

Methodology of Optimal Resource Use in the Conditions of Innovative Transformations

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Abstract:

In the conditions of market relations transformation, it is important to develop a methodology of optimal resource use for the organizations of the agricultural sector of the economy, as well as for other industries. The urgent need for this is explained by the fact that modern organizations and enterprises are in the conditions of optimizing resource use to maintain economic stability and ensure the growth of profitability (works, services). In this connection, the article considers the main directions of optimizing the resource use on the example of organizations of meat production sub-complex.

Keywords: resources, resource use optimization, economic effect, efficiency, resource availability.

I. INTRODUCTION

Organizations at the present stage are in the conditions of economic and financial independence, requiring continuous business development, which entails the solution of problems with self-financing, crediting, marketing. When planning production volumes and product range, it is necessary to consider the demand and resources for its production. In this regard, serious attention must be paid to strategic planning for the organization's development. At the level of an individual enterprise, the strategic goal may be to maximize profits while minimizing costs through the

sale of products and raw materials. Besides, the strategic goal for the meat-product sub-complex organization may be to select the area of specialization, priorities for the development of industries, increase sales, rational allocation of resources, and capital investments.

II. METHODOLOGY

Methodology for optimal resource use is based on the following main points.

In the course of the study the authors have identified the main features of the meat-products sub-complex

organizations:

Features of the applied technology [2, 3, 5]:

- high specific gravity of technically complex equipment;
- technological complexity of the finished product manufacturing process;
- large number of business processes from loading raw materials to the finished product;
- long production cycle duration.

2. Feature of the manufactured product:

- multi-operation cycle;
- high GOST and TS requirements to finished products.

Agricultural production is the main supplier of raw

materials for industrial processing (light and food industry), therefore, the second agricultural field has no direct connection with consumption. In this regard, it is necessary to note the absence of the initial and final stages of the reproductive process in agricultural production. The efficiency of agricultural development is directly related to the development of its inter-industry relations.

It should be noted that the core of the methodological approach to the optimal resource use is the inter-industry exchange in the system of meat production sub-complex, as its development contributes to the formation of market-based orders for industrial enterprises and ensures the loading of production capacity of processing enterprises. Figure 1 shows the system of material flows in the agricultural sector.

