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Issue

Article



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## ON THE NEED TO DEVELOP WORKAHOLICS TO SATISFY THE COMPANY'S TEAM WITH THE EFFECTIVE RESULTS OF THEIR WORK

**Abstract:** *In this article, the authors explored the importance of culture in shaping the behavior of individuals capable of managing an enterprise team, ensuring satisfaction with the results of such work, being passionate about it, and becoming its ambassador. Successful team management requires conducting research to determine the level of satisfaction with the team's performance—that is, developing workaholics. These individuals—people who love work and strive to do well—will be those capable of achieving the goals set for the entire enterprise team, ensuring the production of priority products based on a combination of culture and effective management, ensuring their demand and competitiveness among consumers in the Southern and North Caucasian Federal Districts.*

**Key words:** *specialization, productivity, management, enterprise team, risks, market, demand, competitiveness, products, quality, measure, systematicity, consumer, manufacturer, consumer culture, quality activity, economic policy.*

**Language:** English

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Introduction

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The task of increasing competitiveness is particularly pressing for footwear companies, which have lost their competitive positions in both domestic and foreign markets due to external factors (increased competition due to globalization and the global financial crisis) and internal factors (ineffective management). In response to negative external developments, regionalization and the creation of various network structures are intensifying, one of which is the alliance of producers and the state. There are three main enterprise concepts in developed economies:

- neoclassical;
- agency (joint-stock);
- concept of partnership relations.

The concept of partnerships, or stakeholder theory, examines the dependence of an enterprise's actions on the interests of a wide range of stakeholders, including customers, suppliers, shareholders, managers, employees, and others. Each partner has certain rights to control the enterprise, so the concept requires that decisions be made with their interests in mind. Strategic theory is one of the most complex areas of management science. In its relatively short history, characterized by the rapid development of a number of concepts, it has developed into an independent scientific discipline with its own academic infrastructure. The most important question that the theory must answer is determining the sources of long-term competitiveness of enterprises. These sources are determined by the enterprise's strategy and, accordingly, raise the question of its nature. The systemic concept of the enterprise can be considered the starting point for a strategic description of enterprises today, since none of the above concepts "in their pure form provides an analytical framework relevant to the actual situation and role of the enterprise in any economy." The lack of adequacy of the concept of enterprise partnerships stems from the fact that the behavior of industrial enterprises is determined to the greatest extent by the interests of only the internal top management and large owners.

It should be noted, however, that this situation was typical in the 1990s, but recent years have seen changes in this area. This is evidenced by the gradual development and spread of the corporate governance system in the country, one of whose principles directly emphasizes the role of stakeholders in enterprise management. The increased attention to the concept of corporate social responsibility in recent years is also noteworthy.

The coexistence of several concepts describing the decision-making mechanism in enterprise management stems from the fact that different enterprises face specific challenges at different stages of their operations. Specifically, the primary consumers of stakeholder theory are not all enterprises, but only those interested in maintaining

and managing relationships with a wide range of partners. For such enterprises, stakeholder theory can offer innovative approaches to solving their specific problems. Specific relationships exist between an enterprise and its partners; these can be diverse, both competitive and collaborative. Partners can exist independently of one another, or they can interact. This set of partners, which adherents of this theory call a "coalition of business participants" or "coalition of influence," represents a force that continuously influences the organization, forcing it to evolve, change, and adjust.

In the modern interpretation of stakeholder theory, partners are viewed not simply as groups and individuals affected by the organization's activities, but as contributors to a particular type of resource. Stakeholders supply the enterprise with the resources it needs to operate because its activities enable it to satisfy its needs. Satisfying a partner's needs is nothing more than the recipient of resources from the organization. Thus, the relationship between the enterprise and its partners is built around resource exchange, as each strives to create its own resource base that best meets the goals of the partners.

A company's partners can be divided into two groups: external and internal. External partners include: customers, suppliers, competitors, government agencies and organizations, municipal, regional, and federal government bodies, and financial intermediaries.

**Customers.** Strategy and tactics for working with important customers include joint meetings to identify the drivers of business change, collaborative efforts in product and market development, increased communication, shared space, and joint training and service programs. Strengthening customer relationships often yields significant benefits.

**Suppliers.** Many companies involve strategic suppliers in product development and production. Most companies that use the just-in-time method, whereby components produced by suppliers are delivered directly to assembly shops, bypassing the warehouse, integrate suppliers into their internal processes.

**Competitors.** Competitors are a complex issue, as it's often in one competitor's interest to undermine another. However, competitors join forces to combat the threat of innovative third-party products, to successfully navigate life cycles, and to leapfrog using new technologies. Competing organizations form alliances to accelerate technological progress and new product development, to enter new or foreign markets, and to explore a wide range of new opportunities. Sometimes, cooperation is driven by the need to develop common standards, create a shared service system, and so on.

**Government agencies and organizations.** Innovation centers, public-private partnerships, and government bodies share many common goals,

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including creating favorable conditions for international trade, stable market conditions, curbing inflation, a successful economy, and the production of essential goods and services. Government-business partnerships (public-private partnerships) are widely practiced in countries abroad, where governments often play a more active role in the country's economic development.

Regional and municipal governments. Good relations with local and regional branches of government can lead to favorable local regulations or lower local taxes for businesses. Therefore, the most forward-thinking business leaders spend certain funds to assist regional and municipal authorities in their efforts to address local issues. Sponsorship of local social programs, assistance to public schools, cultural institutions, healthcare, law enforcement, and other institutions help achieve mutual understanding and support from such influential partners for small and medium businesses as regional and municipal governments.

Financial intermediaries are a collection of numerous organizations, including banks, law firms, brokerage firms, investment advisors, pension funds, mutual fund companies, and other organizations or individuals who may be interested in investing in a company. Trust is especially important when dealing with creditors. Disclosure of financial information helps establish trust, as does timely payments. In an effort to improve their relationships with creditors and establish trust, many companies invite creditor representatives to their boards of directors.

### Main part

Currently, there is no generally accepted methodology for assessing enterprise competitiveness. A review of existing approaches to assessing enterprise competitiveness has allowed us to group them into the following groups:

The first group of economists includes an approach to determining the competitiveness of enterprises based on identifying competitive advantages.

The second group of economists Offers a competitiveness assessment using polygonal profiles. It is based on constructing competitiveness vectors based on the following factors: concept, quality, price, finance, sales, after-sales service, foreign policy, and pre-sales preparation.

The third group of economists is They offer a rating assessment of the enterprise's competitiveness based on the following factors: product, product range, price, image, service, packaging (design), sales volumes, market segment, supply and sales policy, advertising and demand stimulation, that is, with the calculation of the efficiency coefficient of innovative technological solutions.

The fourth group Economists propose assessing a company's competitiveness based on the product of

a commodity mass index and a facility's performance index. The advantage of this approach is that it is a more robust approach to assessment, as it takes into account such important factors determining a company's competitive advantage as the level of marketing organization and implementation, finances, and export potential.

Fifth group Economists propose an approach based on a weighted assessment of enterprise competitiveness factors. The integrated competitiveness indicator is determined using the rules of linear convolution (the assessment of competitiveness factors for individual aspects of the enterprise's activities is multiplied by the weight of individual factors in the overall assessment). This approach is similar to what the authors of this article propose, namely, calculating the efficiency coefficient of innovative technological solutions.

Thus, the analysis of the theoretical and methodological aspects of the competitiveness of enterprises revealed many methods for assessing this very competitiveness of enterprises.

In this regard, the success of an enterprise will be determined by the degree to which its stakeholders' interests are satisfied. Therefore, to improve competitiveness and operational efficiency, an enterprise must consider not only its own interests but also those of its stakeholders, i.e., its business partners. Stakeholder theory utilizes the term "partnership," which creates the conditions for ensuring the effectiveness of an enterprise's performance. Developing small and medium-sized enterprises (SMEs) must develop a system of marketing relationships with partners as a competitive tool—a system based on mutually beneficial long-term collaboration that reduces the time required to make effective commercial decisions. Therefore, taking into account the discussed methodological foundations of enterprise competitiveness, a methodology for assessing and analyzing the competitiveness of footwear companies operating in the Southern and North Caucasian Federal Districts is proposed, based on stakeholder theory. Specifically, footwear companies in Rostov-on-Don, which are competitors in the production of men's footwear, are included.

Taking into account the conducted analysis of the system of indicators for assessing the competitive potential of an enterprise, we will evaluate these enterprises using the system of indicators for assessing competitiveness factors enterprises, as proposed above. The first important factor in the competitiveness of an enterprise is the competitiveness of its product.

All calculations are reduced to the implementation of successive stages.

*Stage 1.* Calculating the Importance of Consumer Attributes in Assessing the Competitiveness of Women's Outerwear. It is proposed to calculate the

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importance of consumer attributes using a direct assessment method. For this purpose, a questionnaire is proposed in which each respondent is asked to indicate the importance, in their opinion, of each consumer attribute of the product within the used scale. The weighting coefficient is calculated separately for each analyzed segment using the following formula:

$$\alpha_j = \frac{O_{cp}}{\sum_{j=1}^n O_{cpj}}, \quad (1)$$

where  $\alpha_j$  – the significance coefficient of the i-th property;  $O_{cpj}$  – the estimate of the i-th property given

by the j-th respondent, score; n is the number of product properties assessed.

The condition for the correct calculation of the significance coefficient is the following:  $\alpha_i = 1$ .

At this stage, the significance of consumer attributes in assessing the competitiveness of men's footwear is calculated. Fifty respondents were surveyed, and they rated all consumer attributes. The evaluation results are presented in the table.

To do this, we will segment the market and select its target segments (Table 1).

The largest number of consumers (84%) are classified as average buyers ("moderate"). Half of respondents have an average income (52%), although those with a "below average" income (40%) are more than three times higher than those with an "above average" income (40% and 12%, respectively).

**Table 1. Characteristics of target segments of men's footwear**

Name of criteria	quantity		Segment characteristics
	%	Human	
Attitude to fashion	14	7	avant-garde
	76	38	"moderate"
	10	5	Conservatives
Age	62	31	youth group
	26	13	"middle age"
	10	5	older age
	2	1	"venerable age"
Income level	38	19	below average
	50	25	"average"
	12	6	above average
Social status	38	19	"low social status"
	38	19	"average social status"
	24	12	"high social status"

We group the questionnaires by the criterion "attitude to fashion," as this criterion is the defining one in consumer preferences (it forms segments). All other criteria (age, income level, social status) are expressed within this criterion.

Based on the results of questionnaire grouping, we construct segment profiles (Table 2).

Based on the compiled Table 2, it is clear that fashionable products are preferred by respondents

who belong to the number of ordinary buyers ("moderate") of the younger group, since this emphasizes their individuality, although their income level is below average.

**Table 2. Men's Footwear Consumer Segment Profiles**

Segmentation features	Segments		
attitude to fashion	avant-garde	"moderate"	Conservatives
age group	The youngest is 5 Average - 2	The youngest is 26 Average – 10 Oldest - 2	Oldest - 3 Venerable - 2
income level	Average – 3 Above average – 4	Below average – 16 Average – 20 Above average – 2	Below average – 4 Average – 1

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sought benefits	Individuality – 6 High quality of the product – 1	Individuality – 13 High quality of goods – 17 Low price - 8	Low price - 4 High quality of the product – 1
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Based on the above data, it is possible to calculate the significance of consumer properties in assessing

the competitiveness of a product based on the responses of “avant-garde” experts (Table 3).

**Table 3. Calculation of the importance of consumer properties in assessing competitiveness men's shoes based on the responses of "avant-garde" artists**

Properties	Fashion trend compliance	Artistic design	Quality of workmanship	Comfort	Strength	Appearance and quality of material	Price	Total
	34	32	30	31	22	28	29	206
<i>Aai</i>	0.165	0.155	0.146	0.15	0.107	0.136	0.141	1

Let us calculate the significance of consumer properties in assessing the competitiveness of a product based on “moderate” responses (Table 4).

**Table 4. Calculation of the importance of consumer properties in assessing competitiveness men's shoes based on "moderate" responses**

Properties	Fashion trend compliance	Artistic design	Quality of workmanship	Comfort	Strength	Appearance and quality of material	Price	Total
	154	171	149	169	130	159	167	1099
<i>Aai</i>	0.14	0.156	0.136	0.154	0.118	0.145	0.152	1

Let us calculate the significance of consumer properties in assessing the competitiveness of a

product based on the responses of “conservatives” (Table 5).

**Table 5. Calculation of the importance of consumer properties in assessing competitiveness men's shoes based on responses from "conservatives"**

Properties	Correspondence fashion direction	Artistic design	Quality of workmanship	Comfort	Strength	Appearance and quality of material	Price	Total
	10	17	19	18	21	20	23	128
<i>Aai</i>	0.08	0.133	0.148	0.141	0.162	0.156	0.18	1

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*Stage 2.* Expert Selection. The expert group is formed based on self-assessment by completing a questionnaire. The experts are retail workers (merchandise experts, salespeople). A total of 10 experts were interviewed. Of these, 5-7 individuals who received the highest scores in all areas were selected for the group. They were asked three questions each. A total of five experts were interviewed, of which four received the highest scores in three areas (9 points). These experts were recruited to study the competitiveness of men's footwear. The experts were then asked to rate the properties of men's footwear on a five-point scale.

*Stage 3.* When selecting competing products (product range) for a competitive comparison,

products are selected from those manufacturers that, firstly, serve similar segments, and secondly, enjoy stable demand in the market.

*Stage 4.* Evaluation of consumer properties of men's footwear (product range) by target segments.

To compare the consumer properties of product groups from different manufacturers, it is also necessary to use a questionnaire. Respondents are asked to rate each consumer property of the compared product groups on a five-point scale. The rating scale is specified in the questionnaire. The results are summarized in Table 6.

**Table 6. Evaluation of consumer properties of men's footwear**

Properties	Fashion trend compliance	Artistic design	Quality of workmanship	Comfort	Strength	Appearance and quality of material	Price
Pre-shoes	3.33	3.17	3.67	3.42	3.75	3.83	3.33
Leonov	3.27	2.49	3.37	2.84	3.29	3.31	2.96
Average value	3.3	2.83	3.52	3.13	3.52	3.57	3,145

*Stage 5.* Determining the average consumer attribute score for each segment. The questionnaires, grouped by target segment, are processed as follows.

For each consumer attribute, the average score is calculated as the arithmetic mean across all

respondents in the target group. The data are summarized in Table 7.

**Table 7. Average rating of men's footwear by consumer properties of "avant-garde" and "conservative"**

Properties	Fashion trend compliance	Artistic design	Quality of workmanship	Fit	Strength	Appearance and quality of material	Price
Avant-garde							
Pre-shoes	3.33	3.17	3.67	3.42	3.75	3.83	3.33
Conservatives							
Leonov	3.27	2.49	3.37	2.84	3.29	3.31	2.96
Average value	3.3	2.83	3.52	3.13	3.52	3.57	3,145

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Stage 6. Calculation of the total assessment of product competitiveness.

The level of competitiveness of a product based on the assessment of the target segment is determined by the following formula (2).

$$K = \sum_{i=1}^m \alpha_i \cdot O_{cp}, \quad (2)$$

where K is the total assessment of the absolute competitiveness of the product given by the target segment, points;  $\alpha_i$  – the significance of the i-th consumer property for the target segment;  $O_{cp}$  is the average assessment of the i-th consumer property given by the target segment, points;

$m$  – the number of consumer properties being compared.

Therefore, the overall competitiveness assessment of the same product, given by representatives of different segments, will differ. To make management decisions on competitiveness, the analysis uses the competitiveness assessment results for men's footwear, as given by representatives of the target segment.

The maximum score for the product coefficient is 5 points.

In fact, the level of competitiveness may be below the maximum score.

Let's calculate the competitiveness of enterprises, taking into account the significance defined above. The resulting data will be entered into Table 8.

**Table 8. Analysis of the competitiveness of men's footwear**

Properties	Correspondence fashion direction	Artistic design	Quality of workmanship	Comfort	Pffidelity	Appearance and quality of material	CEna	Tocompetitiveness	Order of place
The significance of $\alpha_i$	0.138	0.154	0.138	0.15	0.12	0.145	0.153		
Pre-shoes	0.46	0.49	0.51	0.51	0.45	0.56	0.51	3.49	1
Leonov	0.45	0.38	0.47	0.43	0.39	0.48	0.45	3.05	2

According to the data in Table 8, it is clear that men's shoes from Donobuv CJSC are more competitive than the same range from Leonov LLC.

The remaining indicators for assessing the competitiveness of enterprises will be taken from the technical and economic indicators of enterprises and balance sheet data.

Let us calculate dimensionless estimates of the competitiveness indicators of enterprises and summarize everything in Table 9.

To convert dimensional estimates of indicators into dimensionless ones, it is proposed to use the index method, which was discussed above.

So, based on the presented data, We will calculate the general indicators of competitiveness of the enterprises under study using formula (6.1):

– for Leonov LLC:  $K_{\Pi} = 59,65 \%$ ;

– for JSC Donobuv:  $K_{\Pi} = 70,88 \%$ .

