

## Organizational and Economic Directions of Competitive Recovery of Russian Pharmaceutical Enterprises

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### ABSTRACT

The urgency of the analyzed issue is due to the fact that the sustainable development of the economy of any country is the most important level of public health, which in turn, is conditioned by providing high quality pharmaceutical products. This is determined by the effective activity of the pharmaceutical industry, its competitiveness. Thus, the study of the competitiveness of Russian pharmaceutical enterprises, the development directions of its improvement should contribute to the sustainable development of the Russian economy. The article is focused on the development of organizational and economic ways of competitive recovery of the pharmaceutical industry. The leading approach to the study of this issue is an analytical approach that allows identifying the main directions of competitive recovery of the pharmaceutical industry. The results of the article: the study of possible organizational and economic ways of competitive recovery of Russian companies in the pharmaceutical industry, the algorithm of directions of its increase. The made recommendations have been tested in a number of Russian companies in the pharmaceutical industry. The article date may be useful in the management of the pharmaceutical industry now, as well as for understanding the specifics of the domestic pharmaceutical industry.

### KEYWORDS

Competition; competitiveness; enterprise competitiveness; ways to improve competitiveness; company

### ARTICLE HISTORY

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### Introduction

The pharmaceutical industry has a special place in the economy of any developed country. It is an important element in the health care system, thus ensuring the stability and sustainability of the development of human capital is an integral part of the industrial complex, its status largely characterizes the level of use of high technologies in the country. In Russia, the pharmaceutical industry is also an important part of the industrial complex (Strategical

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Development of the Russian Pharmaceutical Industry for the period up to 2020, 2009). However, it has serious problems associated with the use of obsolete technologies, low-innovation component, and lack of breakthrough research and development of new drugs (Roy, 2011; Civaner 2012). All this reduces the competitiveness of the Russian pharmaceutical enterprises and requires the formation of a set of measures for its improvement.

Special attention has always been paid to the problems associated with the competitive recovery of enterprises in the economic literature (Chesbrough, 2010; Jasper, 2010; Shirokova, 2012). You can select a number of scientific schools, directions and recommendations both for the improvement of individual aspects of the competitiveness, and its level at every enterprise as a whole account (Angel, 2006).

At the same time, the existing market conditions, the specifics of the Russian market and economic conditions, characteristics and problems of the development of the Russian pharmaceutical enterprises require new studies to ensure and enhance the competitiveness of the pharmaceutical industry.

## **Materials and Methods**

### **Research methods**

In the course of research the following methods were used: theoretical (reviewed existing instruments of state influence on the development of the Russian pharmaceutical industry, the main tendencies of the dynamics of the pharmaceutical market, the prospects for strengthening the competitiveness of the Russian pharmaceutical companies.); diagnostic (algorithm choice of directions of its increase .The made recommendations have been tested in a number of Russian companies in the pharmaceutical industry.); empirical (distinguished and systematized features of the Russian pharmaceutical industry, affecting the competitiveness of enterprises in the market, economic, political and legal grounds); methods of mathematical statistics and graphic results.

### **Experimental research base**

Experimental research base is pharmaceutical industrial enterprises of the Samara region.

It is advisable to carry out the study of organizational and economic ways of competitive recovery of the Russian pharmaceutical industry in the following way:

It is necessary to examine the current state, characteristics and problems of the development of the Russian pharmaceutical industry to identify the areas of their influence on the competitiveness of pharmaceutical enterprises (Report on the Activities of the Ministry of Industry and Trade of the Russian, 2015).

It is advisable to clarify the concept of the competitiveness of the enterprise, taking into account the specificity of the pharmaceutical industry, since the characteristics of this concept in many ways determine the direction of further research.

The development of a methodical approach to determine the competitiveness of pharmaceutical enterprises is an important element of this work. It will assess the achieved level in order to develop recovery ways.

The final stage of the study is to develop an algorithm which helps to choose the directions of competitive recovery of the pharmaceutical industry and to test the results.

## Results

### *The status of the Russian pharmaceutical industry and pharmaceutical market at the recovery stage after its sharp decline*

Of course, the macro-economic conditions of recession affect its growth rate. However, in general, we could notice the positive dynamics of the development of pharmaceutical enterprises (Romanova, 2009; Lichtenberg, 2009).

Taking into account these trends, as well as the importance of the pharmaceutical industry for the Russian economy as a whole, the government adopted a number of important measures for raising and strengthening of the Russian pharmaceutical industry, among which a special attention is paid to “Development Strategy of the Russian pharmaceutical industry for the period up to 2020” (Strategy PHARMA 2020) and the federal target program (FTP) “Development of the medical and pharmaceutical industry for the period up to 2020 and beyond”. A distinctive feature of the Strategy is its complexity, because it takes into account the comments of such agencies as the Ministry of Defense, the Ministry of Economic Development, as well as the Federal Antimonopoly Service (FAS) of Russia. The final version of the PHARMA Strategy 2020 includes proposals formed by the entities of Russia aimed at the development of pharmaceutical clusters.