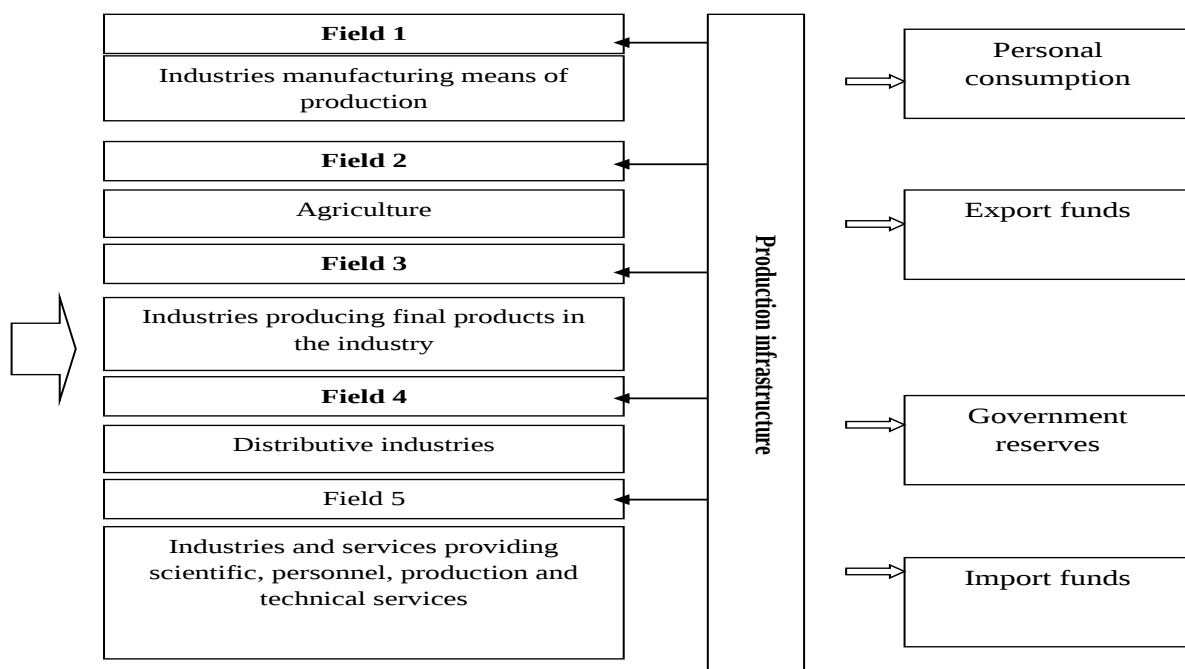


Figure 1. System of material flows in the agricultural sector

The presented scheme reflects the aggregate methodological approach to the efficiency evaluation of the optimal resource use in the conditions of market relations transformation. A necessary condition for ensuring the stable development of inter-industry exchange is the formation of economically justified

prices for agricultural machinery and industrial raw materials. Further, the authors have singled out the main factors of formation of positive financial results, which is a consequence of optimal resource use in the industry (Figure 2).

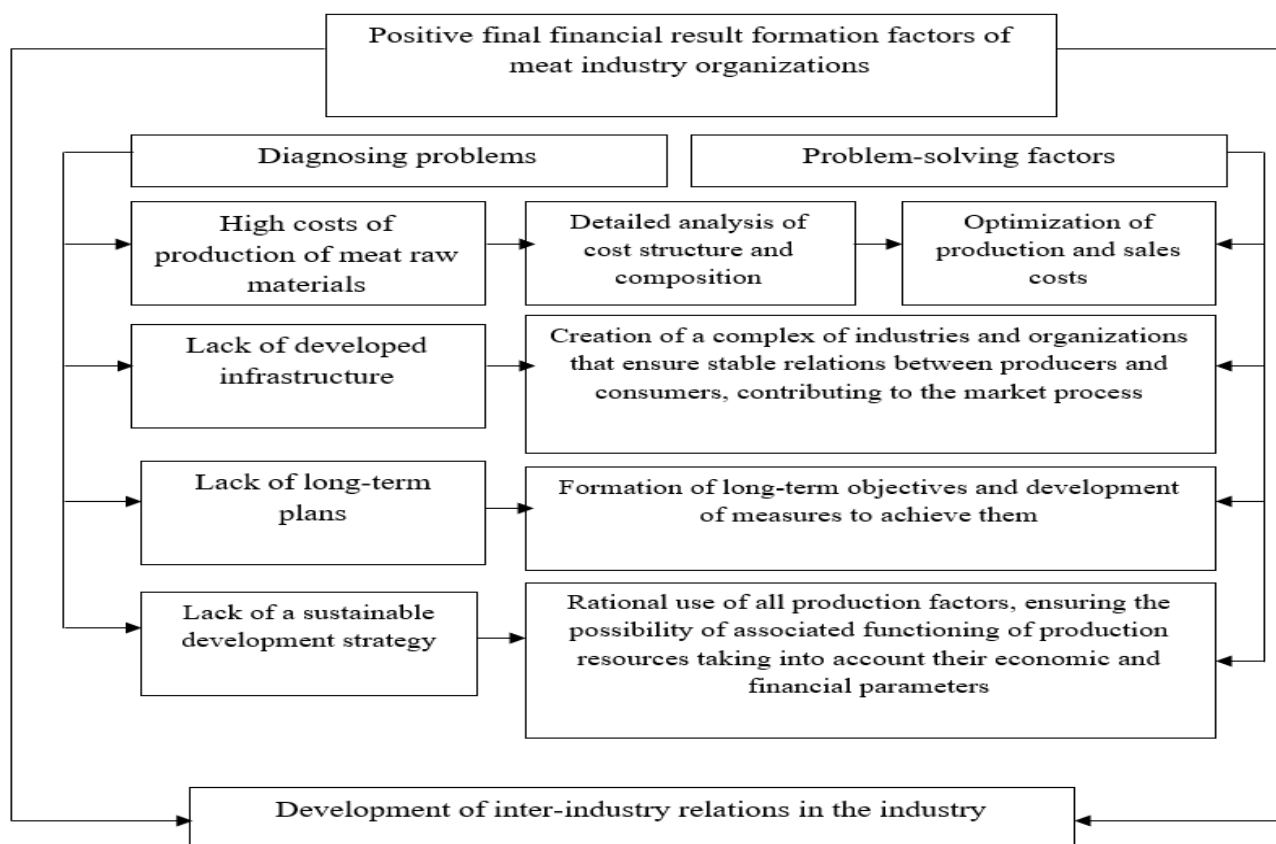


Figure 2. Positive financial result formation factors of meat industry organizations [1, 2]