As can be seen from the qualitative competitiveness assessment scale, Leonov LLC and Donobuv CJSC have an average competitiveness level in the footwear market of the Southern and North Caucasian Federal Districts. We will analyze the second most significant competitiveness potential of these companies—marketing effectiveness. Data on this potential is presented in Table 10, where we indicate the weighted scores for the companies under study and the maximum score for these indicators.

As Table 10 below shows, the deviation in potential marketing effectiveness at Leonov LLC is 7.97, while at Donobuv CJSC it is 5.4. The level and quality of partnerships with stakeholders has the greatest impact on this deviation. Therefore, to improve the effectiveness of marketing activities, the companies studied should establish and develop relationships with partners.

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**Table 9. Assessing the competitiveness of enterprises**

Competitiveness factors enterprises	Indicators	Significance, %	Values		Dimensionless estimates of competitiveness indicators enterprises		Weighted assessments of competitiveness indicators	
			Leonov LLC	JSC "Donobuv"	Leonov LLC	JSC "Donobuv"	Leonov LLC	Don-Shoes CJSC
1	2	3	4	5	6	7	8	9
1. Competitiveness of goods	Average weighted competitiveness of a product by product range, points	40	3.05	3.49	0.61	0.69	24.4	27.92
2. Marketing efficiency	Assessment of the level of partnership relations with the enterprise stakeholders, score	10	2.85	3.05	0.71	0.76	7.10	7.60
	Exceeding the permissible level of finished product inventories, %	3	66.50	28.80	0.34	1.00	1.02	3.00
	Enterprise market share, %	3	3.00	7:30	0.08	0.20	0.24	0.60
	Sales growth rate, %	3	221.00	198.00	0.89	0.80	2.67	2.40
3. Quality of management	Return on investment	3	0.85	4.02	0.08	0.39	0.24	1.17
	Return on total assets, %	3	10.90	43.90	0.17	0.53	0.51	1.59
4. Financial condition of the enterprise	Ratio of own working capital (0.2)	3	0.19	0.76	0.95	3.80	2.85	11:40
	Current liquidity ratio ( $\geq 1.3$ )	3	1.46	4.16	0.26	0.79	0.78	2.37
	Costs per 1 ruble of sold products	3	0.69	0.53	0.86	1.00	2.58	3.00
5. Level of production organization	Capacity utilization rate	2	0.83	0.95	0.87	1.00	1.74	2.00
	Labor productivity	2	48.19	60.22	0.64	0.80	1.28	1.60
	Depreciation of fixed assets, %	2	26.00	47.00	0.38	0.21	0.76	0.42
6. Efficiency of MTO	Supplier Relationship Assessment, Score	3	7.28	7.99	0.73	0.80	2.18	2.40
	Material productivity, rub./rub.	3	20:45	13.48	0.13	0.12	0.39	0.36
7. Innovative activity	Share of innovative products, %	8	1.30	0.13	1.00	0.10	8.00	0.80

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8. Competitiveness of personnel	The rate of advancement of labor productivity growth in relation to wage growth	3	2.06	1.56	0.95	0.72	2.85	2.16
	Employee turnover rate, %	3	7.00	6.00	0.02	0.03	0.06	0.09
	Total maximum significance score	100	-	-	-	-	59.65	70.88

**Table 10. Analysis of the effectiveness of using marketing potential**

Marketing Performance Metrics	Significance, %	Weighted assessments of competitiveness indicators		Maximum weighted score	Deviation of the weighted estimate from the maximum	
		Leonov LLC	JSC "Donobuv"		Leonov LLC	JSC "Donobuv"
Assessment of the level of partnership relations with the enterprise stakeholders, score	10	7.1	7.6	<b>10</b>	<b>-2.9</b>	<b>-2.4</b>
Exceeding the permissible level of finished product inventories, %	3	1.02	3	<b>3</b>	<b>-1.98</b>	<b>0</b>
Enterprise market share, %	3	0.24	0.6	<b>3</b>	<b>-2.76</b>	<b>-2.4</b>
Sales growth rate, %	3	2.67	2.4	<b>3</b>	<b>-0.33</b>	<b>-0.6</b>
<b>Total</b>	<b>19</b>	<b>11.03</b>	<b>13.6</b>	<b>19</b>	<b>-7.97</b>	<b>-5.4</b>

Thus, when assessing the competitiveness of the enterprises under study, it was revealed that the level of competitiveness of the first and second enterprises is average (59.65% and 70.88% respectively). One of the important factors that influences the assessment of competitiveness is marketing effectiveness. The analysis shows that the deviation in this potential for the first enterprise is -7.97, for the second - 5.4. To improve marketing effectiveness, companies should implement a stakeholder approach that will facilitate the development of relationships with partners.

Thus, in order to increase the competitiveness of the enterprises under study, it is proposed to introduce, based on the theory of partnership relations, mechanism for forming interactions with stakeholders.

Thus, partnership theory is becoming increasingly relevant today. Therefore, given the importance of this factor, a methodology for assessing enterprise competitiveness has been developed, taking into account a new paradigm—the theory of partnerships. The developed methodology for assessing and analyzing enterprise competitiveness based on partnership theory allows for an in-depth analysis of enterprise competitiveness, taking into account an important factor in competitive advantage

in a networked economy: the quality and development of partnerships. The main unique aspects of the formation of competitive advantage of enterprises based on a theory-oriented approach partnership we can highlight:

- creation and permanent expansion of a database of key partners;
- formation of the necessary technical base (computers, peripheral devices and software);
- organizing the activities of the division and individual managers to manage relationships with stakeholders;
- development and adjustment of plans for interaction with key partners, taking into account their business and personal characteristics;
- Regular audit of the activities of partner relationship managers in terms of assessing the following indicators:
  - number of meetings with partners, number of prepared commercial proposals, number of contracts concluded, dynamics of product supply volumes for each partner;
  - Regularly conducting marketing research within the framework of partnerships in order to

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identify changes in the structure and nature of preferences when choosing partners.

Thus, the above-mentioned aspects, if properly developed, can allow an enterprise to form a unique competitive advantage – a system of relationships with stakeholders. Developing technological processes for producing competitive and in-demand footwear for consumers in the Southern and North Caucasian Federal Districts is costly. The use of versatile and multifunctional equipment allows for the production of a full range of high-quality footwear at various price points, prioritizing sales.

I would like to highlight another undoubted advantage of the research conducted, namely, the fact that in addition to the proposals for manufacturers to use universal and multifunctional equipment for the assembly of shoe upper blanks and the molding of upper blanks on the last, it is proposed to use the technology of direct molding of shoe bottoms and such equipment, which is capable of ensuring the production of the in-demand range of footwear, both by type and by type, and creates the preconditions for high efficiency of the production itself and satisfying the demand not only of consumers in the regions of the Southern and North Caucasian Federal Districts, but also of domestic and foreign buyers.

Partnerships can be divided into two groups:  
 external;  
 internal.

External factors include: customers, suppliers, competitors, government agencies and organizations, regional and municipal government bodies, and financial intermediaries.

Customers. Strategy and tactics for working with important customers include joint meetings to identify the drivers of business change, collaborative efforts in product and market development, increased communication, shared space, and joint training and service programs. Strengthening customer relationships often yields significant benefits.

Internal partners include managers, employees, owners, and the board of directors or management board, which includes managers and owners. One of the most important internal partners is the top executive.

Thus, a company's success is determined by the degree to which its stakeholders' interests are satisfied. Therefore, to improve competitiveness and operational efficiency, a company must consider not only its own interests but also those of its stakeholders. Therefore, taking into account the methodological foundations of enterprise competitiveness discussed above, a methodology for assessing and analyzing enterprise competitiveness based on stakeholder theory is proposed.

**Stage 1.** Choice indicators for assessing enterprise competitiveness factors.

**Table 11. A system of indicators for assessing the competitive potential of footwear enterprises**

Factors of competitive potential	Evaluation indicators
1. Marketing efficiency	The relationship between product quality and the costs of its production and marketing
	The growth rate of commercial output
	Increase in sales volumes and profits
	Profitability
	Market share, image
Quality of partnerships	
Factors of competitive potential	Evaluation indicators
2. Quality of management	Return on total assets, return on equity; return on investment
	Net profit per 1 ruble of sales volume; profit from product sales per 1 ruble of sales volume; profit for the reporting period per 1 ruble of sales volume
3. Financial condition of the enterprise	Equity ratio; current liquidity ratio; coverage ratio, autonomy ratio, fixed asset index, overall enterprise profitability, return on equity, product profitability
4. Level of production organization	Capacity utilization rate; production and sales capacity; volume and direction of capital investments
	Share of certified products in accordance with international standards of the ISO 9000 series
5. Efficiency of MTO	Depreciation of fixed assets, growth of labor productivity
	Quality and prices of supplied materials. Material yield, turnover allowing for direct connections; coefficient of uniformity of receipt of goods; profitability of transaction expenses; profitability of goods purchased.

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6. Innovative activity	Annual R&D expenditure, number of patents for inventions
	The share of innovative goods, the share of exports of products, the number of advanced technologies created
	Volume of shipped innovative products (services), number of patented technologies, number of technologies with patent purity, expenses on innovation, number of acquired and transferred new technologies, software
7. Competitiveness of personnel	The turnover rate, the productivity-to-wage ratio, the educational level of the workforce, the level of professional qualifications of workers

*Stage 2.* Determining the significance of indicators in the overall assessment of competitiveness.

**Table 12. Recommended system of indicators for assessing the competitiveness of an enterprise and their significance**

<b>Factors enterprise competitiveness</b>	<b>Indicators</b>	<b>Significance, %</b>
1. Competitiveness of the product	Average weighted competitiveness of a product by product range	40
2. Marketing efficiency	Exceeding the permissible level of finished goods inventory	3
	The company's market share	3
	Sales growth rate	3
	Assessing the level of partnerships with enterprise stakeholders	10
	Total	19
3. Quality of management	Return on investment	3
	Return on total assets	3
	Total	6
4. Financial condition of the enterprise	Ratio of own working capital	3
	Current liquidity ratio	3
	Costs per 1 ruble of sold products	3
	Total	9
<b>Factors enterprise competitiveness</b>	<b>Indicators</b>	<b>Significance, %</b>
5. Level of production organization	Capacity utilization rate	2
	Labor productivity	2
	Depreciation of fixed assets	2
	Total	6
6. Efficiency of MTO	Reducing the level of material consumption	3
	Material efficiency	3
	Total	6
7. Innovative activity	Share of innovative products	4
	Innovation costs	4
	Total	8
8. Competitiveness of personnel	The rate of advancement of labor productivity growth in relation to wage growth	3
	Employee turnover rate	3
	Total	6
	The overall importance of competitive potential	60
Total maximum significance score	100	

The economic meaning of a general assessment of competitiveness is that, on the one hand, it shows

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the degree of satisfaction with the product, and on the other hand, the degree of use of the competitive potential of the enterprise itself.

The proposed methodology for assessing and analyzing the competitiveness of an enterprise, in contrast to existing ones:

firstly, it takes into account the specifics of the light industry;

secondly, it reduces the subjective factor in the assessment;

thirdly, it allows for an in-depth analysis, thanks to the proposed directions and indicators for analyzing the competitiveness of enterprises.

To conduct a survey to assess competitive potential, it was necessary to develop a questionnaire

and administer it to respondents—buyers in the Southern and North Caucasian Federal Districts.

**Table 13. Criteria for assessing the competitiveness of light industry enterprises, located in the Southern and North Caucasian Federal Districts**

Item No.	List of factors for assessing the competitive potential of enterprises in the Southern and North Caucasian Federal Districts	Rank
1	The relationship between product quality and the costs of its production and marketing	
2	Sales growth rate	
3	Exceeding the permissible level of finished goods inventory	
4	Assessing the level of partnerships with enterprise stakeholders	
5	The company's market share	
6	Return on investment	
7	Return on total assets	
8	Innovation costs	
9	Equity ratio	
10	Capacity utilization rate	
11	Labor productivity	
12	Material efficiency	
13	Share of certified products in accordance with international ISO standards	
14	Reducing the level of material consumption	
15	Share of innovative products	
16	Trade turnover that allows direct links	
17	The coefficient of advancement of labor productivity in relation to wage growth	
18	The coefficient of uniform flow of goods to sales markets	
19	Depreciation of fixed assets	
20	Employee turnover rate	
21	Costs per 1 ruble of sold products	
22	Average weighted competitiveness of a product by product range	

The main unique aspects of forming a competitive advantage of an enterprise based on stakeholder theory can be identified as:

- creation and permanent expansion of a database of interested parties;

- formation of the necessary innovative base (computers, peripheral devices and software);

- organizing the activities of the division and individual managers to manage relationships with stakeholders;

- development and adjustment of plans for interaction with key stakeholders, taking into account their business and personal characteristics;

- Regular audit of the activities of managers in managing relationships with stakeholders in terms of assessing the following indicators: number of meetings, number of prepared commercial proposals, number of concluded contracts, dynamics of the volume of product deliveries per each stakeholder participant;

- regular marketing research during the implementation of developed activities with the participation of stakeholders in order to identify

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changes in the structure and nature of the preferences of stakeholder participants.

Thus, the above-mentioned aspects, if properly developed, can enable light industry enterprises to create a unique competitive advantage – a system of effective relationships between stakeholders.

An analysis of the survey on the impact of the competitive potential of enterprises in the Southern and North Caucasian Federal Districts, unfortunately, confirmed the lack of agreement among respondents on the criteria formulated in the surveys.

The global footwear market is estimated at 260 billion pairs, growing at a rate of 3.5% over the past five years. China, the United States, and India are the largest footwear producers for all global markets. Shoe consumption in Russia is significantly lower than in developed countries. China is the largest footwear exporter and serves virtually all major global markets.

The main drivers of growth in the Russian footwear market are the increase in per capita footwear consumption and the decline in the average price per pair. Russia lags far behind developed countries in footwear consumption (3 pairs per year in Russia versus 5-6 in Europe and 7-8 in the US). By 2025, this figure could increase to 4 pairs per person. The average price per pair could increase from 1,200 to 1,500 rubles in current prices by 2025. In 2021, footwear consumption in Russia was estimated at 0.81 trillion rubles.

By analogy with the clothing industry, the main factors determining a manufacturer's competitive advantage are the availability and increase in volumes of domestic leather raw materials, access to cheap and productive labor, access to materials and functional components of footwear (insoles, lasts, fittings, etc.), and access to sales markets.

The labor cost in shoe production is slightly lower than in clothing production, but the main problem today and tomorrow for Russian shoe manufacturers is the difficulty accessing materials and functional components.

The cost of shoe production in Russia is 1.5 times higher than in China, and the cost of components is 35% more expensive, as they are imported from China at inflated prices due to small order volumes; the cost of labor in Russia is 2 times higher than in China.

Reducing effective costs by shortening delivery times in footwear production is only possible with rapid access to materials and components, but the need to import them from Asia prevents Russian manufacturers from achieving these lead-time advantages. Using Russian-made genuine leather and increasing the volume of leather footwear production will reduce delivery times and, in part, cost components. Another possible solution to the component problem could be the creation of purchasing alliances – consolidating component

orders can reduce their cost by 20%. Similar to the technical textiles segment, footwear production worldwide is developing in the format of innovation centers/industrial parks, with a large number of highly specialized players. This allows for economies of scale and flexible access to materials and components.

The strategy for the development of footwear production is consolidation and development within innovation centers. The main directions of state policy, in addition to those mentioned above, to create a level playing field in the footwear market are:

- support for the creation of production infrastructure within innovation centers;
- support for the creation of production innovation centers by large footwear manufacturers and SMEs to achieve economies of scale and synergistic effects;
- support for production modernization to increase labor productivity;
- Ensuring beneficial access for manufacturers to functional components;
- support for the creation of purchasing alliances for functional components;
- in the future, support for partial localization of component manufacturers within the framework of footwear innovation centers.

The total volume of domestic footwear production in the Russian Federation could reach 410–440 billion rubles (in producer prices) by 2023, corresponding to 65% localization. Specialized and protective footwear will account for up to 30% of the increase in footwear production. The estimated required investment in the industry is 109–131 billion rubles, and 30,000–50,000 new jobs could be created. The development of the clothing industry will add 0.05% to GDP and generate 36–58 billion rubles in tax revenue. The combined effect of developing clothing and footwear production in the Russian Federation will be 0.11% of GDP (0.06% from the development of clothing production, 0.05% from the development of footwear production). The total required investment is 180–270 billion rubles, and 140,000–160,000 new jobs will be created. The expected volume of tax revenues by 2025 is 131–153 billion rubles.

For strategic management of the production of in-demand products, it is necessary to: study the demand for the manufactured footwear and, in conjunction with sales, production and supply specialists, develop decisions on discontinuing models and updating the range; explore sales markets in various regions and various forms of sales organization, study potential buyers; study the reaction of buyers to trial batches of shoes in specialized stores; develop regulations on the in-house pricing policy in conjunction with the planning and economic department; study the impact of price on sales for different regions; develop a policy of

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motivating wholesale buyers for order volumes, long-term contracts, etc.; forecast possible changes in the situation and develop decisions on a behavior strategy in the new conditions; coordinate conflicting requirements of production and sales; organize and study the effectiveness of advertising activities. The initial data generated by the enterprise manager is to prepare a draft of the future strategy for the selection of a certain type of footwear, namely:

- produce expensive shoes for a high-income target audience (product A);
- specialize in the production of inexpensive footwear for a target audience with earnings above the subsistence level (product B);
- produce cheap footwear for socially vulnerable groups with earnings below the subsistence level (product C).

