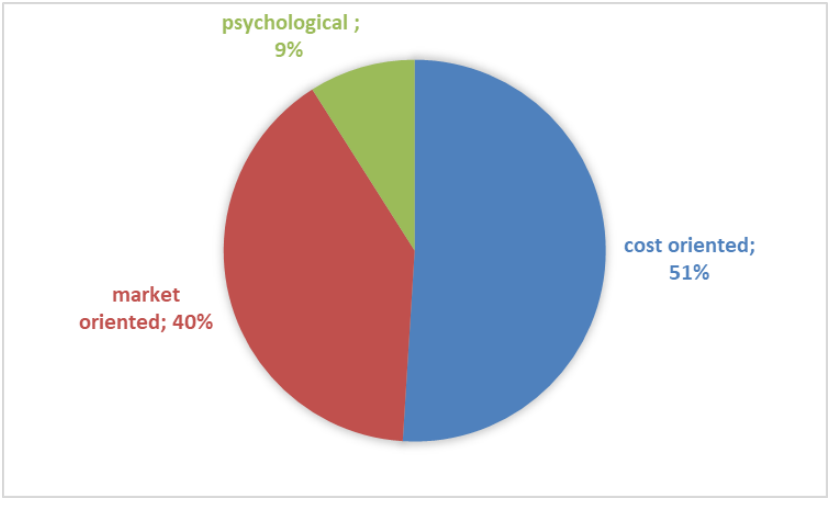

Figure 2. Frequency of pricing methods consideration

As seen in figure 2 the cost methods are the most often discussed. The cost pricing based on the production costs accounting. Undoubted advantage of this method is its formalization that allows to make the pricing process transparent and clear. The most significant weakness of this method is that it can't take market conditions into consideration. Market methods are based on opinion and needs of the buyer, on the competition and comparison with competitors (analogs). An essential lack of this group of methods is expert evaluation. [3,7,9,10,] The third group – psychological methods, is not so popular owing to weak technologies formalization.

All methods described above were developed for the pricing of the existing products, or products having analogs. The cost pricing methods are often used for new (innovative) products. It should be noted that at the moment in references not-cost methods of pricing are discussed. For example, method based on acceptable level of products profitability or method of "base fixed price" and its indexation are discussed for defense products pricing [211,11,12,13,14,15,16]. Issues of new, innovation products pricing are widely discussed in scientific literature [10,17,18,19,20,21,22,23].

Considering all above, it is necessary to suggest new items for the pricing methods application depending on degree of products novelty and knowledge intensity.

3. Information support of a cost pricing method

As it was already noted earlier, there are features in methodical approaches for pricng of new products depending on the novelty degree. It is especially difficult to prove the initial level of the price during creation, production and removal for the market of the innovative products (original novelty or "a radical innovation "). As a rule, it is the knowledge-intensive products demanding considerable costs for R&D. In practice for such products pricing cost pricing methods are used. The specific method of pricing depends on the predicted production (single, small-scale, mass production), the located regulatory base of data (standards for labor input of R&D, difficulties of works, to payment rates), the standards of profitability.

The possible approach to the innovative products pricing of depends on the information base created in the enterprise, which has information on the labour intensity of developing standard, traditional processes and operations, and individual, determining the uniqueness of the products according to the previous developments. The price of the unique products offered by the developer very often has to be agreed with the customer. The basis for proving the validity of the price is the information base created at the enterprise [24].

The authors propose a basic scheme of information support for the innovative products creation. The proposed approach allows to create an information base. This base can be used to justify the price which was calculated by cost method. The feature of the proposed model is that all information have to be transfer to the common information base. When a unique product order has been received or decision to create innovative products has been taken, parallel pricing and technical project developing are necessary. At the first stage, the economic rationale and the technical project are formed. The economic rationale defines the requirements and the preliminary price. The technical project specify the objectives and conditions of operation. Then design documentation is created in the form of parts composition, functions of unique products, design features. The latter stage is technological documentation developing in the form of a technologies description and restrictions on the processes execution. On the basis of the developed documents, a plan for the production of unique products is formed from the information base (Fig.3).