In reproduction, the technological dependence of the enterprises is formed, as a result, economic relations are created to determine economic relations of the meat production sub-complex enterprises.

Formation of an appropriate infrastructure, which is a set of industries and organizations that provide a stable link between raw material producers, meat processing organizations and meat products consumers, contributes to the sustainable functioning of the meat industry. In our opinion, meat industry development is

impossible without the development of the market process, promotion, preservation and rational use of not only meat raw materials but also resources for its production.

Also, an element of the methodological approach to the development areas of optimal resource use in the market relations transformation is the development of a strategy for sustainable development of the meat industry organization. This is one of the most important problems, the solution of which is possible

only with the use of specific methodological approaches. The chosen strategy should be aimed at creating optimal conditions where the balance between the development of production resources and economic and financial parameters is achieved.

Thus, it is necessary to consider effective interaction of business processes in each structural element of an economic cycle (manufacture, distribution, exchange, and consumption) should be optimal, that is to correspond to the set parameters. In this regard, it is necessary to justify the concept of "business processes optimization" in the meat production sub-complex.

The authors understand business processes optimization as the establishment of a sequence of actions aimed at achieving the goals of the enterprise (organization) by selecting the best option for its achievement, taking into account the criteria of economic rationality and cost recovery, contributing to the efficiency of the entire sub-complex without additional investment in the industry development.

For the formation of effective interaction of business processes in the meat production sub-complex organizations in Russia as a whole and the Krasnoyarsk region, in particular, it is necessary to carefully work out the structure of the business process.

It is necessary to notice that in modern conditions methods of regulation of the meat production sub-complex characterizing the organizational-economic essence of the business process in the meat industry are insufficiently studied.

Research results have allowed us to conclude the specificity of formation and interaction of business processes in the meat production sub-complex that is connected both with features of industry development, and uniqueness of made product which is not only vital

for the person but also forms a strategic state reserve.

The study of the formation methodology of inter-industry relations allowed us to formulate the main factors of their development in the meat industry. Among them, special attention should be paid to:

- formation of private property in the industry through the process of denationalization of meat sub-complex organizations;
- ensuring state control over all sectors that form the meat production sub-complex;
- system of organizational and economic measures to protect the domestic meat market;
- wide range of free prices for meat raw materials and finished products and state intervention;
- direction of the state regulation to the formation and development of market infrastructure;
- ensuring effective demand for meat and meat products from the population;
- opportunities to export competitive meat products and raw meat [2, 3].

As noted earlier, the economic mechanism of the resources support of enterprises and their use allows us to consider factors of the industry development based on the detail of each stage, take into account the inputs and outputs of each process and establish the responsibility for the final result. In this regard, it is important to apply a process approach in the resource supply methodology, which allows to establish total control over the efficiency of resources and regulations, and the quality of final products reaching the consumer from each field of meat production sub-complex, as well as to assess the effectiveness of each process, stage, link in the production chain based on balanced indicators.

The essence of the process approach concerning the assessment of the resource use efficiency not only in the agricultural sector but also in any area of the economy is that all processes are interconnected and united into a single management system. In doing so, uniform standards, methods, techniques, and management methods are developed for the entire industry.

In the course of their activity (in all three agricultural sector fields) the organizations of the meat production sub-complex perform several functions and solve objective tasks, which are conditionally divided into groups:

- 1) define mission, objectives and strategic plan;
- 2) formulate objectives and details of objectives, development of medium- and long-term plans and programs;
- 3) develop tactics and strategy for the implementation of plans and programs;
- 4) organize the management and accounting system.

The authors consider the process approach to resource availability of modern organizations to be the most effective, as it allows us to present management at each level in the form of a clear sequence of actions [6-8].