The following development scenarios are possible in the future:

external growth in purchasing power (scenario S1, probability of occurrence – 0.2);

the constancy of the purchasing power of the population and the influence of foreign competitors (scenario S2, probability of occurrence – 0.5);

a decrease in purchasing power due to rising inflation with unchanged competition (scenario S3, probability of occurrence – 0.3).

A children's footwear range should be tailored to suit a wide range of income levels. This requires using leather of varying quality for the upper: expensive leather, such as chevrolet, or cheaper chrome-tanned pigskin, which can be worn for a night out and then removed when the child gets home to give their feet a rest.

When developing the product range, it is also necessary to take into account the fact that more girls are born in the Southern and North Caucasian Federal Districts than boys, so shoes for girls should be produced in larger quantities than shoes for boys.

If children's footwear manufacturers follow all of the authors' recommendations listed above, then buyers will have the opportunity, depending on their financial situation, to choose products in a particular price category, manufactured taking into account the climatic characteristics of the Southern Federal District and the ethnic characteristics of its population.

The most important attribute of any enterprise is its publicly known name. We know a company not by the legal name recorded in the relevant registration documents (which may be unfamiliar to the general public), but by the trademark of its products. For example, few consumers know that shoes from Belka Trading House are made by Ralf Ringer. Most manufacturers in the Southern Federal District lack a name (trademark).

There are several ways to form a name, create a logo, or create a trademark.

The most common approach is to choose a personal name. Typical of fashion houses (luxury

goods) is the name of the company's founder: CHRISTIAN DIOR, CHANEL, GIVENCHY, YVES SAINT LARAN, etc. Unique taste and vibrant style expressed the artists' personalities in their creations, subsequently lending high status to items released under this name. This technique has become essential when creating an individual or family-owned company and emphasizing the owner's personal role and building the company's reputation and policy on their reputation. In this approach, the role of personality is invaluable. The family name should become a guarantee of the quality of products and business practices. Accordingly, if present, the owner's image is not only directly linked to the company's image but also carries the main emotional weight.

Another approach is to base the company's commercial name on an acronym, formed from the first letters of the official name. This ensures a concise name and is easy to pronounce and remember. It's clear that an acronym is an excellent tool for creating a logo – for example, LVMH / Louis Vuitton Moet Hennessy/. This method is also used by companies positioning their products in the "Bridge Better" class, representing the second line of famous houses; the name references the artist's name, associated with his luxury line "couture" and "preta-porte de luxe," and an abbreviation. For example, Mani (Armani), DKNY (Donna Karan New York), CK Jeans (Calvin Klein).

The second method, much less common in the fashion industry, is to form a name by combining the root fragments of several words that aren't necessarily present in the company name. However, in this case, associations with the company's business are desirable. The requirement, as for any other group of names, is uniqueness and euphony.

The third method is the creation of a new word that is distinct from existing meaningful words but associated with positive concepts. Most often, these companies' positioning is associated with the bridge-middle and bridge-low classes, and mass-market clothing in the moderate and baget classes.

For example, the name of the company "Skorokhod" is a manufacturer of children's shoes. The word "Skorokhod" evokes associations with fast movement, and children love to run, so they need high-quality, durable footwear.

Another example is the company name MEXX. While it doesn't evoke any strong associations, the name is modern and concise. It aligns well with the company's positioning—clothing for young people with the perfect balance of style, price, and quality.

It's worth noting the huge number of names that exploit the Latin alphabet in their spelling. We believe this phenomenon is rooted in the legacy of the Soviet era: "There's no fashion in Russia!" and "Domestic means bad." Consequently, domestic companies that were the first to enter the post-Soviet market were forced to disguise themselves as foreign

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manufacturers. Gregory, Gloria Jeans, Climona, Vereteno, Festival, ZARINA—these are numerous examples of this naming strategy.

The fourth method is a company logo. The purpose of a logo in the fashion industry is to ensure instant brand recognition. A logo is a symbol that replaces a name or is its graphic interpretation. Interestingly, in the fashion world, logos have also become part of clothing and footwear design.

A logo serves as an identifying mark for the uninitiated, who use these letters to determine the price of a particular item. It's a cheat sheet for those who can't identify the silhouette of Dolce & Gabbana, Christian Dior, or Ferré. With the general trend toward increasingly visual designs, typographic graphics—all kinds of signage, signs, and labels—have become increasingly important. A logo, as an image replacing text, is the ideal solution when decorativeness and informational content are needed.

In addition to its primary function as a trademark, it also plays a decorative role. This is a natural result of the intertwining of the fashion industry and advertising.

Here are the reasons:

The first is the industrial fashion for text as a decorative element.

The second is the fashion for democratic clothing, i.e. a crisis of style recognition and the association of an item with a specific brand.

The third is promotional. This is a shift in the boundaries of "expensive" and "cheap": it is the design of a product, not the quality of the materials used or the amount of manual labor, that increasingly determines consumer value.

The oversaturation of advertising information allows logos to become decorative elements. Logos are becoming increasingly figurative and emotional. And they can be played with, placing them in previously unimaginable places. Thus, today, fashion shoe buyers have become brand ambassadors through the universal use of logos.

The key is to ensure that the emotions evoked by product advertising are aligned with the brand's image and the design of the products themselves. After all, product promotion must be specific, simple, clear, and compelling—that is, advertising-like. At the same time, it must convey a clear, emotionally charged image. Therefore, a logo is essential.

A company's verbal logo—its name, written in a specific way—is its most frequently used attribute, forming the first emotional connection to the company's image in the consumer's mind. A specific way of depicting a verbal logo becomes a distinctive, original characteristic of the company.

Another important aspect of a company's brand promotion efforts is its retail design. The following requirements apply:

- Convenient location for a specific target audience (Via Corso is a boutique street in Milan; and

Piazza il Duomo with the La Rinascente department store are both conveniently located in the center of Milan, but the consumers of these retail spaces are different). As mentioned above, a similar community of shoe boutiques will be created in Russia at the Paris Commune factory. There is a need for such a base in the Southern and North Caucasian Federal Districts as well – this will allow for the development of a regional market;

- Adherence to the concept of presenting the product image, i.e. well-thought-out principles for presenting the product's properties that correspond to the expected motivation for its choice by the consumer;

- The visually targeted solution for the environment should be tailored to the specific consumer type. The opportunity to try on shoes and get advice from a salesperson should be provided;

- The environment should be inviting and stimulate interest in the products. Pleasant music can be played throughout the store, and each visitor should be provided with a brochure listing shoe brands.

- The imagery should elevate the environment above the ordinary, creating a sense of "event," "exclusivity," "fullness of opportunity," or "accessibility." The company may introduce a discount system to attract repeat customers;

- Support a range of additional services that fit into the consumer's lifestyle and cultural interests. Customers may be offered a complimentary shoe polish for newly purchased shoes or another clothing accessory bearing the manufacturer's logo.

Consumers in the marketplace are not a monolithic group. When purchasing shoes, they are primarily guided by the type of shoe and the price.

For example, when choosing women's boots, a buyer considers the season, their age, and their occupation. Important factors include the shoe's appearance: its fashionable status, color, upper and lower materials, and the design of the model. Buyers will also prioritize brand names. This type of footwear offering in specialized stores or departments will drive sales growth in a climate of fluctuating demand. Moreover, if the salesperson, with a well-thought-out approach to presenting the advantages of each women's boot design and a keen understanding of the customer's mood and capabilities through their informed questions when choosing a model, can fulfill this desire, the buyer will leave satisfied that their interests have been fully met. They will also recommend this store to their friends, where they will always be welcomed, understood, and given the necessary attention, ensuring a pleasant purchase.

Seniors appreciate comfort and coziness. Both the seller and the buyer—a representative of the fair sex—will naturally pay attention to a model if it's comfortable to wear in snowy winter weather. It should be made of soft, napped leather (velour) and have a molded sole with a wide tread, as this will be

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very comfortable and provide comfort at any time of wear. At the same time, it should be affordable.

Businesswomen, those over 45 and under 45, and constantly in a hustle and bustle, will naturally prefer models made of natural materials, low heels, and discreet fittings, creating comfort for the wearer in their everyday life, while emphasizing their image and social status.

The appearance of fashionable women or high school students in a salon or a specialty brand store will immediately attract the attention of the salesperson, who will be eager to offer them only the original model with an especially high heel and attached straps, decorated with rivets and fastened at the top and bottom of the shaft. The fashionable woman will be delighted to have found what she wanted, and the high school girl will be satisfied with her purchase, especially because she's confident she'll impress her friends with it, and for her, that's the most important selling point.

It's always easy for a salesperson when a "socialite" shows up in the store, as she always prefers only the latest arrivals or exclusive models. These ambitions can be satisfied by a model's originality, design, and even the choice of materials and embellishments.

For women who appreciate formality yet originality, the seller will surely offer a style that successfully combines materials of two colors and textures, while perforated details draped on the shaft add a unique touch.

And the price shouldn't be too steep, which is also a significant selling point. These fantasies, gleaned from real life and very effective in driving demand, are justified and deserve to be, as the ability to present your products, engage with your customers, and employ a competent marketing approach builds the popularity of a boutique, store, or salon among customers and ensures sustainable consumer demand. Ultimately, well-thought-out principles for presenting product features, choosing the right customer, and properly designing boutiques and their displays—all of this can significantly influence their performance. This is also true for children's products.

Product assortment development is a matter of specific products, their individual series, determining the balance between "old" and "new" products, individual and mass-produced goods, "high-tech" and "ordinary" goods, tangible goods, or licenses and know-how. When developing a product assortment, issues arise such as price, quality, warranties, and service, as well as whether the manufacturer intends to play a leading role in creating fundamentally new types of products or is forced to follow other manufacturers.

The development of a product range concept precedes the formation of a product range. This concept involves the targeted construction of an optimal product range structure and offering, based on

the consumer requirements of specific groups (market segments) and the need to ensure the most efficient use of raw materials, technological, financial, and other resources to produce products at low costs.

The product assortment concept is expressed as a system of indicators characterizing the potential for optimal development of the product range for a given type of product. These indicators include: the diversity of product types and varieties (taking into account consumer typologies); the level and frequency of product assortment updates; the level and ratio of prices for a given product type, etc.

The product range formation system includes the following key points:

- ◆ identification of current and future customer needs, analysis of shoe usage patterns and consumer behavior patterns in the relevant market;

- ◆ assessment of existing competitors' analogues;

- ◆ critical assessment of the products manufactured by the enterprise in the same range as in paragraphs 1 and 2, but from the buyer's perspective;

- ◆ deciding which products should be added to the product range and which should be excluded due to changes in competitiveness; whether it is necessary to diversify products by introducing other areas of the enterprise's production that go beyond its established profile;

- ◆ consideration of proposals for the creation of new shoe models, improvement of existing ones;

- ◆ development of specifications for new or improved models in accordance with customer requirements;

- ◆ study of the possibilities of producing new or improved models, including issues of pricing, cost and profitability;

- ◆ conducting tests (testing) of footwear taking into account potential consumers in order to determine their acceptability according to key indicators;

- ◆ development of special recommendations for the production units of the enterprise regarding quality, style, price, name, packaging, service, etc. in accordance with the results of tests carried out, confirming the acceptability of the product characteristics or determining the need for their change;

- ◆ evaluation and revision of the entire range.

Assortment planning and management are an integral part of marketing. Even well-thought-out sales and advertising plans cannot offset the consequences of mistakes made earlier in assortment planning.

The optimal product range structure should ensure maximum profitability on the one hand, and sufficient stability of economic and marketing indicators (in particular sales volume) on the other hand.

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Achieving maximum possible profitability is ensured through continuous monitoring of economic indicators and timely decision-making on product range adjustments.

Stable marketing performance is ensured primarily by constantly monitoring the market situation and responding promptly to changes, or, better yet, by taking proactive action. It's important to avoid having too many product names. For most Russian companies, the primary means of product assortment optimization still lies in significantly reducing the product range. Having too much product range negatively impacts economic performance, as it

creates many items that fail to break even in terms of sales volume. As a result, overall profitability plummets. Simply eliminating unprofitable and marginally profitable items from the assortment can increase overall profitability by 30-50%.

In addition, a large assortment disperses the company's resources, makes it difficult to competently offer products to customers (even sales department employees are not always able to explain the difference between a particular position or name), and distracts the attention of end consumers (Table 14).

**Table 14. Financial results of the enterprise's activities in the sale of children's footwear**

Month	Release, steam	Costs, RUB			Cost price, RUB	Commodity products (at wholesale price), RUB.	Profit, RUB
		Basic and auxiliary materials	Basic and additional salary with SVVF	Overheads			
1st quarter– spring (56) - (15+19+22)							
January 3909699.75	7095	1756438.2	414631.8	1738629.75	3909699.75	4321564.5	411864.75
February 4976286.35	8987	2248821.72	525200.28	2202264.35	4976286.35	5473981.7	497695.35
March 5734226.3	10406	2576109.36	608126.64	2549990.3	5734226.3	6338294.6	604068.3
Q1 14620212.4	26488	6581369.28	1547958.72	6490884.4	14620212.4	16133840.8	1513628.4
Month	Release, steam	Costs, RUB			Cost price, RUB	Commodity products (at wholesale price), RUB.	Profit, RUB
Second quarter– summer (62) - (21+20+21)							
April 5587132.32	11088	2305971.36	614496.96	2666664.0	5587132.32	6098400.0	511267.68
May 5,321,078.4	10560	2196163.2	585235.2	2539680.0	5321078.4	5808000,0	486921.6
June 5587132.32	11088	2305971.36	614496.96	2666664.0	5587132.32	6098400.0	511267.68
Second quarter 16495343.04	32736	6808105.92	1814229.12	7873008	16495343.04	18004800.0	1509457
3rd quarter– autumn (66) - (24+23+22)							
July 5933010.3	10122	2964936.24	697911.9	2270162.16	5933010.3	6533751.0	600740.7
August 6498058.9	11086	3247311.12	764379.7	2486368.08	6498058.9	7156013.0	657954.1
September 6215534.6	10604	3106123.68	731145.8	2378265.12	6215534.6	6844882.0	629347.4
III quarter 18646603.8	31812	9318371.04	2193437.4	7134795.36	18646603.8	20534646.0	1888042.2
4th quarter– winter (64) - (21+21+22)							

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	<b>ISI (Dubai, UAE) = 1.582</b>	<b>ПИИИ (Russia) = 0.191</b>	<b>PIF (India) = 1.940</b>
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	<b>JIF = 1.500</b>	<b>SJIF (Morocco) = 6.004</b>	<b>OAJI (USA) = 0.350</b>

October 7,266,070.35	9135	3934992.6	874858.95	2456218.6	7266070.35	8138371.5	872301.15
November 7,266,070.35	9135	3934992.6	874858.95	2456218.6	7266070.35	8138371.5	872301.15
December 7612073.7	9570	4122373.2	916518.9	2573181.6	7612073.7	8525913.0	913839.3
4th quarter 22144214.4	2740	11992358.4	2666236.8	7485618.8	22144214.4	24802656.0	2658441.6
For the year 71906373.64	188876	34700204.64	8221862.04	28984306.56	71906373.64	79475942.8	7569569.16

**Table 15. Financial results of the enterprise's activities in the sale of women's footwear**

Month	Release, steam	Costs, RUB			Cost price, RUB	Commodity products (at wholesale price), RUB.	Profit, RUB
		Basic and auxiliary materials	Basic and additional salary with SVVF	Overheads			
1st quarter– spring (56) - (15+19+22)							
January 2856754.8	3060	1671861.6	455695.2	729198	2856754.8	3241519.2	384764.4
February 3618556.08	3876	2117691.36	577213.92	923650.8	3618556.08	4105924.32	487368.24
March 4205419.04	4488	2447575.68	688352.96	1069490.4	4205419.04	4754228.16	548809.12
1st quarter 10680729.92	11424	6237128.64	1721262.08	2722339.2	10680729.92	12101671.68	1420941.76
Second quarter– summer (62) - (21+20+21)							
April 4503549.54	5334	2819819.1	451363.08	1232367.36	4503549.54	5198409.72	694860.18
May 4,289,094.8	5080	2685542.0	429869.6	1173683.2	4289094.8	4950866.4	661771.6
June 4503549.54	5334	2819819.1	451363.08	1232367.36	4503549.54	5198409.72	694860.18
Second quarter 13296193.88	15748	8325180.1	1332595.76	3638417.92	13296193.88	15347685.84	2051491.96
Month	Release, steam	Costs, RUB			Cost price, RUB	Commodity products (at wholesale price), RUB.	Profit, RUB
		Basic and auxiliary materials	Basic and additional salary with SVVF	Overheads			
3rd quarter– autumn (66) - (24+23+22)							
July 4,038,068.37	3801	2461033.47	528681.09	1048353.81	4038068.37	4831793.19	793724.82
August 4422646.31	4163	2695417.61	579031.67	1148197.03	4422646.31	5304452.97	881806.66
September 4230357.34	3982	2578225.54	553856.38	1098275.42	4230357.34	5061878.58	831521.24
III quarter 12691072.02	11946	7734676.62	1661569.14	3294826.26	12691072.02	15185635.74	2494563.72
4th quarter– winter (64) - (21+21+22)							
October 7,169,000.58	3402	5261975.46	750413.16	1156611.96	7169000.58	8649142.74	1480142.16

