

# *Procurement Management as a Condition of Increasing the Competitiveness of Agro-Processing Enterprises*

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**Abstract** - The authors systematized approaches to the essence of the categories “product competitiveness”, “enterprise competitiveness”, “field competitiveness”, “regional competitiveness” and “country competitiveness”. The authors formulated the definition of competitiveness. The approaches to the classification of competitiveness factors are systematized. The authors’ classification of factors was developed. The authors have proved that the main factor in the competitiveness of enterprises is raw materials. Obtaining raw materials by the enterprise is carried out through procurement. Thus, the management of procurement of goods, having the largest share in the cost of the final product, is the main factor affecting the competitiveness of the enterprise. The authors have systematized approaches to characterizing the essence, goals and objectives of procurement management and to the classification of purchases. The authors’ definition of procurement management and the composition of its principles are proposed. The mechanisms of influence on the management of procurement and processing enterprises of the agro-industrial complex are investigated on the example of the open joint-stock company “Pukhovichi Plant of Grain Products” (Belarus). Possible ways to improve the procurement management of the studied organization are proposed. The recommendations proposed by the authors can be used by other organizations of the processing industry of the agro-industrial complex.

**Keywords** - agro-industrial complex, competitiveness, procurement management, purchases.

## I. INTRODUCTION

Enterprises of the agro-industrial complex play a major role in the stability and security of the country and are inextricably linked with the state power. In modern conditions of economic crisis and unreasonable state solutions to the agricultural sector is in decline, because is the levelling of the interests of small and medium

agricultural producers, reducing their competitiveness and increasing threats to food security. Large state-owned agricultural enterprises are supported by various state mechanisms, but cannot compete with private producers on the basis of market methods. In 2019, the Republic of Belarus adopted legislation that allowed agricultural enterprises of the country not to pay for previously acquired debts, to receive instalments and deferrals, and not to bear any obligations in connection with late fulfilment of obligations. In 2020, this mechanism was re-applied. This situation gave rise to the collapse of the agro-industrial complex, a "vicious circle", since, without paying off the debts with the partner enterprise, the next time the neighbouring enterprise will also not be able to make payments. All this was a consequence of the lack of competition in the agricultural sector of the country. Belarusian agro-industrial enterprises face an important task, which consists in the need to increase competitiveness and stop the economic decline, which should have a positive impact on the state and dynamics of the national economy.

The sphere of procurement is the basis for the successful functioning of the enterprise in the market, however, following the Soviet traditions, the agricultural industry ignored the mechanisms of procurement management as a factor of increasing the competitiveness of products. The development of unified approaches to management, the study of the relationship between procurement and competitiveness is of high practical relevance.

General theories of competitiveness have been actively studied by Russian and foreign scientists. Also, a large number of scientists have studied the mechanisms of

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procurement activities in public and private companies. However, only one dissertation among the CIS countries reflects attempts to link procurement with industrial competitiveness. There are no fundamental works on this topic in Belarus. D. Belousov, E. Bratukhina, M. Kulish, E. Okoledova, V. Savchenko, N. Yashin published their thesis on the topics of competitiveness management [1-5]. There are fewer studies related to this activity in agriculture, because in the territory of the CIS countries, agriculture has long been in a completely uncompetitive environment with divided markets and unchanged suppliers. Thus, the analysis of this market and factors has a high theoretical relevance.

The effective functioning of the procurement management system at the enterprise affects all areas of economic activity of the enterprise. Procurement management, including both price and non-price components, has the greatest share in the final product, and therefore is the main factor affecting the competitiveness of the enterprise. These conclusions are confirmed by studies of various authors (M. Porter [7], A. Grishin [8], V. Savchenko [5], S. Makrak [9]).

## II. MATERIALS AND METHODS

*Object of the research* is a procurement management as a factor that determines the ability of modern enterprises of the processing industry of the agro-industrial complex to compete in the modern market.