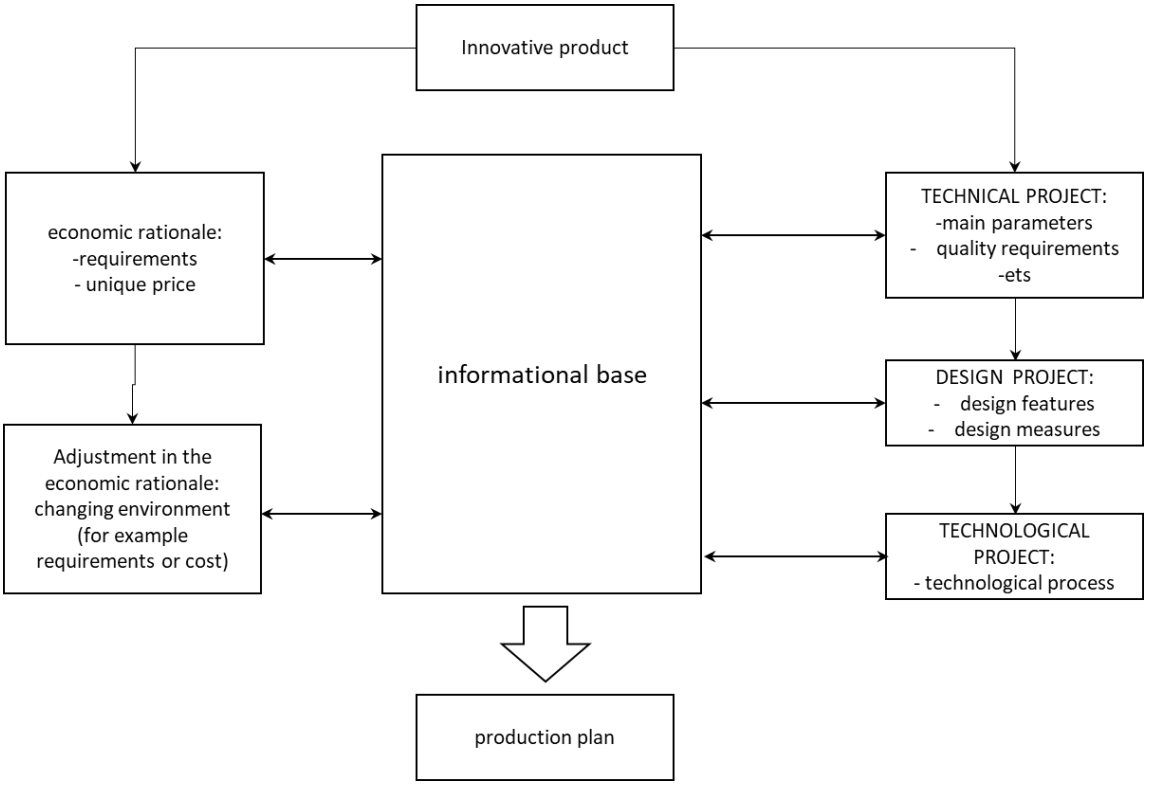

Figure 3. Informational communications during the innovative products production preparation.

The advantage of this model is that one can manage his order individually and ensure overall planning throughout the enterprise.
The proposed system will enable:

- to optimize terms of implementation of orders,
- to define and set responsibility for non-execution of the plan.
- to simplify logic of processes, and control of execution,
- to estimate project implementation each stage costs. [24]

Suggested system will allow to form an information base which is necessary for costs estimation on each stages of new products creation. Only such data base will provide the valid information for cost method pricing.

4. Results of the investigation

The authors carried out the research by means of the machine-building enterprises questionnaire (Ural Federal Region). The main purpose of the study was to evaluate the application of different pricing methods for industrial innovative products. 30 enterprises were participants of the research, respondents were offered a questionnaire with closed questions. Only 15% of the enterprises that took part in the survey do not produce products according to the state order. The results of the questionnaire are shown in Figures 4,5.