In other words, the methodology of resource availability concerning the process approach can be implemented in the form of an economic mechanism, which includes three management components:

- strategy;
- tactics;
- clearly defined operations.

The model of the resources supports the economic mechanism of the modern organization in the process

approach consists of the following elements:

- subject (initiator) is defined as the driving force that triggers these mechanisms;
- objectives, or desired outcomes of the mechanism;
- form – methodological support of the process of achieving the objective;
- methods – processes methods and technologies aimed at achieving the objective;
- means – sources of resources that the subject uses to achieve its objectives;
- objects – economic entities, environment, economic phenomena, what the mechanism, methods, and means are aimed at.

Economic mechanism is initiated by the subject (initiator) for strategic management, as today strategic management is the only way to predict not only the potential capabilities of the enterprise but also to anticipate possible problems and threats in its activities.

Achievement of the overall objective of the meat production sub-complex organization is ensured by business processes. However, it is necessary to notice that each of the processes is intended to meet specific, accurately defined requirements of corresponding groups of consumers both in the organization, sub-complex, and in the external environment. Therefore, there is always the task of assessing the contribution of each process to the achievement of the overall objective, the task is to identify the processes in terms of importance and difficulty, as well as those processes that require the greatest attention and resources [1, 2, 4]. These are key business processes; they make a decisive contribution to the current state and future of the enterprise as a whole. In this regard, there is a need to study the real possibility of changes in the structure

of inter-industry relations in general and business processes in particular, as well as calculate the actual cost of optimization (that is, the cost part is considered) [1, 3, 4].

The main indicators characterizing the resource use effectiveness in the meat industry in the conditions of market relations transformation are:

- efficiency of the meat production sub-complex industries;
- efficiency of inter-industry relations;
- market saturation;
- price dynamics for products and raw materials in the

industry;

- competitiveness of products outside the region and the country as a whole.

The above factors contributed to the fact that we derived and justified the application of the concept of "resource use optimization", under which we understand the establishment of a sequence of actions aimed at achieving the objectives of the enterprise by selecting the best option for its achievement concerning the economic rationality criterion [9].

Let us consider the indicators of economic and social efficiency taking into account the criteria of resource availability in the context of the study (Table 1).

Table 1. Indicators and criteria of economic and social efficiency of the meat production sub-complex

[1] Performance Indicator	[2] Indicator value	[3] Comparative criterion
[4] Unit 1 Resource efficiency in the industry		
[5] Cost change ratio of meat raw materials production (Rcc)	[6] 1.18	[7] < 1.0
[8] 1.2. Return on assets ratio (Rar)	[9] 0.75	[10] < 1.0
[11] 1.3. Working capital turnover ratio (Rwc)	[12] 0.8	[13] < 1.0
[14] Evaluation of resource efficiency in the industry (Re)	[15] 2.73	
1. Efficiency of the enterprise of meat production sub-complex		
[16] 2.1. Production growth ratio (Rpg)	[17] 0.95	[18] < 1.0
[19] 2.2. Animal productivity growth ratio (Rp)	[20] 0.88	[21] < 1.0
[22] 2.3. Retail turnover growth ratio of the enterprise (Rrt)	[23] 0.93	[24] < 1.0
[25] 2.4. Turnover profitability ratio (Rtp)	[26] 0.95	[27] < 1.0
[28] 2.5. Gross profit margin ratio (Rgpm)	[29] 0.87	[30] < 1.0
[31] Evaluation of the industry enterprise performance (Eep)	[32] 4.58	

[33] 3. Competitive position of the meat production sub-complex			
[34] 3.1. Return on sales to the regional average ratio (Rrs)	[35] 0.84	[36]	> or = 1.0
[37] 3.2. Price level index (Rpl)	[38] 0.78	[39]	> or = 1.0
[40] 3.3. Market share (Rms)	[41] 0.65	[42]	> or = 1.0
[43] Evaluation of the industry enterprise competitiveness (Ec)	[44] 2.27		
[45] 4. Quality of production activities of meat production sub-complex enterprises			
[46] 4.1. Product quality satisfaction index (Rq)	[47] 0.67	[48]	1.0
[49] 4.2. Product range satisfaction index (Rr)	[50] 0.75	[51]	1.0
[52] Evaluation of the quality of production activity of the industry enterprises (Eq)	[53] 1.42		