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<b>GIF (Australia) = 0.564</b>	<b>ESJI (KZ) = 8.100</b>	<b>IBI (India) = 4.260</b>
<b>JIF = 1.500</b>	<b>SJIF (Morocco) = 6.004</b>	<b>OAJI (USA) = 0.350</b>

November 7,169,000.58	3402	5261975.46	750413.16	1156611.96	7169000.58	8649142.74	1480142.16
December 7,510,381.56	3564	5512545.72	786147.12	1211688.72	7510381.56	9061006.68	1550625.12
IV quarter 21848382.72	10368	16036496.64	2286973.44	3524912.64	21848382.72	26359292.16	4510909.44
For the year 58516378.54	49489	38333482.0	7002400.42	13180496.02	58516378.54	68994285.42	10477906.88

**Table 16. Financial results of the enterprise's activities in the sale of men's footwear**

Month	Release, steam	Costs, RUB			Cost price, RUB	Commodity products (at wholesale price), RUB.	Profit, RUB
		Basic and auxiliary materials	Basic and additional salary with SVVF	Overheads			
1st quarter– spring (56) - (15+19+22)							
January 3,662,091.75	4275	2417213.25	602860.5	642618.0	3662691.75	4419495	756803.23
February 4639409.55	5415	3061803.45	763623.3	813982.8	4639409.55	5598027	958617.45
March 5,371,947.9	6270	3545246.1	884195.4	942506.4	5371947.9	6481926	1109978.1
1st quarter 13674049.2	15960	9024262.8	2250679.2	2399107.2	13674049.2	16499448	2825398.8
Second quarter– summer (62) - (21+20+21)							
April 3794943.0	5901	2338035.21	638960.28	817347.51	3794343.0	4450711.23	656368.23
May 3613660.0	5620	2226700.2	608533.6	778426.2	3613660.0	4238772.6	625112.6
June 3794343.0	5901	2338035.21	638960.28	817347.51	3794343.0	4450711.23	656368.23
2nd quarter 11202346	17422	6902770.62	1886454.16	2413121.22	11202346	13140195.06	1937849.06
3rd quarter– autumn (66) - (24+23+22)							
July 4,792,159.49	5292	3219403.02	429542.11	1143214.35	4792159.49	6099030	1306870.51
August 5,249,555.63	5796	3526012.83	470450.89	1252091.91	5249555.63	6679890	1430334.37
September 5020357.56	5544	3372707.92	449996.5	1197653.14	5020357.56	6389460	1369102.44
Q3 15,061,072.68	16632	10118123.77	1349989.5	3592959.4	15061072.68	19168380	4107307.32
Month	Release, steam	Costs, RUB			Cost price, RUB	Commodity products (at wholesale price), RUB.	Profit, RUB
		Basic and auxiliary materials	Basic and additional salary with SVVF	Overheads			
4th quarter– winter (64) - (21+21+22)							
October 4419723.0	4389	3032008.98	661466.19	726247.83	4419723.0	5207109.6	787386.6
November 4419723.0	4389	3032008.98	661466.19	726247.83	4419723.0	5207109.6	787386.6

<b>Impact Factor:</b>	<b>ISRA (India) = 6.317</b>	<b>SIS (USA) = 0.912</b>	<b>ICV (Poland) = 6.630</b>
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	<b>JIF = 1.500</b>	<b>SJIF (Morocco) = 6.004</b>	<b>OAJI (USA) = 0.350</b>

December 4630186.0	4598	3176390.36	692964.58	760831.06	4630186.0	5455067.2	824881.2
IV quarter 13469632.0	13376	9240408.32	2015896.9 6	2213326.72	13469632.0	15869286.4	2399654.4
For the year 53407099.87	63390	35285565.5 1	7503019.8 2	10618514.5 4	53407099.87	64677309.46	11270209.5 9

**Table 17. The impact of footwear sales on the financial condition of the enterprise**

<b>Men's shoes</b>					
Volume sales, %	100%	80%	60%	48%	40%
Profit/Loss for the month, RUB	824881.2	207739.04	190596.51	0	- 126545.78
Tax on profit, 20%	164976.22	41547.8	38119.3	-	-
Tax on property, 2.2%	3483.3	3483.3	3483.3	3483.3	3483.3
Net profit/loss for the month, RUB	656421.7	162708	148994	- 3483.3	- 3483.3
Profit/Loss for the year, RUB	9898574.4	2492868.48	2287158.12	0	- 1518549.36
Clean Profit/Loss for the year, RUB	7877060.4	1952496	1787928	- 41799.6	- 41799.6
<b>Women's shoes</b>					
Volume sales, %	100%	80%	60%	44%	40%
Profit/Loss per month, rubles	1550625.12	998162.35	445699.56	0	- 106763.19
Tax on profit, 20%	310125.02	199632.47	89139,912	-	-
Tax on property, 2.2%	3483.3	3483.3	3483.3	3483.3	3483.3
Net profit/loss for the month, RUB	1237017	795046.6	353076.3	- 3483.3	- 3483.3
Profit/Loss for the year, RUB	18607501	11977948	5348395	0	- 1281158.28
Clean Profit/Loss for the year, RUB	14844204	9540559	4236916	- 41799.6	- 41799.6
<b>Children's shoes</b>					
Volume sales, %	100%	90%	83%	80%	-
Profit/Loss for the month, RUB	511267.68	495905.15	0	- 416365.49	-
Tax on profit, 20%	102253.54	9918103	-	-	-
Tax on property, 2.2%	3483.3	3483.3	3483.3	3483.3	-
Net profit/loss for the month, rubles.	405530.84	39668929	- 3483.3	- 3483.3	-
Profit/Loss for the year, RUB	6135212	49590515	0	- 4996385.88	-
Clean Profit/Loss for the year, RUB	4866370	39668929	- 41799.6	- 41799.6	-

Thus, based on these competitiveness criteria, we have proposed a system of indicators for assessing the importance of any enterprise for the development of the Southern and North Caucasian Federal Districts,

presented in Table 18. This system assesses the enterprise's innovation and investment potential. Innovation potential is determined by the number of branches within the enterprise. The greater the number

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	<b>JIF = 1.500</b>	<b>SJIF (Morocco) = 6.004</b>	<b>OAJI (USA) = 0.350</b>

of branches, the higher the level of competition, and competition drives innovation. Furthermore, the more innovative branches within an enterprise, the higher its innovation potential. Investment potential is characterized by the number of product processing levels in the value chain. The processing level represents the number of product types created at the

enterprise along the production chain, determined based on the OKONKh code in accordance with the Classification of National Economy Industries. The higher the degree of product processing, the greater the investment required in such an enterprise.

**Table 18. Indicators for assessing the importance of an enterprise for the development of the Southern and North Caucasian Federal Districts**

Directions for assessing the importance of an enterprise for the regional economy	Indicators for assessing the importance of an enterprise for regional development
1. Promoting the growth of budget revenues	Added value created by the enterprise
2. Promoting general employment	Number of employees at the enterprise
3. Promoting the formation of a positive balance of foreign trade	The volume of exports of products by the enterprise
4. The enterprise's contribution to the economy of the Southern and North Caucasian Federal Districts	The enterprise's share in the production structure of the Southern and North Caucasian Federal Districts

To evaluate the effectiveness of developed innovative technological processes, it is proposed to use the efficiency coefficient (Keff). Its value should be considered as the value of the coefficient of concordance for assessing the results of a priori ranking (W), which varies from 0 to 1. If its value approaches one, this means that the manufacturer has succeeded in finding the most optimal solution for the

innovative technological process. If its value approaches zero, then an analysis of the causes of such an unsatisfactory result is required, as well as a search for the errors that provoked this result and ways to eliminate these errors.

The efficiency coefficient of the technological process is calculated using the formula:

$$K_{\text{эф}} = K_{\text{ИТ}} \times K_3^i \cdot P_s \cdot C \cdot S_{\text{общ}} \cdot \text{З}_{\text{ф}} \times T_{\text{б.у}} \cdot \text{Пр} \cdot R \cdot \text{З}_{\text{тр.т.п}} \cdot \text{З}_{\text{усл.пер.ед}} \cdot \text{З}_{\text{усл.пос.ед}} \quad (5)$$

Labor productivity (LP)

$$K_{\text{ИТ}} = \frac{P}{H_{\text{вып}}}, \quad (6)$$

where P is the flow rate, steam;  $H_{\text{вып}}$  – design production rate, pairs.

Workload (Kz)

$$K_3^i = \frac{Я_{\text{сд}}^P}{Я_{\text{сд}}^{\Phi}}, \quad (7)$$

Where  $Я_{\text{сд}}^P$  – estimated number of workers, people;  $Я_{\text{сд}}^{\Phi}$  – actual number of workers, people.

Footwear output per 1 m<sup>2</sup> (Ps)

$$P_s = \frac{P}{S_{\text{пр}}}, \quad (8)$$

Where  $S_{\text{пр}}$  – production area, m<sup>2</sup>.

Equipment cost per unit of flow assignment (C)

$$C = \frac{T}{P}, \quad (9)$$

where T is the cost of equipment, rubles.

Total price (Stotal)

$$S_{\text{общ}} = \sum_{i=1}^n S^i, \quad (10)$$

Where  $S^i$  – price for the i-th operation; n – number of operations.

## Impact Factor:

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Расчет оптовой цены (Цена=Цена/1,18)				
Модель	Цена	Оптовая цена		
Зимние сапоги (модель А)	1400,00	1186,44		
Осенние ботинки (модель Б)	1360,00	1152,54		
Весенние полуботинки	1220,00	1033,90		
Летние сандалии (модель Г)	890,00	754,24		

Расчет основных показателей				
Показатель \ Модель	Зимние сапоги (модель А)	Осенние ботинки (модель Б)	Весенние полуботинки (модель В)	Летние сандалии (модель Г)
Прибыль (руб.)	171,59	401,59	250,25	102,47
Рентабельность (%)	16,91	53,48	31,93	15,72
Затраты на рубль товарной продукции (руб.)	85,54	65,16	75,80	86,41
Затраты условно-переменные (руб.)	787,03	557,61	601,64	492,29
Затраты условно-постоянные (руб.)	227,82	193,34	182,01	159,48
Точка безубыточности (пар)	26954,41	13096,67	19486,94	28331,98
Запас финансовой прочности (%)	42,96	67,50	57,89	39,12
Выручка от реализации (руб.)	56 066 408,64	46 447 362,00	47 848 892,00	35 099 312,64
Валовая выручка (руб.)	8 583 395,54	16 483 643,02	11 940 489,91	5 068 877,96
Чистая прибыль (руб.)	6 677 881,73	12 824 274,27	9 289 701,15	3 943 587,05

Чистая прибыль предприятия за год по всем моделям (руб.) = 32 735 444,20

Figure 1. Calculation of key economic indicators (sheet "Cost price")

Капитальные вложения на технологическое оборудование, обеспечивающее выпуск всех моделей					
Наименование оборудования	Количество оборудования, шт.	Мощность электропитателя, кВт	Установленная мощность, кВт	Цена за единицу оборудования, руб.	Стоимость оборудования, руб.
S 120C	9	1,1	9,9	27300	245700
HSP588/3	2	0,8	1,6	54000	108000
SS 20	3	0,5	1,5	15900	47700
A2000	2	2,1	4,2	127000	254000
RP67TE	3	1	3	37800	113400
Швейные машины: Pф#	4	0,27	1,08	17560	70240
Pф# 574-900	4	0,27	1,08	79600	318400
Pф# 1243-750/01	1	0,27	0,27	79400	79400
GP 2	1	0,27	0,27	19000	19000
GRAMAC 652	2	0,27	0,54	21300	42600
02015/P5	1	0,23	0,23	42600	42600
10/11/C	2	0,5	1	51300	102600
1200	1	0,25	0,25	54000	54000
CD 3000U	2	2,7	5,4	35700	71400
Термоактив. 133	1	4,3	4,3	130000	130000
AS 1880 K	1	7	7	252600	252600
FO 2016	1	3	3	87000	87000
G50 4CF	1	1,2	1,2	15700	15700
SR 1006	2	0,18	0,36	29000	58000
G 12/1	2	1,9	3,8	54000	108000
K73STIC	1	5,5	5,5	157680	157680
PIC K24SZ	1	5,5	5,5	285100	285100
02068/P4	2	0,6	1,2	11200	22400
01276/P12	2	0,18	0,36	18000	36000
TL75	1	0,1	0,1	15200	15200
04222/P1	1	0,42	0,42	49400	49400
05054/P1	1	0,25	0,25	12300	12300
FR 3500	1	13	13	41200	41200
Конвейер 173226/P1	1	1,1	1,1	125000	125000
Итого	56		77,41		2964620
С учетом затрат на монтаж (10%)					3261082

Figure 2. Calculation of expenses for the maintenance and operation of equipment (sheet "Equipment")

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Производственная программа на год в натуральном выражении							
Наименование изделий	Выпуск изделий в день, пар	Период выпуска изделия в течение года, дни	Выпуск изделий за год, пар	В том числе по кварталам			
				I	II	III	IV
Зимние сапоги (модель А)	716	66	47256			47256	
Осенние ботинки (модель Б)	650	62	40300		40300		
Весенние полуботинки (модель В)	712	65	46280				46280
Летние сандалии (модель Г)	831	56	46536	46536			
<b>Итого:</b>		<b>249</b>	<b>180372</b>	<b>46536</b>	<b>40300</b>	<b>47256</b>	<b>46280</b>

Производственная программа на год в стоимостном выражении							
Наименование изделий	Годовой выпуск изделия, пар	Стоимость изделия, руб.	Годовой объем выпуска, тыс.руб.	В том числе по кварталам			
				I	II	III	IV
Зимние сапоги (модель А)	47256	1400	66158,4			66158,4	
Осенние ботинки (модель Б)	40300	1360	54808		54808		
Весенние полуботинки (модель В)	46280	1220	56461,6				56461,6
Летние сандалии (модель Г)	46536	890	41417,04	41417			
<b>Итого:</b>			<b>218845,04</b>	<b>41417</b>	<b>54808</b>	<b>66158,4</b>	<b>56461,6</b>

Производственная программа в трудо-часах							
Наименование изделий	Годовой выпуск изделия, пар	Трудоёмкость изделия	Годовой объем выпуска, в трудо-часах	В том числе по кварталам			
				I	II	III	IV
Зимние сапоги (модель А)	47256	0,66	31188,960			31189	
Осенние ботинки (модель Б)	40300	0,73	29419,000		29419		
Весенние полуботинки (модель В)	46280	0,582	26934,960				26934,96
Летние сандалии (модель Г)	46536	0,56	26060,160	26060,2			
<b>Итого:</b>			<b>113603,08</b>	<b>26060,2</b>	<b>29419</b>	<b>31189</b>	<b>26934,96</b>

Figure 3. Calculation of the enterprise production program for the year (sheet "Production program")

The financial safety margin is calculated using the following relationship (FS)

$$Зфп = \frac{B_2 - T_{б.у}}{B_2} \cdot 100 (\%), (11)$$

where B2 is the output of marketable products in the planning period in physical terms; Tb.u is the break-even point, pair.

The break-even point is determined by the formula (Tb.u):

$$Tb.u = \frac{З_{усл.пост}}{\Pi_{ед} - З_{усл.пер.ед}} \text{ (pairs), } (12)$$

here  $З_{усл.пост}$  – total fixed costs of a unit of production, rubles;  $\Pi_{ед}$  – price of a unit of production, rubles;  $З_{усл.пер.ед}$  – total variable costs of a unit of production, rubles.

Unit profit (Pr) is determined by the following relationship:

$$Pr = C_{opt} - C, (13)$$

where  $C_{opt}$  is the wholesale price of a unit of production (selling price minus value-added tax of 10% for children's shoes and 18% for other types), rubles; C is the full cost of a unit of production, rubles.

The profitability of production (R) is determined by the following formula:

$$R = \frac{\Pi_p}{C} \cdot 100 (\%), (14)$$

here Pr is the profit from the sale of a unit of production, rubles; C is the total cost of a unit of production, rubles.

The cost of 1 ruble of marketable output (31p т.п) is determined by the following formula:

$$31p \text{ т.п.} = \frac{C}{\Pi_{opt}} \cdot 100 (\text{cop}), (15)$$

where C is the full cost of a unit of production, rubles;  $\Pi_{opt}$  is the wholesale price of a unit of production (selling price minus value-added tax of 10% for children's shoes and 18% for other types), rubles.