The increased attention to the pharmaceutical industry, the growth of the pharmaceutical market volumes as a whole corresponds to the global trend. Currently, the pharmaceutical industry is characterized by high growth rates both in the world and in Russia. The growth in the global market in average, according to various estimates, is from 6 to 10%, in the Russian market - from 4 to 6% per year (see Table 1).

**Table 1.** The basic indicators of the development of the pharmaceutical industry

№	Indicator	2010	2012	2014	2015	2016
					value	foreca st
1.	The volume of the global pharmaceutical market (billion rubles) (in terms of rubles - 15 April, 2015)	44954	51108	59401	70642	76380
2.	The volume of the Russian pharmaceutical market (billion rubles)	735	919	1174	1291	1415
3.	The production dynamics of pharmaceutical substances in Russia (thousands of imputed tons)	1522,7	1338,7	1177	1102	1050

Source: It is made by authors

However, the growth of the domestic pharmaceutical market is due to lower production volumes of its own pharmaceutical substances and active pharmaceutical ingredients (API), and is due, above all, to increased production of medicines (drugs) and other types of pharmaceutical products by foreign companies.

The basis of the domestic production of drugs is foreign substances and the API. The volume of Russian production of pharmaceutical substances has decreased since the beginning of 1990 by 5.5 times. This study has allowed determining a fairly positive outlook for the Russian pharmaceutical market.

### **Features and development problems of the Russian pharmaceutical industry**

The conducted analysis shows that the emerging trends of the pharmaceutical market growth is largely based on the import substances growth from industrialized countries and it does not allow solving a number of very important issues for the development of the domestic pharmaceutical industry. The author's classification of problems of the domestic pharmaceutical industry. The most important of the above problems is the lag of the Russian pharmaceutical industry in the production of foreign substances according to their value, production volume and quality. The impact of the cost factor has also increased significantly due to changes in the national currency. Among the very important problems you may also mention technological backwardness of the Russian enterprises, the low level of investment in research and development, and a high level of wear and tear of the equipment. This significantly reduces the competitiveness of enterprises of the Russian pharmaceutical industry.

The pharmaceutical industry has specific features that influence the activities of manufacturers. Author's classification of these features is shown in Figure 1.

Characteristics			
	<i>Market</i>	<i>Economic</i>	<i>Politico-legal</i>
Features	Market saturation by foreign pharmaceutical enterprises	High innovation potential of foreign manufacturers	Active intervention by government
	Orientation of Russian manufacturers on generic drugs production	Long development and production process	Complex process of new drugs and active pharmaceutical ingredients entry (APIs)
	Research and capital intensity of pharmaceutical production	Dependence of domestic pharmaceutical industry on imported raw materials	Clustering policy of the pharmaceutical industry

**Figure 1.** Classification of the features of the pharmaceutical industry

Source: The table is drawn up on the basis of the data of the analytical agency DSM Group ([www.dsm.ru](http://www.dsm.ru)) and IMS Health, 2014

In describing these features, it can be noted that not all of them are now taken into account in the development directions of the Russian pharmaceutical industry, especially in terms of innovation potential, high-tech products. We need elaborate further actions for the state support of this industry, for example, to accelerate the process of drugs registration, and to reduce the cost of production on the basis of industrial clustering policy.

It is especially important in assessing the achieved level of the competitiveness of enterprises, choosing the organizational and environmental measures for its improvement, developing recommendations for the government. Accounting of these features would further permit the development directions to improve the competitiveness (COM) of pharmaceutical industrial enterprises.

### ***Clarifying the concept of the competitiveness of the enterprise in order to get its better compliance with the specifics of the pharmaceutical industry***

The competitiveness of enterprises is closely linked to the competitiveness of the economy as a whole and also its individual sectors and industries. The effective demand of the population, the development of innovative technologies (combinatorial chemical technologies, screening materials, biotechnology, etc.), pharmacy chains, legislative and legal restrictions affect the competitiveness of pharmaceutical enterprises.

The existing approaches to the interpretation of the concept “the competitiveness of the enterprise” little emphasize the importance of the relationship of internal, external, current and prospective business opportunities with various levels of the COM of the economy. The importance of the relationship is, first of all, in the influence of the COM of the economy on specific features of the enterprise. The features of enterprises form competitive advantages, the implementation of which enhances their competitiveness in certain economic conditions.