*Subject of the research* is a set of organizational and managerial relations that arise during the formation and development of the system of managing the competitiveness of agro-processing enterprises by influencing procurement activities on the example of the Open Joint Stock Company "Pukhavichy Bread Products Plant".

*The aim of the research* is to study and develop the theoretical and methodological foundations of procurement management in order to increase the competitiveness of modern enterprises of the processing industry of the agro-industrial complex and practical recommendations aimed at improving the procurement system.

### *Tasks of the research*

1. Explore the concept and essence of competitiveness. To formulate the author's approach to the characterisation of the essence of competitiveness.
2. Determine the factors that affect the competitiveness of organizations of the agro-industrial complex.
3. Identify the relationship between the effectiveness of procurement activities and the competitiveness of the enterprise.
4. Research the models and fundamentals of procurement activities in enterprises.
5. Analyse the procurement management at OJSC "Pukhavichy Bread Products Plant", suggest ways to

improve efficiency and competitiveness by improving the procurement system.

*Hypothesis.* Procurement management is the main factor in improving the competitiveness of enterprises of the processing industry of the agro-industrial complex.

*Methods of the research.* General scientific (material-dialectical, formal-logical, system, functional, hermeneutical and phenomenological analysis), special (historical, analytical, statistical, program-target), private (classification, cluster analysis and synthesis, structural and functional modelling, point-index estimates, economic and mathematical modelling).

*Theoretical basis of the research.* Theories, concepts and hypotheses presented in modern economic literature, scientific research and thesis on competitiveness, competitiveness management, procurement and procurement management.

*Empirical basis of the research.* Data provided by the National Statistical Committee of Belarus, the Analytical Centre under the Aegis of the President of Belarus, international statistical data. Data of business plans and statistical reports, the structure of enterprise management and quality management of enterprises of the processing industry of the agro-industrial complex of the Republic of Belarus, data on purchases and sales, reporting of OJSC "Pukhavichy Bread Products Plant".

## III. RESULTS AND DISCUSSION

Authors analysed various types of competitiveness: "product competitiveness", "enterprise competitiveness", "field competitiveness", "regional competitiveness", "country competitiveness".

Abstract and mathematical approaches of researchers can be distinguished to determine the competitiveness of enterprises.

Abstract approach assumes the ability to develop, manufacture and sell products of the best quality and price parameters, give priority to work with consumers, innovation, creativity, management mechanisms, service level to achieve the set goals of the company, the breadth and depth of the range, the image of the company. It presupposes the immaterial and incalculable superiority of some subjects over others. It is characterized by subjectivism and invalidity of research (V. Sinko [10], N. Yashin [6], A. Vladimirov and V. Kershenbaum [11], N. Grishakina [12], A. Blinov [13], V. Zakharov [14], Z. Vasilieva [15], Y. Rubin and V. Shustov [16]).

The mathematical approach connects the competitiveness of enterprises with the price and quality of goods (M. Mironov [17]), economic indicators of the state and dynamics of enterprise development (L. Kalashnikova [18]), the ability to cover losses and risks of the size of equity capital, the size of income and expenses (G. Chebotarev [19]), the share of the received solvent

demand (T. Kupriyanova [20]), indicators of the stock, financial and labour market (M. Starovoitov, B. Fomin [21]). It is characterized by objectivism and validity of research.

Authors have identified weaknesses in the studies presented in the review. Approaches to determining competitiveness do not cover the following factors:

- the territorial boundaries (given the globalization of the economy most appropriate to indicate that competitiveness is determined within pre-defined territorial boundaries (district, region, country), otherwise we should talk about global competitiveness. At the same time, competition in a given market is important, and sometimes in cases where the goods are not subject to movement, or transport costs are higher than the cost of the goods this geographically limited type of competition is the most interesting;

- the person who is able to conduct a comparative analysis of competitiveness (competitiveness indicators should be developed by an external independent person who also evaluates the data for compliance with these indicators);

- the period of time when the competitiveness of the enterprise can be fixed and during which the signs of competitiveness remain. It is also advisable to indicate that competitiveness is maintained within a predetermined period.