Conditionally variable costs (total variable costs of production of a unit of output) (Conditionally variable costs of production of a unit of output) are defined as

Conditional trans. unit =  $C_{pol} - (5 \text{ st.s.pol} + 6 \text{ st.s.pol} + 7 \text{ st.s.pol} + 8 \text{ st.s.pol} + 9 \text{ st.s.pol})$ . (16)

Fixed costs (total fixed costs of producing a unit of output) (Conditional fixed costs per unit)

Conditional seeding unit =  $S_{pol} - (1 \text{ st.s.pol} + 2 \text{ st.s.pol} + 3 \text{ st.s.pol} + 4 \text{ st.s.pol})$ . (17)

Software was also developed to select the optimal power.

In this case, the criteria for a justified choice of optimal capacity when forming the algorithm were precisely those criteria that have the greatest impact on the cost of finished products, namely:

- wage losses per unit of output, rubles;
- shoe production, 1 m<sup>2</sup>;
- percentage of workers' workload, %;
- labor productivity of one worker, a pair;
- specific reduced costs per 100 pairs of shoes, rub.;
- equipment cost per unit of flow assignment (C)

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- total price (Stotal);
- margin of financial safety (MFS);
- break-even point (BEP);
- unit profit (Pr);
- product profitability (R);
- costs per 1 ruble of marketable output (31p т.п);
- conditionally variable costs (CVC);
- fixed costs (FCCs).

From the criteria listed above, in our opinion, the manufacturer has the opportunity to give preference to those that, from his point of view, would guarantee him the production of import-substituting, competitive and in-demand products, namely:

– Labor productivity per worker is the most important labor indicator. All key production efficiency indicators and all labor indicators, including output, headcount, wage expenditure, and wage levels, depend to varying degrees on the level and dynamics of labor productivity. To improve labor productivity, the introduction of new equipment and technology, the extensive mechanization of labor-intensive tasks, the automation of production processes, and the advanced training of blue-collar and white-collar workers are of primary importance, especially when implementing innovative technological processes based on universal and multifunctional equipment.

– specific reduced costs – an indicator of comparative economic efficiency of capital investments, used when choosing the best option for solving technological problems;

– reduced costs – the sum of current costs taken into account in the cost of production and one-time capital investments, the comparability of which with current costs is achieved by multiplying them by the standard coefficient of capital investment efficiency;

– the financial safety margin (FSM) shows by what percentage the enterprise can reduce the volume of sales without incurring losses;

– the break-even point allows (Tb.u) to determine the minimum required volume of product sales at which the enterprise covers its expenses and operates at a break-even point, without generating a profit, but also without incurring losses, that is, this is the minimum volume of product output at which equality of sales revenue and production costs is achieved;

– profit (loss) from sales of products (Pr) is defined as the difference between revenue from sales of products at current prices, VAT and excise taxes, and the costs of their production and sales;

– product profitability (R) reflects the relationship between the profit from the sale of a unit of production and its cost;

– conditionally fixed costs (total fixed costs of production per unit of output) (Zusl.pos.ed), which change proportionally or almost proportionally to the change in production volume (1st – costs of raw

materials and supplies; 2st – costs of auxiliary materials; 3st – costs of fuel and energy for technological needs; 4st – costs of additional and basic salaries of production workers with insurance contributions to off-budget funds);

– conditionally variable costs (total variable costs of production per unit of output) (Conventional variable costs per unit), which do not depend or are almost independent of changes in the volume of production (5st – costs of expenses for preparation and development of production; 6st – costs of expenses for maintenance and operation of equipment; 7st – costs of general production needs; 8st – costs of general business expenses, they together with conditionally fixed costs make up the production cost; 9st – costs of commercial expenses. All these items, forming conditionally variable and conditionally fixed costs, make up the full cost, that is, conditionally variable costs can be defined as the full cost – conditionally fixed costs, and vice versa, conditionally fixed costs can be defined as the full cost – conditionally variable costs);

– the cost per ruble of marketable output shows the relative size of profit per ruble of current expenses, that is, it is the ratio of the unit cost of production to the wholesale price, characterizing the effectiveness of measures taken to increase the competitiveness and demand for products in demand markets.

To convert dimensional indicator estimates into dimensionless ones, we propose using the index method. The indices of dimensionless indicators are determined using formula (6.18) for positive indicators with a positive upward trend (e.g., profitability of sold products, labor productivity) and formula (6.19) for negative indicators with a positive downward trend (e.g., depreciation of fixed assets, excess finished goods inventory in warehouses compared to the standard, employee turnover rate). These indices are primarily derived from indicators that form the cost of production:

$$O_i = X_i / X_i^{\max}, (8)$$

$$O_i = X_i^{\min} / X_i, (9)$$

where  $O_i$  is the dimensionless (index) assessment of the  $i$ -th indicator of enterprise competitiveness;  $X_i$  is the value of the  $i$ -th dimensional indicator of enterprise competitiveness assessment;  $X_{i\max}$  is the maximum value of the  $i$ -th dimensional indicator of enterprise competitiveness assessment;  $X_{i\min}$  is the minimum value of the  $i$ -th dimensional indicator of enterprise competitiveness assessment.

**Stage 1. Assessment of product competitiveness.** It is carried out for light industry goods based on their demand on the domestic market.

**Stage 2. Calculation of a general indicator of enterprise competitiveness.** It is proposed to determine the quantitative assessment of the

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enterprise's competitiveness using the following formula:

$$K_{\Pi} = \sum_{i=1}^m \alpha_i \times O_i, \quad (20)$$

where  $K_{\Pi}$  is the assessment of the enterprise's competitiveness in percent;  $\alpha_i$  – the significance of the  $i$ -th competitiveness indicator in percent;  $O_i$  – index (dimensionless) assessment of the  $i$ -th competitiveness indicator;  $m$  – the number of indicators for assessing the competitiveness of the enterprise.

The values of the enterprise competitiveness assessment can theoretically vary within the range from 0 to 100:

$$K_p = 0 \div 100. \quad (21)$$

To qualitatively characterize the obtained competitiveness assessments, a qualitative assessment scale is necessary. In economic practice, the principle of constructing scales with equal increments, progressive and regressive scales, are used. Progressive and regressive scales are most often used for material incentives. We believe that a scale with equal increments is the most appropriate, since, firstly, it corresponds to the solution of the practical problem (specification of the qualitative level of competitiveness), and secondly, it is simple to construct and use. The scale increment is defined as 100 (the maximum score): 4 (the number of levels) = 25. A different increment value can be selected, determined by the goals and objectives that the enterprise itself establishes:

$K_{ef} = K_1 K_2 K_3 K_4 K_5 K_6 K_7 K_8 K_9 K_{10} K_{11} K_{12}, \quad (22)$

where  $K_{ef}$  is the weighting coefficient for assessing the effectiveness of innovative technological processes, formed for the production of competitive and in-demand products:

$K_1$  – the significance of labor productivity (LP);

$K_2$  – the weight of the workers' workload (WW);

$K_3$  – weight of shoe production (Ps);

$K_4$  – the weight of the equipment cost per unit of flow assignment (C);

$K_5$  – the weight of the total price per unit of production (Stotal);

$K_6$  – the weight of the financial safety margin (FSM);

$K_7$  – weight of the break-even point (Tb.u);

$K_8$  – the weight of profit per unit of production (Pr);

$K_9$  – the importance of product profitability (R);

$K_{10}$  – the weight of costs per 1 ruble of marketable output (31p.t.n);

$K_{11}$  – the weight of conditionally variable costs (total variable costs of production of a unit of output) (Zusl.per.ed);

$K_{12}$  – the weight of conditionally fixed costs (total fixed costs of producing a unit of output) (Zusl.pos.ed)

As a result of the calculation, the following scale for assessing the qualitative level of competitiveness of an enterprise was obtained (Table 19).

**Table 19. Scale for assessing the qualitative level of enterprise competitiveness**

Percentage rating	Quality level
from 0 to 24.9	very low
from 25.0 to 49.9	short
from 50.0 to 74.9	average
from 75.0 to 100	high

*Cost of services and products* –These are the current costs of the enterprise for the production and sale of services and products, expressed in monetary terms. When calculating the cost of production  $k_{ci}$  and all enterprise expenses are classified according to various criteria:

– depending on the nature of their allocation to the cost of services and products, they are divided into 2 groups: direct and indirect.

*Straight* These are the costs that can be directly attributed to a particular type of product when producing more than one type of product (materials, fuel, energy).

*Indirect* –expenses that cannot be directly attributed to the cost of various types of products during the manufacture and repair of more than one type, and are then distributed between them in

proportion to other costs of funds or labor.

– depending on the change in production volume, all costs are divided into conditionally variable (proportional) and conditionally fixed (non-proportional).

*To conditional variables* include expenses that change proportionally or almost proportionally to the change in production volume (costs of materials and energy for technological purposes, wages of production workers, etc.).

*To conditionally permanent* include expenses that do not depend or are almost independent of changes in production volume (depreciation charges from the cost of fixed assets, rent, expenses for the maintenance of buildings and structures, salaries of managers, specialists and employees, etc.):

– by economic role in the production process:

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main and overhead;

- by composition (homogeneity): single-element, complex;
- by frequency of occurrence: current and one-time.

One-time costs – costs for preparation and development of production new types of products kci and, expenses related to the launch of new production facilities and other:

- by participation in the production process: industrial and commercial;
- by efficiency: productive, unproductive.

*Costs are considered productive* for the production of products of established quality using rational technology and organization of production.

*Unproductive expenses* are a consequence of shortcomings in production organization technology (losses due to downtime, defective products, overtime payments, etc.).

Productive expenses are planned, but unproductive ones are not planned.

*Calculation of the cost of services and products* is the process of determining the cost of manufactured products and services rendered, carried out for individual cost items. Costing is performed using standard costing units. itsy.

Planned cost estimates are compiled according to the nomenclature of costing items:

1. Raw materials and basic materials (including transportation and procurement costs and excluding waste to be sold).
2. Auxiliary materials.
3. Fuel and electricity for technological purposes.
4. Basic and additional wages of production workers with insurance contributions to off-budget funds.
5. Costs for preparation and development of production.
6. Equipment maintenance and operation costs (EMOC).
7. General production costs (shop costs).
8. General business expenses.
9. Payments for compulsory property insurance.

Production cost

10. Commercial (non-production) expenses.

Full cost price.

Production cost estimate and financial results

To determine the total amount of all planned costs at the enterprise and the mutual coordination of indicators of cost, profit and profitability with other indicators, an estimate of production costs by economic elements is drawn up, which includes the costs of all structural divisions of the enterprise involved in the provision of services (production kci).

*Cost estimate* is considered a consolidated document that characterizes the monetary expression

of all material and energy costs necessary to ensure the fulfillment of the plan for the production of products and services.

The expenses taken into account in the estimate are grouped as follows.

Cost estimate

1. Raw materials and basic materials.
2. Auxiliary materials.
3. Purchased goods and semi-finished products.
4. Fuel from the outside.
5. Energy from the outside.
6. Basic and additional wages of industrial and production personnel (IPP) with deductions for the unified social tax.
7. Depreciation of fixed assets for full restoration.
8. Other expenses.

*Formation of financial results.* The final financial result (profit or loss) consists of the financial result from the sale of products (works, services), fixed assets and other property of the enterprise and income from non-operating transactions, reduced by the amount of expenses for these transactions.

*Profit (loss)* from the sale of products (works, services) and goods is defined as the difference between the proceeds from the sale of products (works, services) at current prices excluding VAT and excise taxes and the costs of their production and sale.

*Planned profit (Ppl):*

$$\Pi_{\text{пл}} = (B \cdot \Pi) - (B \cdot C), \quad (23)$$

where B is the output of marketable products in the planning period in physical terms; C is the price for 1 pair of shoes (unit of production) minus VAT and excise taxes – this is the wholesale price; C is the cost of a complete unit of production.

*Profit of 1 pair (P1):*

$$P1 = C_{\text{opt}} - C1, \quad (24)$$

Here  $T_{\text{sopt}}$  is the wholesale price of 1 pair; C1 is the cost price of 1 pair.

Product profitability reflects the relationship between profit from product sales and its cost.

It shows the relative amount of profit for each ruble of current expenses and is determined by the formula:

$$R_{\text{п}} = \frac{\Pi_{\text{п}}}{3} \cdot 100, \quad (25)$$

where is the profitability of products; Pr is the profit from sales of products; Z is the costs (cost price);  $R_{\text{п}}$

$$R = \frac{\Pi}{C/C} \cdot 100(\%), \quad \text{– calculation per 1 pair.} \quad (6.26)$$

*Revenue from sales of products* (works and services) is determined either as it is paid for, or as the goods are shipped (works and services are performed) and payment documents are presented to

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the buyer (customer).

To income include:

- income received in the territory of the Russian Federation and abroad from equity participation in the activities of other enterprises, dividends on shares and income from bonds and other securities owned by the enterprise;
- income from leasing property;
- income from the valuation of production stocks and finished products;
- fines, penalties, forfeits and other types of sanctions awarded or recognized by debtors for violation of the terms of business contracts, as well as income from compensation for damages caused;
- profit from previous years, identified in the reporting year;
- other income from operations directly related to the production and sale of products (works and services).

To expenses and losses *include*:

- costs of maintaining mothballed production capacities and facilities (except for costs reimbursed from other sources);
- losses due to downtime due to external causes that are not compensated by the perpetrators;
- losses from the markdown of production stocks and finished products;
- losses from operations with containers;
- legal costs and arbitration expenses;
- awarded or recognized fines, penalties, forfeits and other types of sanctions for violation of the terms of business contracts, as well as expenses for compensation for damages caused;
- losses from previous years identified in the current year;
- non-compensable losses resulting from fires, accidents, and other emergency situations caused by extreme conditions; non-compensable losses from natural disasters (destruction and damage to production stocks of finished goods and other material assets, losses from production stoppages, etc.), including costs associated with eliminating the consequences of natural disasters; losses from theft, the perpetrators of which have not been identified by court decisions.

Break-even analysis allows us to determine the minimum required volume of product sales at which a company covers its costs and operates at break-even, without generating a profit, but also without incurring losses.

In the most general sense, the activities of any enterprise are carried out according to the scheme “costs - production process - profit”.

The break-even point (BEP) is determined by calculation using the following formula

$$T_{6,y} = \frac{УПЗ \cdot \text{Количество продукции}}{\Pi - УППЗ}, \quad (27)$$

where УПЗ – conditionally fixed costs per unit of

output, rubles; УППЗ – conditionally variable costs per unit of output, rubles;  $\Pi$  – price per unit of output without VAT, rubles.

To plot a break-even graph, you should create an equation of the following type:

$$at_1 = ah;$$

$$y_2 = ao + ah,$$

where  $y_1$  is revenue, rubles;  $y_2$  is costs (full cost) of production, rubles;  $A$  – unit price of production without VAT, RUB;  $x$  – planned volume of product sales, pairs;  $a_0$  – sum of UPP;  $a_1$  – sum of UPP per unit of production, RUB.

The margin of safety (MSF) shows how much production volume can be reduced while operating at breakeven, without generating a profit, but without incurring losses:

$$Z_{\phi} = \frac{B - T_{6,y}}{B} \cdot 100 (\%), \quad (28)$$

where  $T_{6,y}$  is the break-even point.

When calculating dimensionless estimates of enterprise competitiveness indicators using formulas (18) and (19) using software, it becomes necessary to formulate these same criteria as their evidence base. For example, unit profit is calculated based on the product's profitability; that is, a profitability of 5 to 25% is first formulated, followed by the unit profit. A similar distinction applies to the definition of labor productivity criteria, as innovative technological processes based on universal and multifunctional equipment are first used. Their maintenance must be entrusted to highly qualified and responsible employees who are committed to the overall performance of the entire technological cycle, guaranteeing the production of sought-after and competitive products that are in high demand among consumers in the domestic market. The calculation of semi-fixed and semi-variable unit production costs is interrelated with the specifics of organizing the production of competitive and in-demand products, including those for children. An analysis of the performance of leading international manufacturers confirms that while semi-fixed costs account for 20-40% of the cost of production, semi-variable costs naturally account for 60-80%. Moreover, it is again necessary to emphasize the specific nature of children's product manufacturing, where profit, profitability, semi-fixed costs, and semi-variable costs are determined by the implementation of technical regulations and regulatory documents and regulations that guarantee the safety of their use. If this is necessary to produce products with such stringent specifications, the state and manufacturers must be mutually supportive and provide compensation for the additional costs of compliance and a guarantee that the manufactured products will not harm children's health.

Of course, if the criterion for the loss of wages per unit of output should tend to zero, and the volume

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of shoe output per 1 m<sup>2</sup> should tend to its maximum possible value, and the costs per 1 ruble of marketable output should tend to their minimum possible value, and the cost of equipment per unit of flow assignment should also tend to its minimum possible value, and other criteria - to their maximum possible value - in aggregate, the dimensionless assessment of the effectiveness of the developed innovative technological processes (K) should always tend to one and thereby always confirm that the innovative technological process designed by the enterprise for

the production of import-substituting products will be successful in its activities for the benefit of the population of those regions where they will operate, being city-forming for these small medium-sized cities and in which all branches of government - both federal, regional and municipal - are interested.