As a result of the analysis of various authors' interpretations, the authors of this work clarify the concept of the competitiveness of the enterprise as a combination of its external and internal, current and future opportunities - industrial, economic, technical and technological, human resources, innovation, interrelated with the economic competitiveness at micro-, meso- and macro-levels ensuring the formation of competitive advantage for their use in competition taking into account the conditions of doing business.

### ***Development of the methodical approach to determine the competitiveness of pharmaceutical enterprises***

Based on the study of different approaches to the evaluation of the competitiveness of the enterprise the authors form their methodical approach to its evaluation, taking into account the specificity of the pharmaceutical industry.

It involves two stages: at the first - they prepare and conduct an expert estimation: the analysis of statistical reporting, financial and non-financial aspects of the organization, the expert survey. The second stage involves the quantitative and qualitative methods to analyze the competitiveness. It, in its turn, involves the evaluation of the values of

particular indicators of the competitiveness and the construction of its integrated indicator.

The proposed list of specific indicators of the COM of the enterprise (in groups) is presented in Table 2.

**Table 2.** The list of specific indicators of the competitiveness of the enterprise (for groups).

<i>“Internal factors” (specific volume and performance indicators of the enterprise):</i>	<i>“External factors” (indicators of the enterprise activity in the market):</i>
1) revenue from sales	1) number of pharmaceutical distributors
2) profitability (sales, production, assets)	2) market share of the enterprise
3) share of exported products	3) order book
4) revenues from sales of blockbuster drugs	4) effectiveness of advertising (expert review)
5) number of commodity headings	
6) coefficients of financial stability and autonomy	
7) number of produced orphan drugs	
8) number of patented drugs	
9) working capital turnover	
10) ratio of sales volume to the amount of receivables	
<i>“Current Status” (recourse indicators):</i>	<i>“Perspectives” (performance development trends of the enterprise and market):</i>
1) value of fixed assets	1) ratio of strategic positioning
2) average number of employees	2) projected sales volume (production)
3) capacity utilization	3) ratio of the product index
4) cost of research	4) ratio of innovation activity
	5) ratio of market development

Source: It is made by authors

For the construction of the integral index of the competitiveness of the pharmaceutical enterprise it is advisable to use an algorithm that consists of the following steps.

1. Initial data array of primary data for a particular indicator  $Y_i$  are normalized by dividing their greatest value  $Y_{\max}$ . As a result we calculate the coefficients ( $K_i$ ), reflecting the ratio of every indicator value to the maximum, equal to a 1:

$$K_i = \frac{Y_i}{Y_{\max}}$$

Thus, the interval of possible values is in the range from 0 (worst value) and 1 (best). For ease of interpretation the index could be transformed into a percentage (0 ... 100%).

The deduction of the selected indicators to a normalized, comparable form is carried out taking into account that not all particular indicators have the same interpretation of values (for example, the decline of values may indicate an improvement).

Calculation of the average value of indicators for each unit:

$$\bar{K}_i = \frac{\sum K_i}{n_i}, \text{ where}$$

$\bar{K}_i$  - the average value of the unit i,

$n_i$  - the number of the indexes of the unit i.

Calculation of the integrated coefficient (J), adjusted for the appropriate weighting coefficient obtained by expertise:

$$J = \frac{\sum K1_i \times G_i + K2_i \times G_i + \dots K_{ni} \times G_i}{100}, \text{ where}$$

$\bar{K}_i$  - the average value of the unit i,

$G_i$  - the weighting coefficient of the unit i.

4. The interpretation of the received appraisal of J: the worst value - 0%; the closer it is to 100%, the higher the COM of the enterprise is.

### **Testing of the proposed recommendations**

The proposed recommendations will be considered using the example of a number of pharmaceutical enterprises of the Samara region of the Russian Federation: LLC "Pranafarm", LLC "STK Farm", LLC "Ozone". These companies are generally typical enterprises of the Russian pharmaceutical industry with an average production volume. The basis of their production is generic products; LLC "STK Farm" produces the same single-use syringes, medical films and consumables. In the production process is involved equipment by such manufacturers as FETTE, KILLIAN, NOACK, FREWITT, STREA and others.

The total indicators of the competitiveness of the analyzed pharmaceutical enterprises are presented in the table 3.

**Table 3.** Index summary of the competitiveness of pharmaceutical enterprises in 2012-2014

Year	Enterprise		
	LLC "Pranafarm"	LLC "STK-PHARM"	LLC "Ozon"
2012	0,581	0,679	0,680
2013	0,590	0,693	0,691
2014	0,623	0,718	0,717
2015	0,671	0,723	0,721

Source: The table is drawn up on the basis of calculations according to the proposed method, 2015.