Integral assessment of social and economic efficiency, taking into account the criteria of resource availability of meat industry enterprises, consists of a comprehensive assessment of the calculated indicators:

$$I_c = R_e + E_{ep} + E_c + E_q, \quad (1)$$

$$I_c = 2.73 + 4.58 + 2.27 + 1.42 = 11.0$$

Thus, the indicators characterizing the efficiency of resource use in the industry give us the following results. The value of the cost change coefficient for the production of meat raw materials is 1.18, while its normative value is less than 1.0. This indicates an increase in the cost of meat production, which characterizes the negative trends in industry development.

Value of all studied coefficients is less than standard value (the established norm is more or equal to 1), which indicates that there is a decrease in the

efficiency of the use of fixed assets by 25.0%, efficiency of the use of circulating assets decreased by 20.0%, production volume – by 5.0%, animal productivity – by 12.0%, retail sales volume of the meat industry products – by 7.0%, profitability of sales of the meat industry products – by 5.0%, deviation of each enterprise of the average profitability in the region was 16.0%; price level of each enterprise is below the average prices in the region by 22.0%. In addition, the analysis shows a decrease in customer satisfaction with the quality of meat products by 33.0%, as well as the degree of customer satisfaction with a wide range of meat products by 25.0%.

Thus, the methodological approach to the selection of indicators for assessing the resource use efficiency in market relations transformation is based on the following principles [10-19]:

1) principle of complexity and consistency, which allows considering performance indicators from the overall industry characteristics, taking into account its

versatility, as well as a combination of social and economic factors;

2) principle of goal-setting, i.e. the system of indicators must be aimed at achieving the ultimate goal of the agricultural sector in general and meat production sub-complex in particular – to achieve sustainable development;

3) principle of informativeness and timeliness, i.e. the system of indicators must contain indicators that allow to fully reflect the state of the industry and allow to make a forecast;

4) principle of qualitative homogeneity and quantitative comparability, i.e. when calculating the efficiency of the economic development mechanism of inter-industry relations in the meat production sub-complex [20-35], all the indicators that are taken for calculation should be in units of measurement.

III. RESULTS

Research results allow us to draw a conclusion that the optimal resource use is a complex inter-industry mechanism, which includes a set of organizational, economic, technological relations of industries in the structure of the sub-complex concerning the production of meat raw materials, their processing, production of finished products and bringing the final products to the consumer.

The basis of the methodological approach to the optimal use of resources is economic regulators, which are aimed at ensuring a combination of mutual interests of the state, producers, consumers and the formation of equivalent relations between them [3, 4].

Structural element of optimal resource use are business processes that permeate all the processes in the sub-complex (industry), contribute to the establishment of interaction between industries and areas of the agricultural sector. The importance of business

processes is determined by several criteria, among which the most important element is the possibility of reducing the cost of finished products based on economic regulation mechanisms such as strategic, tactical and operational management [36-41].

The authors have identified the effects of resource use optimization in the conditions of market relations transformation [42- 51]:

1. Ensuring transparency of the enterprise business – description of all resources of the enterprise and regulation of the actions of all process participants.
2. Optimization of resources to achieve the set objectives – elimination of duplication of functions, reduction of communication chains.
3. Resource use standardization – development of uniform standards of work performance for the organization (enterprise) as a whole based on the best indicators and practices.
4. Business stability in crises – formalization of processes essentially reduces the possibility of occurrence of emergency and crises.
5. Human error reduction.
6. Formation of own knowledge base.
7. Identification of resources for further development.
8. Business scaling – transfer of working processes to other business enterprises and newly opened enterprises.

IV. CONCLUSION

Thus, the methodology for resource use optimization is based on a reasonable choice of indicators for assessing the efficiency of resource use in the context of the market relations transformation and the basic principles that take into account the composition and quality of resources, the nature and area of their use,

compliance of the actual resource use to established standards, control over the overuse of resources, as well as, importantly, the combination of resource availability with the optimization of business processes in the organization. All this together contributes to the effective development of the enterprise in the conditions of market relations transformation.

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