Taking into account the above-mentioned comments, the authors have formulated the following general definitions of the competitiveness of an enterprise, industry, country, region:

Competitiveness of the organization (enterprise) – estimated on the basis of statistical data and expert methods, the superiority of the level of development of an individual enterprise over the level of development of other analysed enterprises in a certain industry and period of time and within a certain territory, including the viability and development of the enterprise, profit and its excess over the level of possible risks, production and sales volumes, resource intensity, stability, income level of employees and other categories that are subject to accounting in accordance with national or international legislation and customs.

In authors' opinion, the competitiveness of the organization is the main concept of this study. The developed definition fully covers the range of issues that can be evaluated in competitiveness studies, and the range of problems that need to be resolved and processes that need to be improved. Also, the use of this definition allows the authors to make accurate verifiable calculations of the level of competitiveness and compare the impact of the implementation of the results of various studies on the change in the level of competitiveness of enterprises.

The competitiveness of an industry is the superiority

of the level of development of a certain branch of the economy of a particular country (or region) over the corresponding industry in other analysed countries (or regions) over a certain period of time, estimated on the basis of statistical data and expert methods.

The competitiveness of a country is the superiority of the level of economic development of a certain country over the level of the economy of other analysed countries over a certain period of time, formed during the process of globalization and estimated on the basis of statistical data expert methods.

The authors have developed definitions of conditions and factors of competitiveness. Under the "condition of competitiveness" the authors understand the state of the system in which enterprises (industries) have the opportunity to compete with each other. Under the "competitiveness factor" the authors understand the causes and driving forces controlled by economic entities that promote competition between enterprises (industries).

The authors have developed their own classification of competitiveness factors:

- by area of operation (internal / external);
- according to the method of influence on the factor (strategic / functional / conjunctural / institutionalization / legal and administrative regulation / market parameters);
- on freedom of use (specific / commonly used);
- by the source of occurrence (resource / intra-question / intra-industry / inter-industry);
- by the entity that created this factor (organizational, investment, consumer, industry, state);
- according to the ability of verification and measurement (verifiable and calculable / non-verifiable and uncountable).

After analysing all the listed factors and characteristics of competitive organizations, it should be noted that competitive companies should take into account, work and act with all the listed factors, because each factor to a certain extent affects the achievement of the set organizational goals. Due to the presence of a large number of factors affecting competitiveness, the most competitive are large international enterprises that can affect all of the above factors. It is advisable for small businesses to work with the main factors, apply copying mechanisms, and focus on the use of specific factors.

Most researchers put raw materials in the first place among the factors affecting the competitiveness of enterprises (G. Antonov, M. Porter, M. Tarasov, S. Baronin, and other authors) [7, 22, 23, 24]. Then, according to the frequency of mention, there are human resources and financial resources (or investments).

Obtaining raw materials by the enterprise is carried out through procurement. Thus, the management of procurement of goods, having the largest share in the cost

of the final product, is the main factor affecting the competitiveness of the enterprise.

The effective functioning of the procurement management system at the enterprise affects all areas of economic activity of the enterprise. Procurement management, including both price and non-price components, has the greatest share in the final product, and therefore is the main factor affecting the competitiveness of the enterprise.

These conclusions are confirmed by studies of various authors (M. Porter [7], A. Grishin [8], V. Savchenko [5], S. Makrak [9]). Authors studied the concept of procurement in the economic sphere in the works of various authors.

Purchasing, logistics (in this case, the authors use the term "purchasing") refers only to the process of purchasing resources (including materials and semi-finished products). According to most authors, this term is used by the state and state-owned enterprises.