The characteristics of competitive advantages in the production of the entire range of footwear for making a decision on its production, calculated using the same software product, are given in Table 20.

**Table 20. Costing components for the entire range of footwear**

Indicators	Type of footwear	Types of footwear			
		Spring	Summer	Autumn	Winter
Unit cost products, rub.	Men's	856.77	643.72	998.5	<b>1007.07</b>
	Women's	933.51	844.31	1062.37	<b>2107.29</b>
	<b>Children's</b>	<b>551.05</b>	<b>503.89</b>	<b>586.15</b>	<b>795.41</b>
Costs for basic materials, rub.	Men's	541.61	378.64	623.16	<b>660.42</b>
	Women's	523.71	511.6	618.52	<b>1503.57</b>
	<b>Children's</b>	<b>235.78</b>	<b>200.05</b>	<b>280.76</b>	<b>415.5</b>
Costs of auxiliary materials, rub.	Men's	23.82	17.57	28.16	<b>30.4</b>
	Women's	22.65	17.05	24.31	<b>43.16</b>
	<b>Children's</b>	<b>11.78</b>	<b>7.92</b>	<b>12.16</b>	<b>15.26</b>
Salary pay	Men's	141.02	108.28	<b>161.1</b>	150.71
	Women's	148.92	84.62	139.09	<b>220.58</b>
	<b>Children's</b>	<b>58.44</b>	<b>55.42</b>	<b>68.95</b>	<b>95.77</b>
Profitability per unit of output, RUB	Men's	10.75	14.65	13.36	<b>15.12</b>
	Women's	11.88	13.37	16.42	<b>17.11</b>
	<b>Children's</b>	<b>9.53</b>	<b>8.39</b>	<b>9.19</b>	<b>10.72</b>
Cost by 1 ruble commodity products, rub.	Men's	82.88	85.35	<b>86.64</b>	84.88
	Women's	<b>88.12</b>	86.63	83.57	82.89
	<b>Children's</b>	<b>90.47</b>	<b>91.62</b>	<b>90.8</b>	<b>89.28</b>

Thus, the software developed by the authors for evaluating the effectiveness of the developed innovative technological processes for the production of a priority range of footwear, taking into account the calculated cost components for the production of the planned range, allows for a justified decision on its launch, a decision on its balance, guaranteed demand, and ensuring a stable financial position for the enterprise.

Furthermore, the developed software allows regional and municipal authorities, in collaboration with future manufacturers of the entire footwear range in single-industry towns, to determine production volumes not only based on demand but also to guarantee companies a stable financial position by providing them with stable energy and production capacities. This will create the foundation for creating

new jobs while simultaneously addressing all the social problems that, unfortunately, characterize most small and medium-sized cities in the Russian Federation today.

Selecting a technology that can effectively achieve the intended goals in a highly competitive environment will ensure that the developed footwear range will be chosen by the customer and allow the company to maximize profits.

In the costs of shoe production, the largest share is made up of expenses on raw materials and basic materials, followed by wages and depreciation charges.

One of the conditions for a company's competitiveness is the organization of effective interactions with stakeholders involved in its successful operation. Every company, even small

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ones, has several groups of participants with different interests, with whom it may collaborate temporarily or permanently. The authors' research focuses on understanding these interests, ways to resolve emerging issues between external and internal participants, and establishing relationships between partners. This ensures that all stakeholders are guided by the fundamental principle that the interests of all parties are legitimate and require their satisfaction and respect. To achieve profit, a company must constantly monitor the relative costs of manufacturing its diverse range of footwear.

This is only possible if company managers implement modern technological solutions based on the use of multifunctional and versatile equipment. It is also important to remember that the innovative technological solution itself should be cost-effective. This means, on the one hand, providing the company with stable technical and economic indicators, guaranteeing demand not only in the Southern and North Caucasian Federal Districts, but also in other regions of Russia, and being attractive to international consumers. On the other hand, consumers should have the choice to compare the price range of the offered products with similar products from foreign companies, and always prioritize these. This will be possible with the development of a production based on innovation and innovative activity, including the use of nanotechnology and nanomaterials, which enable manufacturers to use injection molding methods for the production of shoe soles.

Making a profit is the primary goal of any entrepreneurial activity. In today's highly competitive

business and entrepreneurship environment, it's essential to be able to calculate future profits and anticipate potential losses.

Corporate income tax rate (Federal tax) is 20%, of which 2% goes to the federal budget and 18% to the regional budget.

2) Tax on the property of organizations (Regional tax), paid from the property that is on the balance sheet of the organization. Basically, these are fixed assets and intangible assets.

The maximum rate is established by the Tax Code of the Russian Federation and is 2.2% of the tax base - the average annual value of the property.

Property tax calculation:

$$НИ_{np} = \frac{OF_{cpr} \cdot CH_n}{100}, \quad (29)$$

Where OFsrg – residual value of fixed assets, thousand rubles; SNi – property tax rate (SNi = 2.2%).

Calculation of income tax and net profit

We will determine the income tax (IT) using the formula:

$$НИП = \frac{(ПП - НИ) \cdot CH_{np}}{100}, \quad (30)$$

Where CHnp – income tax rate, %, (CHnp = 20%); ПП – enterprise profit, thousand rubles; НИ – property tax, thousand rubles.

We will determine net profit Prch using the formula:

$$Пр_{ч} = Пр - НИ - НИП. \quad (31)$$

**Table 20. Summary of the results of a survey of respondents – children, their parents, buyers and manufacturers – to assess the competitive potential of footwear enterprises in the Southern and North Caucasian Federal Districts**

Results of the children's survey	Results of the parents' survey	Customer survey results	Results of the survey of manufacturers
2 – Quality of children's shoes	3 – Quality of children's shoes	3 – Quality of children's shoes	3 – Quality of children's shoes
1 – Toe shape	8 – Comfort	9 – Comfort	4 – Functionality of children's shoes
11 – Mass	1 – Mass	6 – Fashion trend compliance	9 – Comfort
5 – Comfort	7 – Price	7 – Price	7 – Price
13 – Materials for the bottom of shoes	5 – Flexibility	4 – Functionality of children's shoes	6 – Fashion trend compliance
22 – Fashion trend compliance	4 – Colour fastness of materials used for shoe uppers to dry and wet friction and to the effects of sweat	1 – Mass	5 – Characteristics of shoe upper materials
4 – The price of children's shoes	2 – Color	5 – Characteristics of shoe upper materials	1 – Mass

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21 – A wide range of children's footwear in stores and shopping centers	6 – Strength of the shoe bottom fastening	8 – Characteristics of materials for the bottom of shoes	8 – Characteristics of materials for the bottom of shoes
Results of the children's survey	Results of the parents' survey	Customer survey results	Results of the survey of manufacturers
6 – Level of service for parents and children in stores and shopping centers	11 – Warranty period for children's shoes	2 – Color	2 – Color
7 – Color	10 – Maintainability	15 – What types of children's shoes are preferred: autumn	12 – Maintainability
9 – Heel lift height – up to 40 mm	9 – Deformation of the toe and heel	10 – Height of heel lift – up to 40 mm	13 – Warranty period for children's shoes
15 – Place of sale of children's shoes – the interior of a store or shopping center		14 – What types of children's shoes are preferred: winter	10 – Height of heel lift – up to 40 mm
8 – Warranty period for children's shoes		11 – The height of the heel of the shoe is over 40 mm	11 – The height of the heel of the shoe is over 40 mm
16 – What types of children's shoes are preferred: winter		12 – Maintainability	
18 – What types of children's shoes are preferred: spring		18 – Strength of the shoe bottom fastening	
12 – Repairability of children's shoes and its feasibility		16 – What types of children's shoes are preferred: spring	
3 – Flexibility of children's shoes		13 – Warranty period for children's shoes	
10 – The height of the heel of the shoe is over 40 mm		17 – What types of children's shoes are preferred: summer	
17 – What types of children's shoes are preferred: autumn			
20 – Strength of the shoe bottom fastening			
14 – Upper materials for shoes			
19 – What types of children's shoes are preferred: summer			
0.16 < W < 0.69	0.52 < W < 0.94	0.47 < W < 0.91	0.33 < W < 0.84

**Table 21. A summary of the results of a survey of respondents - children, their parents, buyers and manufacturers - assessing the competitive potential of shoe companies in the regions of the Southern and North Caucasian Federal Districts, but without heretics whose opinions do not coincide with the majority of respondents who participated in the survey**

Results of the children's survey	Results of the parents' survey	Customer survey results	Results of the survey of manufacturers
2 – Quality of children's shoes	7 – Price	6 – Fashion trend compliance	3 – Quality of children's shoes
5 – Comfort	8 – Comfort	9 – Comfort	4 – Functionality of children's shoes
11 – Mass	1 – Mass	7 – Price	7 – Price

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<b>JIF</b> = 1.500	<b>SJIF (Morocco)</b> = 6.004	<b>OAJI (USA)</b> = 0.350

22 – Fashion trend compliance	3 – Quality of children's shoes	3 – Quality of children's shoes	9 – Comfort
16 – What types of children's shoes are preferred: winter	5 – Flexibility	15 – What types of children's shoes are preferred: autumn	6 – Fashion trend compliance
6 – Level of service for parents and children in stores and shopping centers	4 – Colour fastness of materials used for shoe uppers to dry and wet friction and to the effects of sweat	1 – Mass	12 – Maintainability
Results of the children's survey	Results of the parents' survey	Customer survey results	Results of the survey of manufacturers
21 – A wide range of children's footwear in stores and shopping centers	2 – Color	14 – What types of children's shoes are preferred: winter	5 – Characteristics of shoe upper materials
4 – The price of children's shoes	6 – Strength of the shoe bottom fastening	4 – Functionality of children's shoes	8 – Characteristics of materials for the bottom of shoes
7 – Color	10 – Maintainability	5 – Characteristics of shoe upper materials	1 – Mass
1 – Toe shape	11 – Warranty period for children's shoes	11 – The height of the heel of the shoe is over 40 mm	13 – Warranty period for children's shoes
12 – Repairability of children's shoes and its feasibility	9 – Deformation of the toe and heel	2 – Color	2 – Color
8 – Warranty period for children's shoes		8 – Characteristics of materials for the bottom of shoes	10 – Height of heel lift – up to 40 mm
13 – Materials for the bottom of shoes		10 – Height of heel lift – up to 40 mm	11 – The height of the heel part of the shoe is over 40 mm
15 – Place of sale of children's shoes – the interior of a store or shopping center		16 – What types of children's shoes are preferred: spring	
18 – What types of children's shoes are preferred: spring		17 – What types of children's shoes are preferred: summer	
3 – Flexibility of children's shoes		18 – Strength of the shoe bottom fastening	
19 – What types of children's shoes are preferred: summer		12 – Maintainability	
14 – Upper materials shoes		13 – Warranty period for children's shoes	
9 – Heel lift height – up to 40 mm			
10 – The height of the heel of the shoe is over 40 mm			
20 – Strength of the shoe bottom fastening			
17 – What types of children's shoes are preferred: autumn			
0.16 < W < 0.69	0.52 < W < 0.94	0.47 < W < 0.91	0.33 < W < 0.84

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### Conclusion

The results of a study assessing the competitive potential of footwear companies in the Southern and North Caucasian Federal Districts confirmed the importance of marketing services in generating sustainable demand for domestic products within their priority areas. The more frequently these services interact with producers and consumers, the more effective these companies will be in ensuring sustainable demand for their products, achieving stable technical and economic indicators for their operations, and shaping the image and social security of small and medium-sized towns as city-forming enterprises. Both producers and regional and municipal authorities have a stake in their success. Success is more crucial than ever for all participants in the survey assessing the competitive potential of footwear companies located in the Southern and North Caucasian Federal Districts. The validity of the key propositions, conclusions, and recommendations formulated in this study is confirmed by the use of simulation methods and research tools consistent with the current state of science. To achieve the stated goal, namely, ensuring the competitiveness of footwear produced in the regions of the two districts, the effectiveness of using innovative technological processes, modern technologies, mathematical models, software packages, theories of synergy, network cooperation, and the inherent consciousness of the motivation of enterprise managers in the production of in-demand and competitive products was examined. The authors present a concept for prioritizing light industry products through enterprise and product competitiveness, ensuring their relevance, appeal, and sophistication, in order to create the preconditions for sustainable demand from consumers in the Southern and North Caucasian Federal Districts. This is possible if manufacturers ensure product demand through a product assortment policy with social protection of consumer interests, guaranteeing a stable financial position, pricing niche, and an efficient cash flow policy, enabling enterprises to achieve stable technical and economic indicators. The researchers' desire to draw the attention of federal, regional, and municipal branches of government to the revision of the roadmap and

strategy for the development of light industry in Russia until 2025, approved by the government, is justified. Unfortunately, it lacks the most important aspect—the role and importance of government involvement at all levels in its implementation. Without their support, both the roadmap and the strategy for the development of light industry are mere intentions and nothing more. The lack of messages and responsible individuals deprived them of their binding force for these very branches of government, and without their committed participation, achieving the stated results is simply impossible. Another serious doubt about its effectiveness is its failure to significantly influence the restoration of light industry enterprises in the regions and municipalities as city-forming enterprises, in order to restore social stability and security to small and medium-sized cities in Russia—that is, to restore them to the role they played for these very municipal and regional formations, of which there are so many in Russia, including in the regions of two Federal Districts—the Southern Federal District and the North Caucasus Federal District.

The implementation of all proposed measures with the active participation of these same branches of government, but especially regional and municipal ones, will create new jobs in small and medium-sized towns, guaranteeing their residents all the social conditions for a decent life, ensuring their funding, including the operation of preschools and schools, medical and cultural institutions, and diverting young people from the streets and other undesirable situations. The emergence of market demand for in-demand products at a price point acceptable to the majority of consumers in these regions will reduce migration from these regions precisely through the funding of all socially significant measures.

By setting priorities, regional and municipal authorities, supporting business leaders in achieving their goals, and filling markets with in-demand products, especially for children and vulnerable groups in these regions, will directly implement their promises to voters and build confidence in the region's population, which will ultimately provide social protection and a dignified life for the population of small and medium-sized cities and reduce migration.

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Article



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## WHAT SYSTEMIC PROBLEMS, NEW RISKS AND OPPORTUNITIES FOR SUSTAINABLE DEVELOPMENT ARE CHARACTERISTIC OF THE RUSSIAN ARCTIC?

**Abstract:** In this article, the authors examine the systemic and emerging challenges, risks, and opportunities for economic development, including sustainable development, in the Russian Arctic. An analysis of the characteristics, trends, and prospects for industrial production in the Russian Arctic is provided, revealing the challenges and specific features of single-industry towns. The readiness of Russian Arctic regions to overcome current economic instability from a labor market perspective is established. The problems and prospects for creating conditions for the integrated use of raw materials in Arctic regions are examined and substantiated. The conditions and prospects for shift work transformation are identified as a reserve for changing migration trends and developing the Arctic labor market.

**Key words:** Current issues, investment projects, global recessions, geopolitical processes, problems of increased costs, socio-economic processes, Arctic zones, economy of the Arctic Zone of the Russian Federation regions.

**Language:** English

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### Introduction

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The presented article is a continuation of the results of scientific- research papers confirming the relevance of the problem under consideration,

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clarifying the current specifics and prospects for socio-economic processes in the Arctic Zone of the Russian Federation (AZRF). Identifying the causes of this problem confirmed the relevance of the specific objective of the work—uncovering, through a range of problematic tools, the systemic and prospective dynamics of the socio-economic space of the Russian Arctic, taking into account geopolitical, macroeconomic, environmental, and mineral resource factors. Current reality confirms that the contradiction remains, and the unique nature of the current transformation conditions in the AZRF enhances the relevance of the problem. Thus, in 2024, amid extreme uncertainty, based on analogies to the behavior of Arctic regions during previous crises, a number of Arctic economic researchers expected the COVID-19 pandemic to lead to changes in the Arctic, including:

the solution to the problem of increased costs and lost profits for a number of industrial sector enterprises using unpopular methods and the suspension of a number of large investment projects due not so much to the decline in external demand for the main Arctic export items and restrictions on oil production under the OPEC+ agreement, but rather to the uncertainty of their duration;

the depth of the subsequent global recession and associated geopolitical processes.

However, at the 2024 stage of work, we are faced with a different situation, different from the behavior of the Arctic Zone regions in previous crises, which is rapidly changing the conditions for the development of the Arctic, namely:

Firstly, it was revealed that the conditions of the COVID-19 pandemic and a number of major environmental disasters in the Arctic Zone of the Russian Federation have significantly strengthened the provision of oil and gas, mining and metallurgical enterprises with factors for the sustainable development of the territory of their presence, including the greening of production, support for the economic growth of the territory, and the social responsibility of business (which is consistent with global processes);

secondly, the accelerated implementation by the state of an investment mechanism for the development of the Arctic Zone of the Russian Federation has been identified, which contributes to the intensification of a number of large investment projects of private business for the development of new fields, the development of processing, and infrastructure (which corresponds to the fundamental reasons for the entry of the global economy into the growth phase of the raw materials cycle);

Thirdly, the accelerated stabilization of economic processes in the Arctic Zone of the Russian Federation was identified and explained in comparison with the overall Russian situation, but at the same time, the acceleration of demographic losses

in the regions of the Arctic Zone of the Russian Federation was also explained, including due to the more negative impact of the COVID-19 pandemic (due to low medical and demographic reserves and insufficient medical care, which could not compensate for the significantly higher costs of combating the pandemic).