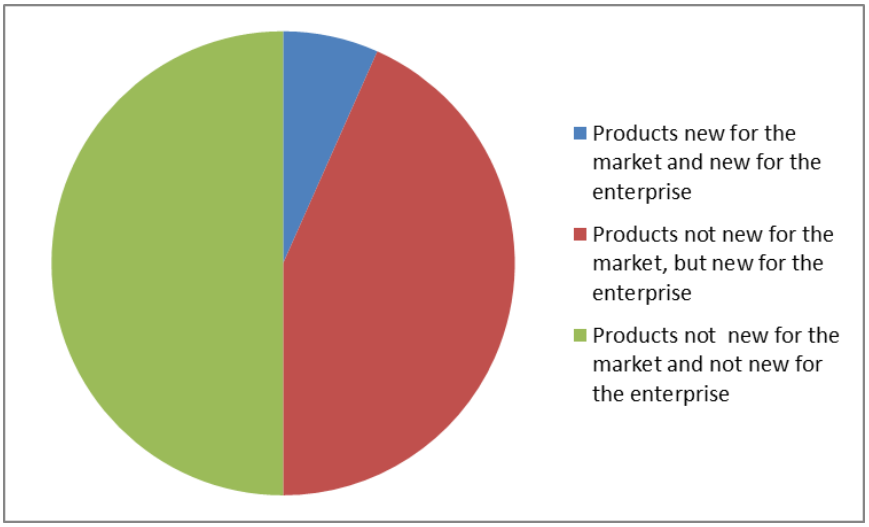

Figure 4. Structure of responses to product innovation.

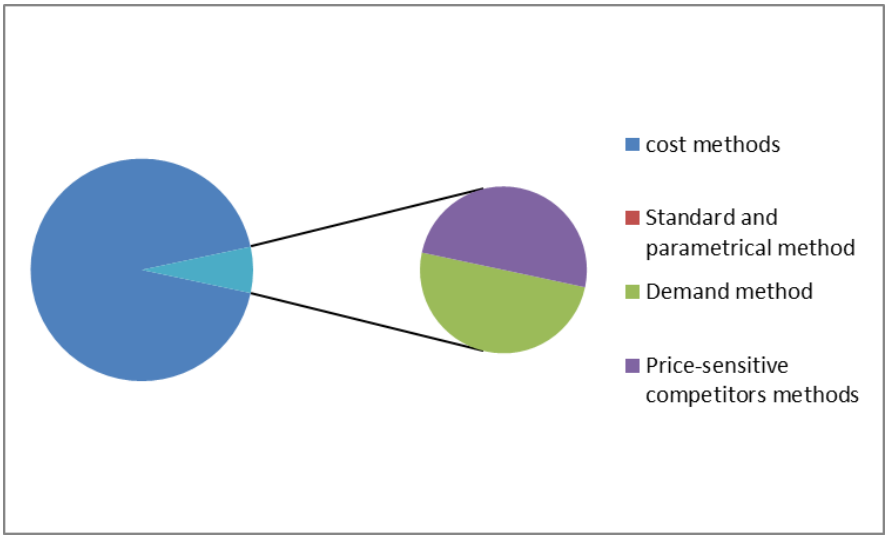

Figure 5. Structure of answers to the question on new products pricing methods (according to the survey conducted).

As can be seen from the presented research, some of the new products released to the market by industrial enterprises are the result of improving innovation, and some are the result of the import substitution program. At the same time, cost pricing methods prevail. According to the authors opinion, this trend is related to the specifics of the machine-building industry, including the feature of pricing for the products of the state order.

The lack of a common approach and accepted methodology for the collection, processing and use of statistical information on orders already completed (or in progress) was identified by respondents as one of the problems in the formation of prices by the cost method. The existence of such system would justify costs in the pricing by a cost method, also for R&D.

5. Conclusion

During creation of the knowledge-intensive, new products the price forms on the basis of cost methods. Creation of the database on execution of standard operations and works during R&D at the enterprise will allow to prove the most controversial costs.

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