Procurement management, procurement logistics (in this case, the authors use the term "procurement") from the organizational point of view is the provision of supplies of material resources, semi-finished products, components and other items necessary for the enterprise to conduct its main (operational) activities. This definition is usually used in the analysis of the activities of modern market enterprises.

According to other scientists it is difficult to distinguish between the procurement and logistics of production, since in any case these actions are the responsibility of the procurement division (supply), and public procurement procedures (governed by law) and market purchases (on the free market) do not have fundamental differences. In these definitions, purchases, procurement, and procurement management are considered synonymous.

According to the authors, for the study of the mechanism of functioning of procurement in the organization, as well as their impact on improving competitiveness, all of the above definitions can be considered synonymous.

All definitions of procurement management have been divided into the following categories:

- by repeatability (one-time / systematic);
- by establishment period (tactical / operational / strategic);
- by functional orientation (as a goal achievement / as a process / as a purchase organization / as an external resource management / as an activity / as a resource / as a supplier management / as a division of the organization, a link in the production cycle);
- by content (economic / administrative);
- by measurability (measurable / unmeasurable);
- by environment (external / internal).

The authors have considered the views of researchers on the goals and objectives, principles, functions, classification and made the following conclusions.

The goal of procurement management is to meet the needs of production in materials with the maximum possible economic efficiency.

Procurement management tasks:

- determination of the nomenclature and volume of necessary resources;
- development of a procurement strategy within the framework of the company's development strategy;
- preparation of a procurement plan;
- calculation of current and total procurement costs;
- market research and identification of supplier opportunities;
- identification of the territorial characteristics of the supply;
- the division of labour and direction of procurement activities;
- organization of the process of movement of raw materials, materials, components and spare parts from the procurement market to the warehouses of the enterprise;
- optimization of delivery times;
- analysis of the condition and use of warehouses.

The main functions are planning, organization and control.

The authors have identified a number of criteria for classifying purchases: by type of purchased resource; by frequency of purchases; depending on the need for transportation; by complexity; by the presence of a special procedure; by the number of suppliers. Depending on the type of purchase, the structure of the procurement department, the procurement mechanism, and ways to improve efficiency are determined.

The authors have analysed the principles of procurement contained in a number of studies (M. Kulish [25], N. Kidlova [26], V. Savchenko [5]), supplemented the list of principles independently, the authors identified fourteen principles of procurement management: 1 – scientific; 2 – concreteness; 3 – constructivity; 4 – reliability; 5 – variability; 6 – complexity; 7 – the greatest caution; 8 – parity; 9 – customer's professionalism; 10 – openness; 11 – equality of rights, absence of restrictions; 12 – targeted spending of funds; 13 – strict reporting; 14 – cooperation between the customer and the supplier.

Taking into account the analysis, the authors have formulated the following general definition of procurement management: procurement management is a systematic activity of an enterprise aimed at meeting the production needs for materials at a certain time, on a certain territory, at a certain price with the maximum possible economic efficiency.

Studies of models of construction procurement can be

divided into three main types, in relation to the understanding "model": "the model" as a hierarchical organizational system; "the model" as a system of business processes associated with supplier selection; "the model" as a mathematical algorithm for selecting a supplier.

The authors have identified four hierarchical models:

- centralized – effective in large organizations that have one main activity and do not have separate divisions;
- decentralized – effective in small and medium-sized organizations that do not have the funds to create a special purchasing unit;
- distributed – effective in holdings, associations, enterprises with separate divisions;
- hybrid – effective in large organizations (based on a centralized model) and in medium – sized organizations (based on a decentralized model) engaged in heterogeneous activities.

Models as a system of business processes related to the selection of a supplier allow you to implement scientifically based effective business processes in the existing procurement management system.

Mathematical models based on fuzzy logic, hierarchy analysis, linear and nonlinear programming are of the greatest interest for modern research. The history of these models is just over 20 years. Mathematical models try to minimize the subjectivity of the procurement mechanism and make decisions in unclear, inaccurate and uncertain situations.