In fact, the COVID-19 pandemic, the implementation of a new mechanism for managing the development of the Arctic Zone of the Russian Federation, and the fundamental causes of the growth phase of the global commodity cycle have accelerated the systemic processes of development of the Russian Arctic to such an extent that noticeable changes in the socio-economic dynamics are expected in the very near future. For example, already at the 2024 stage, we substantiated the accelerated achievement of a number of economic, environmental, and innovative strategic development targets for the Arctic Zone of the Russian Federation, but at the same time, the low probability of achieving demographic indicators. For example, the increase in the migration growth rate planned in the "Strategy for the Development of the Arctic Zone of the Russian Federation and Ensuring National Security through 2035" (here in after referred to as the Arctic Zone Development Strategy) is limited by accelerated growth in labor productivity, digitalization, automation and robotics, and increased use of shift work and remote work in the Arctic Zone of the Russian Federation; The planned increase in life expectancy is limited by the extremely negative impact of the COVID-19 pandemic on the population of the Arctic Zone of the Russian Federation, which is reflected in higher mortality rates in 2021–2022 and a greater reduction in life expectancy compared to the national average.

Thus, a unique opportunity is now emerging to study, in real time, a research problem that is evolving before our eyes so rapidly and so differently from what experts expected that objectively, we are not talking about maintaining the relevance of the problem, but, on the contrary, about its strengthening.

New conditions and opportunities for Arctic development require an in-depth examination of aspects that, on the one hand, best reflect the specific impact of geopolitical, macroeconomic, environmental, and mineral resource factors, and, on the other, will significantly determine the socioeconomic dynamics and development prospects of the Russian Arctic. To identify these aspects and substantiate these objectives, the following facts, which we relied on in our research and the results of which are reflected in this article, are relevant:

First, the results of a review of the global and national impacts on the development prospects of the Arctic Zone of the Russian Federation regions confirmed the potential for economic and associated socioeconomic growth for the Arctic Zone of the Russian Federation regions, the development of

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industrial production, and the mitigation of risks to increasing the primary exports of the extractive regions. It should be noted that the current consequences of the implementation of the SVO in Ukraine have increased the risks of realizing these promising opportunities, but the "pivot to the East" and the implementation of a full-scale national economic policy by Russia support the preservation of the established potential.

secondly, the established preservation of the strategic goals for the development of the Arctic, the implementation of which is ensured by the accelerated implementation of a mechanism for increasing investment activity in the Arctic Zone of the Russian Federation;

Thirdly, an understanding of the nature of public and corporate governance policies and practices during the COVID-19 pandemic in the Russian Arctic regions revealed the primacy of environmental issues, social responsibility, and the associated climate change issues. This is fully consistent with the latest global trends in accelerating the implementation by enterprises of strategies to ensure sustainable development factors in the regions where they operate, including greening production, adhering to ethical standards, promoting regional economic growth, and corporate social responsibility.

These facts confirm the importance of our broad context for studying the development of the Russian Arctic, not only from the perspective of achieving the economic performance of specific enterprises and Arctic development targets established at the regional and national levels, but also within the context of moving forward within the global strategy for the development of the oil and gas, mining, and metallurgy industries, taking into account the risks, opportunities, and new roles in societal stabilization amid the COVID-19 pandemic and growing geopolitical tensions. This broad context naturally underscores the scale of new challenges that must be addressed, namely:

- on the one hand, updating the risks and opportunities for greening production and social responsibility for enterprises in the Arctic Zone of the Russian Federation;

- On the other hand, the fact that the supporting role of the state as a regulator of conditions for the development of business initiatives by the private sector in the Arctic strengthens the development opportunities and the influence of business on socio-economic processes, but at the same time creates restrictions on business development, the need to ensure a set of security measures - epidemiological and environmental,

- Thirdly, the need to achieve the strategic development goals of the Arctic Zone of the Russian Federation, enshrined in the set of strategic indicators for the development of the Arctic Zone of the Russian Federation, including demographic indicators, the

likelihood of which we justified as low (the main target indicators are reflected in the Arctic Zone Development Strategy and the Russian Federation Program "Socio-Economic Development of the Arctic Zone of the Russian Federation"). Given the above, we first had to decide: namely, to determine the conditions for the sustainable development of the Russian Arctic.

### Main part

This article presents a solution to the problem of finding out. The potential and limitations of ensuring sustainable development in the Arctic Zone of the Russian Federation are explored based on a comprehensive set of studies, including the impact of climate change on ecosystems, the specifics of nature management in the Russian and international Arctic, as well as a detailed examination of institutional conditions and promising areas for improvement. The importance of addressing this challenge stems from the established global trend of increasing public attention to the practical activities of enterprises and the environmental and social impacts of these industries in their territories. Furthermore, observational data indicate an acceleration in the rate of climate change at high latitudes, making it crucial to consider their impact on Arctic processes from the perspective of ensuring sustainable development and preventing potential environmental disasters during economic activity. For natural resource managers, climate change offers new opportunities, primarily related to the increased duration of the dynamically active period of water use for fishing, tourism, mineral exploration and extraction, and cargo transportation along the Northern Sea Route. On the other hand, it presents new challenges, primarily related to the threat of destruction of land-based and offshore infrastructure for industrial and social purposes. To ensure sustainable development, it is necessary to carefully plan economic activities in the Arctic and conduct environmental impact assessments as part of the mandatory state environmental review process. This requires taking into account the prospects of climate change, comprehensive monitoring, and integrated control, including an assessment of climatic and anthropogenic impacts on terrestrial and marine ecosystems.

The Arctic is a region that has received significant attention from many countries worldwide (Figure 1). This is due to a combination of factors. An analysis of numerous scientific papers, as well as the authors' own research, revealed the following characteristics common to virtually all Arctic regions:

- special natural and climatic conditions caused by a lack of oxygen and solar heat due to high latitudes, long, snowy and low-temperature winters, permafrost, and an ice sheet on land and in the waters of the Arctic seas;

- slow biological and chemical-biological

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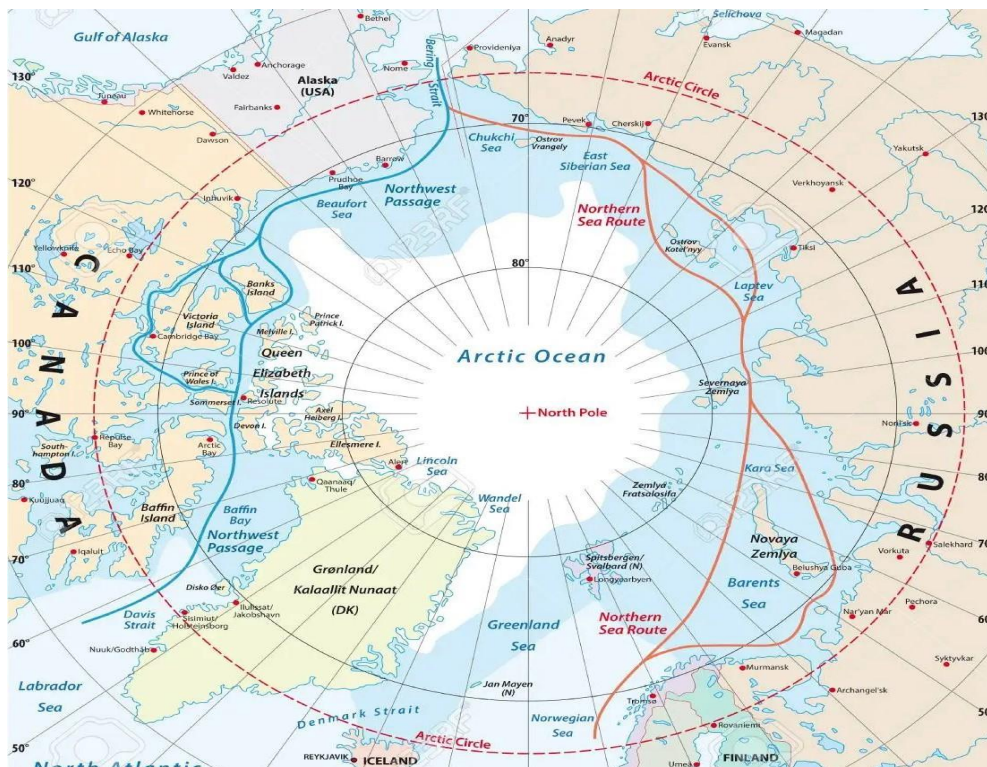
processes, which reduces the ability of ecosystems to self-purify and makes them particularly vulnerable to anthropogenic impacts;

- short growing season of plants and insufficient capacity of vegetation to absorb greenhouse gases;
- the formation of local industrial clusters that are significantly dependent on external supplies of various resources;
- the economy of territories based primarily on the extraction of natural resources;
- low population density of the territory and

high population migration;

- with a small number of large settlements, the population is predominantly urban.

Since the described specific features are common to virtually all Arctic territories—both those belonging to Russia and those under the jurisdiction of other Arctic countries—they can be considered fundamental. These fundamental characteristics constrain the sustainable development of Arctic territories.



**Figure 1. Arctic territory.**

The mechanism for ensuring sustainable development in the Russian Arctic includes governance, economic, social, and environmental aspects (Figure 2). All of these aspects operate in a

comprehensive manner, creating a synergistic effect that enhances the impact of each individual aspect on achieving the overall result.

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**Figure 2. Aspects of the mechanism for ensuring sustainable development of the Russian Arctic.**

Historically, most of the Russian Arctic was sparsely populated and experienced little anthropogenic impact due to its underdeveloped industrial environment. However, increased interest in the Arctic's resource potential has led to the development of industrial and social infrastructure, the emergence of industrial enterprises, and the growth of settlements, including cities. The combination of these factors is disrupting the ecological balance of Arctic territories and increasing the risk of sustainable development due to environmental pollution. As our research has shown, major Russian corporations with production assets in the Arctic are rapidly modernizing equipment and developing technologies that reduce pollutants, including greenhouse gas emissions, into the environment. Consequently, over the period 2018–2024, a decrease in air pollutant emissions has been

observed—from 3,356.5 to 3,284.6 thousand tons, wastewater discharge—from 638 to 619 million m<sup>3</sup>, and waste recycling has expanded—from 18.7 to 35.5 million tons. We previously noted the decoupling effect in the economic development of the Arctic Zone of the Russian Federation, whereby increased production volumes were accompanied by a reduced burden on the natural environment. On the other hand, the area of disturbed lands is growing as a result of hydrocarbon field development in the Arctic. Regular monitoring of greenhouse gas levels in the atmospheric air is organized at three stations in the Russian Arctic, located in the settlements of Teriberka, Tiksi, and Novy Port. The observation results from the Teriberka and Tiksi stations are of particular interest, as they are located in conditions close to natural ones (Table 1).

**Table 1. Carbon dioxide and methane concentrations in the Russian Arctic**

Year	Teriberka				Tiksi			
	SN <sub>4</sub> , Billion–1	ΔCH <sub>4</sub> , Billion–1	CO <sub>2</sub> , Million–1	ΔCO <sub>2</sub> , Million–1	SN <sub>4</sub> , Billion–1	ΔCH <sub>4</sub> , Billion–1	CO <sub>2</sub> , Million–1	ΔCO <sub>2</sub> , Million–1
2012	1910.2	4.0	396.6	2.3	1910.2	-3.0	396.1	1.9
2013	1907.8	-2.4	398.8	2.2	1915.1	4.9	399.1	3.0
2014	1913.5	5.7	400.7	1.9	1930.8	15.7	400.7	1.6
2015	1924.4	10.9	402.2	1.5	1940.1	9.3	403.2	2.5
2018	1946.7	22.3	405.7	3.4	1946.4	6.3	406.1	2.9
2020	1947.1	0.4	409.1	3.5	1956.7	10.3	408.7	2.6
2021	1950.4	3.3	411.4	2.2	1960.4	3.7	411.3	2.6
2022	1961.8	11.4	414.1	2.7	1983.7	23.3	414.3	3.0
2023	1980.4	18.6	415.8	1.8	1993.6	9.9	416.5	2.2
2024	1999.1	18.7	418.5	2.6	2014.1	20.5	419.1	2.6

A ten-year study (2014–2024) showed a nearly constant increase in carbon dioxide and methane concentrations. Over the ten years, CO<sub>2</sub>

concentrations increased by 6%, reaching a maximum (418.5 ppm in Teriberka and 419.1 ppm in Tiksi) in 2024; CH<sub>4</sub> concentrations increased by 5%, also

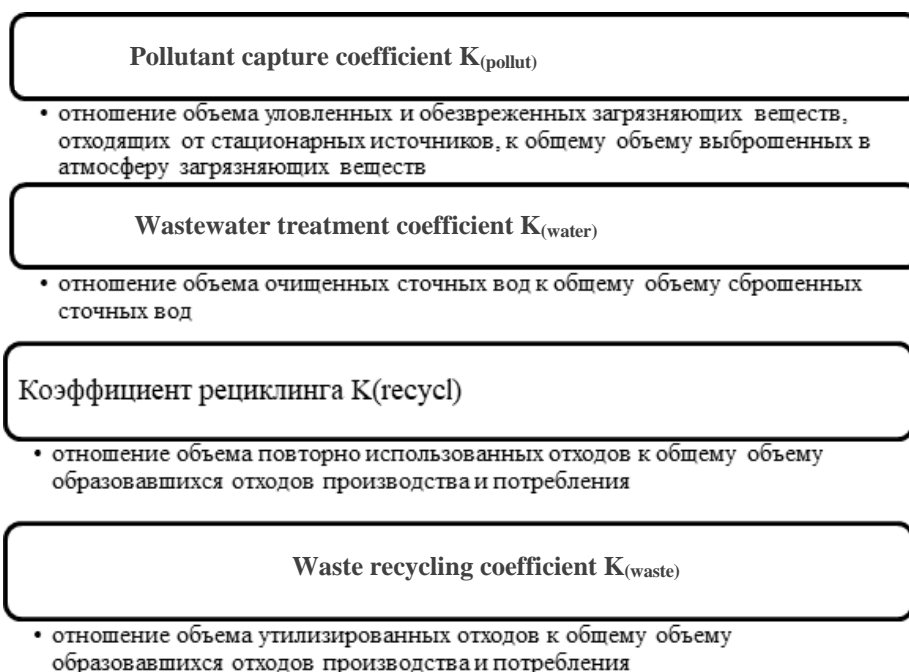
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reaching a maximum (1999.1 ppm in Teriberka and 2014.1 ppm in Tiksi) in 2024. These values are close to data from the Barrow Arctic Research Center in Alaska. In 2023, the rate of CO<sub>2</sub> concentration growth slowed to 1.8–2.2 ppm per year. This was likely due to reduced production caused by the COVID-19 pandemic. In 2024, greenhouse gas emissions increased again, reaching 2.6 million tons per year. At the same time, a significant increase in atmospheric CH<sub>4</sub> concentrations was observed: 18.7 billion tons in Teriberka and 20.5 billion tons in Tiksi. The energy crisis in circumpolar (or near-Arctic) countries, caused by a reduction in energy consumption from Russia due to political and economic factors, is leading to an increase in the share of coal, fuel oil, and wood among energy sources. The use of such energy resources leads to increased greenhouse gas emissions

and a weakening of decarbonization policies. Risks to sustainable development in the Arctic are increasing exponentially.

The proposed outcome of Arctic sustainable development management is a reduction in the negative anthropogenic impact on the natural environment. In this study, the negative anthropogenic impact is assessed based on the volume of emissions from stationary sources into the atmosphere, wastewater discharges, and waste generated. The effectiveness of Arctic sustainable development management was assessed using a set of indicators (Figure 3). A dynamic analysis of the indicators reflecting the effectiveness of Arctic sustainable development management is presented in Figure 4.