In 2015 the leader among the considered enterprises was "STK-PHARM". The value of its integrated evaluation can be the following: the level of the competitiveness of the enterprise is 72.3% of the "ideal", the highest possible level in 2015. The worst result (67.1%) had LLC "Pranafarm". On the basis of the proposed algorithm, which helps to choose the directions, the authors formulate recommendations to improve the COM of LLC "Pranafarm". It has been found that to improve the COM of the enterprise it is necessary to

implement an investment project aimed at increasing production and product base. The calculations show that the project is effective. According to estimates, the net present value (NPV) amounts to 558.9 million rubles, the internal rate of return (IRR) - 28%. More details are given in the table 4.

**Table 4.** Indicators of industrial activity of LLC "Pranafarm" as a result of the investment program

№	Indicator	Years		
		2016	2017	2018
1	Production volumes: total (mln. packages)	180	210	300
2	Including the list of vital essential drugs (VED) (mln. packages)	100	120	180
3	Product quantity (items)	75	80	90
4	Number of innovation commodity headings (items)	0	0	4
5	Market share (%)	0,0030	0,0033	0,004
6	Amount of profit (thousand rubles)	402 000	528 900	611 800

Source: The table is drawn up on the basis of calculations according to the proposed method, 2015.

The dynamics of indicators of the COM of the pharmaceutical company LLC "Pranafarm" for 2017-2019 years, calculated according to the proposed method, providing the implementation of the proposed recommendations are presented in the table 5.

**Table 5.** Indicators of industrial activity of LLC "Pranafarm" as a result of the investment program

2017	2018	2019
0,640	0,677	0,680

Source: The table is drawn up on the basis of calculations according to the proposed method, 2015

The integral indicator of the competitiveness of the enterprise has a stable upward trend, and its value indicates that by 2019 its competitiveness will be 68% of the "perfect", the maximum possible.

## Discussions

The article represents the organizational and economic directions of competitive recovery of pharmaceutical industrial enterprises. The authors specify the notion of the competitiveness of the enterprise taking into account the peculiarities of the pharmaceutical industry, suggest the methodical approach to determine its competitiveness, and develop the algorithm for choosing the directions of its recovery. The subject of the discussion can be: the author's interpretation of the concept of the competitiveness, the stages of the methodical approach to its definition, their sequence, a set of indicators selected for evaluation. The method of calculating the integral index of the competitiveness and the proposed algorithm to choose the directions of competitive recovery of pharmaceutical enterprises can be the subjects of discussion.

The proposed organizational and economic directions of competitive recovery of industrial enterprises of the pharmaceutical industry can be used by manufacturers at any stage of its development. The identified evidence suggests a two-valued situation that takes place right now and on the one hand it expresses an increase in the global pharmaceutical market volumes, and on the other hand it shows a parallel reducing the competitiveness of some Russian producers. In this situation the tools of competitive recovery of enterprises, as well as the estimating methods can be considered highly relevant.

Currently there are some scientific works to improve the situation in the Russian pharmaceutical industrial enterprises. The individual elements of these works can be compared with the results of other authors, in particular in the methodical approach of determining the competitiveness, the stage approach to its definition, as well as a set of indicators for its evaluation. However, the proposed work has the features that differentiate it from the works that have been previously proposed by the authors.

The value of these results is the relative simplicity of the proposed implementation management tools to improve the competitiveness of pharmaceutical enterprises, and it avoids the need to involve specialized experts and to have recourse to more complex economic tools.

Theoretical and practical developments in the field of raising the competitiveness of industries represented in the works of A. Nemtsev (2007), S.N. Sirazhitdinova & B.J. Tatarskih (2012), G.I. Yakovlev (2013). The issues of the competitiveness of pharmaceutical enterprises are considered in the scientific works of E.A. Tretyakova (2012), A.V. Evstratov (2003) and others.

It is worth noting that in the above studies, the issues of the development of organizational-economic directions to improve the competitiveness of the pharmaceutical enterprises have not been examined yet.

## Conclusion

The proposed organizational and economic ways of competitive recovery of the Russian enterprises in the pharmaceutical industry will enable the solution of important problems in their economic activities, and strengthen their position in the market. Using a methodical approach to determining the competitiveness of the enterprise will allow more reasonably evaluating its achieved level, the developed algorithm to choose the directions of its improvement - to generate recommendations in order to improve the competitiveness of the enterprise taking into account the special features of the pharmaceutical industry. In general, the practical implementation of these proposals will enhance the stability of the Russian pharmaceutical enterprises, and will increase the efficiency of their business.

## Recommendations

The data of the article may be useful in the management of the pharmaceutical industry now, as well as for understanding the specifics of the domestic pharmaceutical industry.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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