The authors investigated the model of procurement management of OJSC "Pukhavichy Bread Products Plant". In the analysed organization, a hybrid model of procurement management functions, according to the type of decentralized model – for raw materials and equipment, according to the type of distribution model – for small goods. Under the condition of optimal division of rights, duties and responsibilities at the enterprise, the hybrid model can function effectively at the enterprise of the processing industry of the agro-industrial complex.

To confirm the successful functioning of the procurement management system at the enterprise, the authors investigated the volume of purchases of raw materials from 2015 to 2020, identified the main types of grain and non-grain raw materials, analysed market and non-market methods of purchasing raw materials, analysed manufacturers and suppliers, the structure of material costs, the organizational structure and procurement model of the organization.

The material consumption of the production of OJSC "Pukhavichy Bread Products Plant" varies from 662 to 742 rubles per 1000 rubles of gross output. There is a decrease in material consumption in 2019 and 2020. The material consumption of production of the agro-industrial complex in the Republic of Belarus varies from 719 to 1360 rubles per 1000 rubles of gross output. Accordingly, the authors recognize that the procurement management system of

OJSC "Pukhavichy Bread Products Plant" is satisfactory.

The procurement management system at the enterprise is complex, it necessarily involves various departments and specialists: authorized persons (signing the contract and approving the transaction), performers (customers: purchasing engineer and commercial department), heads of shops and sections (compilers of applications), head of the production laboratory (in determining quality), warehouse manager (entrance control, acceptance, accounting, internal movement), chief economist (volume planning), chief accountant (budget planning and its execution, verification of details, payment), legal adviser (drafting and checking contracts for compliance with the requirements of the organization, claim and claim work).

Tasks of an effective procurement system at the enterprise is not only to select a supplier and deliver products, but it is also important that the main task is to form a set of activities during the procurement year of the enterprise: planning purchases, collecting current applications, distribution of available goods, evaluating the cost of purchased products taking into account product characteristics, prices and deliveries, selecting suppliers, concluding contracts, financing purchases, executing contracts, delivery, checking purchased products and services, monitoring. During the nine main stages of procurement activity, the authors identified the main shortcomings, ways to eliminate them, and also made conclusions about the effectiveness of eliminating the identified shortcomings. The results of the study are presented in Table 1.

The authors investigated the mechanisms of influence on the procurement management system of the enterprises of processing industry of the agro-industrial complex and possible ways of its improvement on the example of the refinement of the model of procurement of OJSC "Pukhavichy Bread Products Plant" on the basis of results of detection of shortcomings in the system of procurement management identified in the previous section of the study.

At the enterprise, the procurement system was reformed as an algorithm for influencing the existing procurement system. The results of the practical implementation of the algorithm are shown in Table 2.

Reform of the procurement system as an improvement of the internal procurement mechanism is an adaptation of the ten-level cyclical procurement process for enterprises of the processing industry of the agro-industrial complex: 1 – planning; 2 – creating a list of material requirements; 3 – analysis; 4 – strategy development; 5 – search for suppliers; 6 – evaluation of suppliers; 7 – selecting suppliers; 8 – signing the contract; 9 – delivery control; 10 – quality assessment.

TABLE 1. DISADVANTAGES OF THE PROCESS OF PROCUREMENT IN OJSC "PUKHAVICHY BREAD PRODUCTS PLANT"

Stage	Risk factor	Disadvantages	Ways to improve it
Planning	Increase in the price of agricultural products due to crop failure at the time of plan execution	Conclusion of framework contracts for agricultural products without an agreed price and volume (protocols of intent)	Determining the price of agricultural products for the purchase year at the planning stage. Price fixing in agreements with all potential producers
Distribution of available products	Lack of goods in stock when contacting the customer's division	Execution of unscheduled requests at the expense of goods available in the organization's warehouse	The release of goods on unscheduled requests is allowed only in agreement with the head and departments, according to whose requests the goods were purchased
Cost estimation	Corrupt (purchase at an inflated price)	The catalogue of priority manufacturers, suppliers, and price comparison algorithm is missing.	Approval of the procedure for comparing price offers, the list of Internet sites and catalogues required for price comparison
Monitoring	Lack of professionalism (purchase at an inflated price)	Lack of effective liability measures	Optimal distribution of responsibility, introduction of the stage of application of responsibility measures and incentives

The authors have developed a detailed description of each stage of procurement activity, defined the start and end dates of each period and their content.

Reform of the procurement system as an improvement in dealing with external and internal factors represents the response of the organization and its ability to adapt to the interaction of departments with each other and with the external environment.

In order to take into account, the largest number of factors, the authors have adapted the systems of external factors of the PESTEL (political, economic, social, technological, economic and legal factors of the external environment) and internal factors (ownership, selection method, pricing policy, division of responsibility, management system, risk distribution) into a single model to develop the best behaviour of the enterprise.

Elimination of the identified shortcomings and implementation of the proposed measures will improve the existing procurement system in the organization, which will strengthen the competitiveness of the organization, the industry, the region and the Republic of Belarus as a whole.

TABLE 2. ALGORITHM OF IMPACT ON THE PROCUREMENT SYSTEM OF OJSC "PUKHAVICHY BREAD PRODUCTS PLANT"

Stage according to plan	The measures taken
The allocation of priorities, and setting goals	A priority area is identified: control of procurement activities carried out by the logistics Department. The goal is defined: to improve the quality of procurement activities of this division. The following tasks are defined: - checking the competence of specialists and the validity of the choice of suppliers; - lowering the price of purchased products and eliminating delivery deadlines; - increasing control over the division's activities, introducing liability measures
Forming a team	The first Deputy Director and legal adviser have been given control over purchases made by the logistics Department.
Development of documents regulating purchases	Development of a new procurement regulation (detailing the procurement process: - mandatory request for price offers; - limitation of the number of persons who approve applications; - a list of Internet aggregators of suppliers, manufacturers' databases is established; - the purchasing division is required to send price offers to these suppliers)
Updated procurement process	Control over the conclusion of all contracts concluded based on the results of purchases made. (- the activity of the procurement division was found unsatisfactory due to the low qualification of specialists, which led to an unjustified choice of suppliers; - the activities of the temporary procurement control team were terminated; - the procurement Department was reformed as a logistics engineer with the hiring of a new specialist; - the procurement regulations were approved).

### III. CONCLUSIONS

The authors studied the essence of competitiveness. According to the authors, it is necessary to highlight "the competitiveness of the enterprise", "the competitiveness of the industry", "the competitiveness of the region", "the competitiveness of the country". The authors' definition of the competitiveness of an organization (enterprise) is formulated. Definitions of conditions and factors of competitiveness have been developed. Approaches to the classification of factors of competitiveness in the sphere of functioning; by the way of influencing the factor; on freedom of use; by the source of occurrence; by the subject that created this factor; wherever possible, verifications and measurements are suggested.

Most researchers put raw materials in the first place among the factors influencing the competitiveness of enterprises. The receipt of raw materials by the enterprise is carried out through purchases.

Procurement management, procurement logistics is organizationally ensuring the supply of material resources that are necessary for the main activity. It seems to the

authors that the definitions of purchase, supply, procurement management in this study can be regarded as synonyms.

The authors formulated the goal, objectives and functions of the procurement management process. A general definition of procurement management is presented. Four hierarchical models of procurement management are highlighted. They are: centralized,

decentralized, distributed, hybrid.

Reform of the procurement management system was considered in three main areas: the algorithm for influencing the existing procurement system at the enterprise; improving the internal procurement mechanism; improving work with external and internal factors.

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