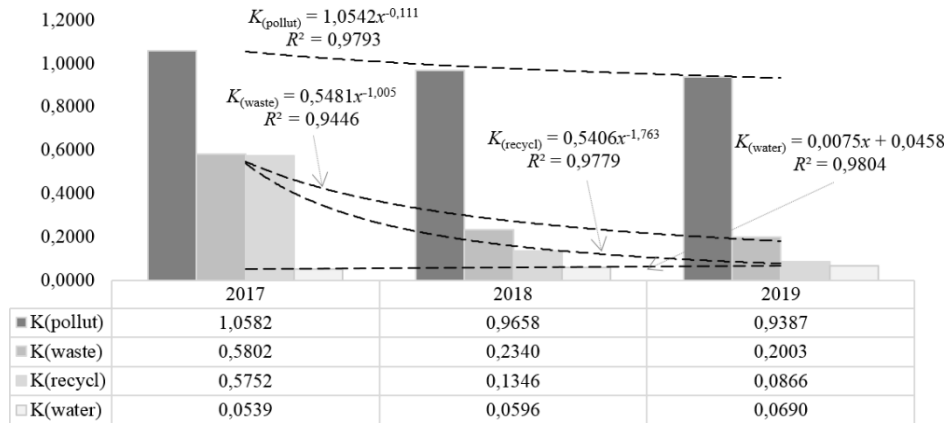
**Figure 3. Performance indicators for sustainable development management in the Arctic**

It was revealed that, despite active innovation and increased investment in environmental protection, declining trends in pollutant capture, waste disposal, and recycling prevailed in the Russian Arctic zone from 2018 to 2024. The opposite trend is characteristic of water resource management, the trend line of which is described by a linear function (the approximation reliability R<sup>2</sup> was 0.98). Thus, the burden on the environment is increasing. The effectiveness of sustainable development

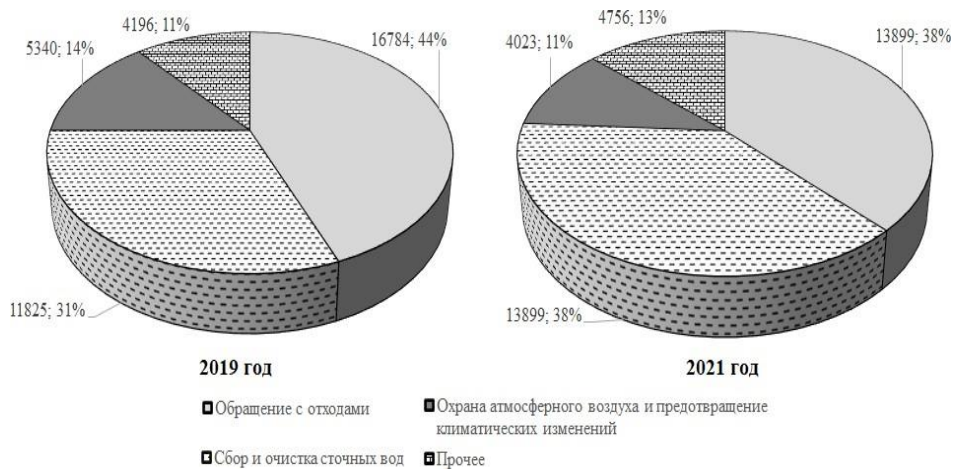
management in the Arctic for the period from 2018 to 2024 cannot be considered satisfactory, while current (operating) costs for environmental protection in the Russian Arctic zone increased from RUB 32,133 million in 2018 to RUB 38,146 million in 2022, but decreased to 36,577 million rubles in 2024. The structure of current (operating) costs for environmental protection in the Arctic zone of Russia in 2022 and 2024 is presented in Figure 5.

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**Figure 4. Evaluation of the effectiveness of sustainable development management in the Arctic**



**Figure 5. Structure of current environmental protection expenditures in Russia's Arctic zone. Source: Authors' calculations based on data from the Federal State Statistics Service**

The largest share of expenses was allocated for waste management (44 and 38% in 2022 and 2024, respectively), wastewater collection and treatment (31 and 38% in 2022 and 2024), and air protection and climate change mitigation (14 and 11% in 2022 and 2024). Waste management expenses decreased by RUB 2,885 million in 2024, and air protection and climate change mitigation expenses decreased by RUB 584 million. At the same time, wastewater collection and treatment expenses increased by RUB

2,074 million, taking into account that in 2024, compared to 2022, total environmental protection expenses in the Arctic Zone of the Russian Federation decreased by RUB 1,569 million, or 4.1%.

Next, the indicators of specific costs for managing sustainable development in the Arctic were determined, for which the volume of investments per unit of environmental pollution was calculated (Figures 6, 7).

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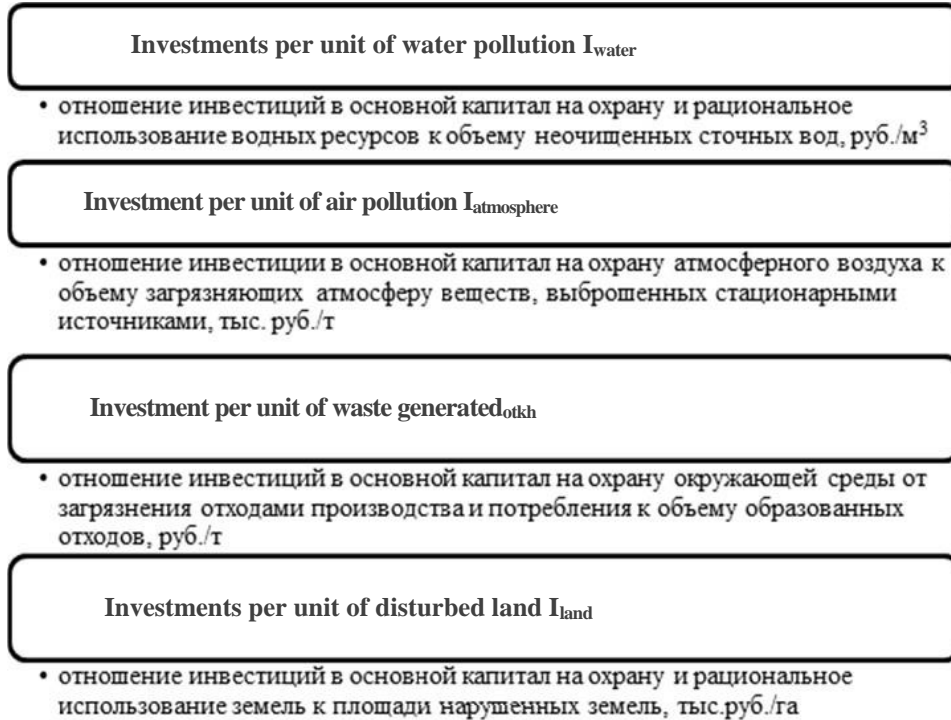


Figure 6. Indicators of unit costs for managing sustainable development in the Arctic.

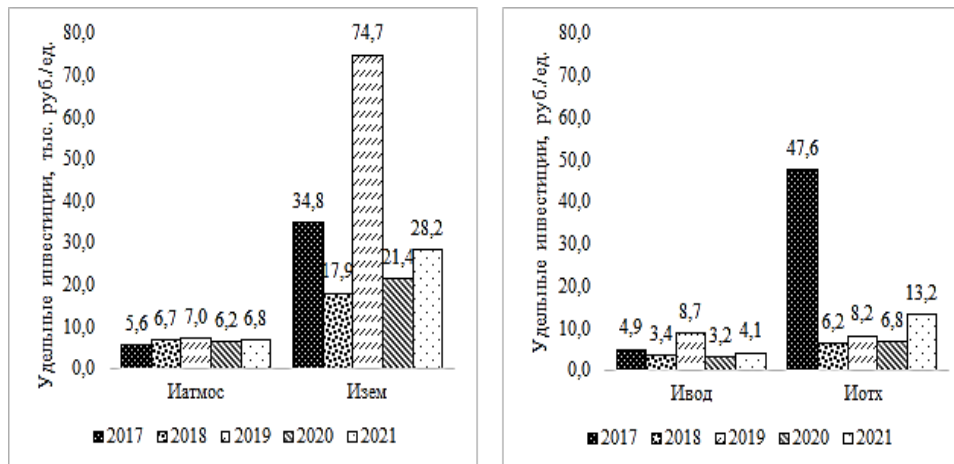


Figure 7. The volume of investment per unit of environmental pollution in the Russian Arctic.

An analysis of specific investments per unit of environmental pollution reveals an increase in the financial resources attracted to ensure sustainable development of the Arctic. In 2024 (compared to 2023), specific investments in Ivod per unit of water pollution increased by 76.15%, reaching 8.7 rubles/m<sup>3</sup>. The increase in specific investments in the protection, rational use, and reclamation of Izym lands amounted to 114.73%, reaching 74.7 thousand rubles/ha, in measures to protect atmospheric air Iatmos — 24.76%, reaching 7.0 thousand rubles/t; the increase in specific investments in fixed assets intended for the disposal and recycling of production

and consumption waste Iotkh amounted to 30.9%, reaching 8.2 rubles/t. In 2023, the size of all specific investments per unit of environmental pollution decreased: specific investments per unit of water pollution in Ivod decreased by 63.22%, reaching 3.2 rubles/m<sup>3</sup>; specific investments in the protection, rational use and reclamation of land in Izem decreased by 71.35%, reaching 21.4 thousand rubles/ha; investments in measures to protect atmospheric air in Iatmos decreased by 11.43%, reaching 6.2 thousand rubles/t; the drop in specific investments in fixed assets intended for the disposal and recycling of production and consumption waste in Iotkh amounted

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to 17.07%, reaching 6.2 rubles/t. In 2024, on the contrary, an increase in the indicators is noted: Ivod - 4.1 rubles/m<sup>3</sup> (28.12%); Izem - 28.2 thousand rubles/ha (31.78%); Iatmos - 6.8 thousand rubles/t (9.68%); Ioth - 13.2 rubles/t (112.90%).

An assessment of the effectiveness of sustainable development management in the Arctic was conducted based on a comparison of environmental protection expenditures and pollutant emissions. Sustainable development management in the Arctic can be considered effective if investments in environmental protection measures contribute to improved environmental performance and a reduction in negative environmental impacts. Calculation of correlation coefficients revealed a direct relationship between current (operating) environmental protection expenditures in the Arctic zone and the volume of treated wastewater ( $k = 0.68$ ), as well as between the volumes of reused and recycled waste ( $k = 0.77$ ). Thus, the effectiveness of sustainable development management in the Russian Arctic is evident here. A significant negative correlation coefficient between current environmental protection expenditures and the volume of captured and neutralized pollutants emanating from stationary sources ( $k = -0.92$ ) indicates ineffective spending on air protection. Risk is a key concept in sustainable development. Risk is a combination of the probability of a hazardous event occurring and the severity of the consequences of this event for the economy, population, and ecosystems of the Arctic.

Decision-making processes in managing sustainable territorial development typically occur under conditions of varying degrees of uncertainty. The effects of industrial development in the Arctic territories can increase or decrease the risk of sustainable development in the Arctic Zone of the Russian Federation. In our understanding, this refers to a complex of factors caused by industrial development that significantly impact the development of the Russian Arctic's manufacturing sector, the livelihoods of the local population, and the environment.

It is common practice to distinguish between

positive and negative externalities, and we therefore adhere to this classification. Positive externalities from industrial development in the Arctic reduce the risk of sustainable development, while negative ones, conversely, increase it. Based on scientific research, we have systematized the externalities of industrial development in the Arctic (Table 2).

In addition to the positive effects noted, the potential for sustainable development in the Russian Arctic is enhanced by international cooperation in environmental protection and sustainable resource management, strengthening national security globally, and the progressive development of industrial and logistics corporations operating in the Arctic. The risk of natural and man-made accidents increases. And, of course, climate change presents new risks and opportunities for sustainable development in the Russian Arctic. In recent years, Arctic researchers have pointed to a dramatic shift in the Arctic climate. This is due, on the one hand, to the accumulation of greenhouse gases in the atmosphere, largely produced by anthropogenic activity, and on the other, to natural cyclical temperature fluctuations. While the causes may differ, the result is the same. While the Arctic remained one of the most inaccessible places on the planet, scientific theories about its geopolitical and economic importance were perceived as pure abstraction. However, the situation has now changed: over the past half-century, Arctic territories have warmed three times faster than the Earth's surface as a whole. And the rate of these changes is accelerating. The Arctic Council's Arctic Climate Change (AMAP) research group, which studies Arctic climate change, has predicted that by 2035, the average annual surface temperature in the Arctic will increase by 3.3–10°C compared to the 1995–2018 average. Melting of permafrost and glaciers is already noticeable, as well as a larger and earlier clearing of ice from water surfaces and snow cover from land. According to the AMAP report, "Arctic Climate Change: Key Trends and Impacts," significant, and in many cases critical, climate changes have occurred in the Arctic between 1971 and 2024 (Figure 8).

**Table 2. External effects of industrial development of Arctic territories that determine the risk of sustainable development**

Positive effects that mitigate risks	Negative effects that increase risks
Ecological	
Capture of pollutants, disposal of production and consumption waste, treatment of discharged wastewater, etc.	Pollution of the atmosphere, water bodies, land destruction, increased incidence of disease, etc.
Innovative	

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Research and development; high-tech technologies that benefit multiple stakeholders; investment inflow	A "brain drain" to countries that offer decent rewards for intellectual capital; automation of processes, accompanied by the replacement of manual labor with machines, and, as a result, rising unemployment
Investment	
When investing in production - growth of productivity, quality of manufactured products; when investing in environmental protection measures - environmental externalities; when investing in human capital - scientific and technological development of the economic system	Corruption, inefficient use of funds
Infrastructure	
Developing transport infrastructure that is accessible to the local population; industrial development requires expanding social infrastructure (in healthcare, education, etc.)	Destruction of natural objects
Social	
Improving the quality of life, increasing wages, and increasing the number of jobs	Unemployment and morbidity in industrial areas

<b>ТЕМПЕРАТУРА ВОЗДУХА</b>	<ul style="list-style-type: none"> <li>повысилась на 3,1 °С, что в три раза больше, чем в среднем по миру;</li> <li>наибольшее изменение произошло над Северным Ледовитым океаном с октября по май</li> </ul>
<b>ОСАДКИ</b>	<ul style="list-style-type: none"> <li>общее количество осадков (дождь и снег) увеличилось более чем на 9 %;</li> <li>количество дождевых осадков увеличилось на 24 %.</li> </ul>
<b>СНЕЖНЫЙ ПОКРОВ</b>	<ul style="list-style-type: none"> <li>площадь снегового покрова в период с мая по июнь сократилась на 21%;</li> <li>снег выпадает позже и тает раньше.</li> </ul>
<b>ТЕМПЕРАТУРА МНОГОЛЕТНЕЙ МЕРЗЛОТЫ</b>	<ul style="list-style-type: none"> <li>температура арктической многолетней мерзлоты потеплела на 2-3 °С;</li> <li>ландшафтные наблюдения указывают на таяние многолетней мерзлоты по всей Арктике.</li> </ul>
<b>МОРСКОЙ ЛЕД</b>	<ul style="list-style-type: none"> <li>протяженность арктического морского льда в сентябре сократилась на 43%;</li> <li>морской ледяной покров становится моложе и тоньше;</li> <li>площадь открытой воды, свободной ото льда, растет</li> </ul>
<b>РЕЧНОЙ ЛЕД</b>	<ul style="list-style-type: none"> <li>реки замерзают осенью позже, а вскрываются весной раньше;</li> <li>толщина льда на большинстве северных рек уменьшается</li> </ul>
<b>ВОДНОСТЬ РЕК</b>	<ul style="list-style-type: none"> <li>объем пресной воды, текущей по восьми основным арктическим рекам в Северный Ледовитый океан, увеличился на 7,8 %;</li> <li>водность рек растет</li> </ul>

**Figure 8. Climate change in the Arctic. Source: compiled from AMAP data**

From 1995 to 2024, the average annual surface air temperature in the Arctic increased by 3.1°C, three times faster than the global average. This conclusion

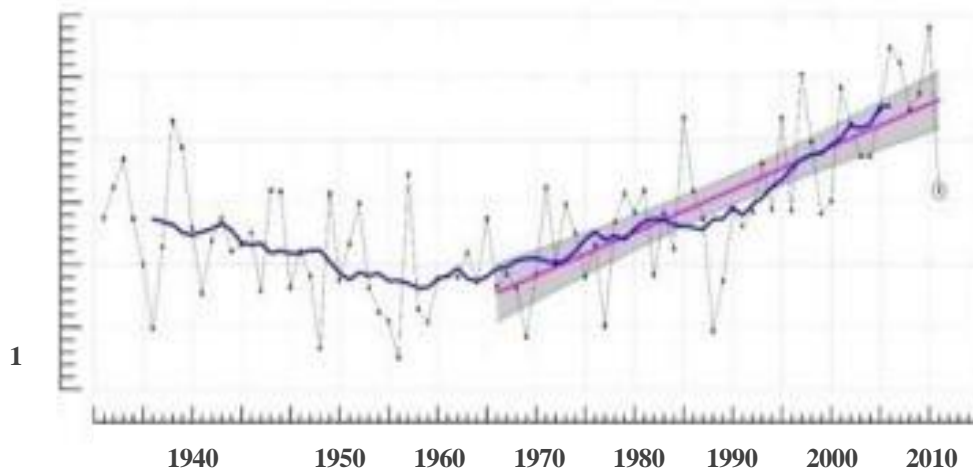
is based on AMAP instrumental data with interpolation applied over the Arctic Ocean, where observations are sparse. The largest air temperature

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<b>GIF (Australia)</b> = <b>0.564</b>	<b>ESJI (KZ)</b> = <b>8.100</b>	<b>IBI (India)</b> = <b>4.260</b>
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change over this 49-year period occurred over the Arctic Ocean between October and May, averaging 4.6°C, with the peak warming of 10.6°C occurring in the northeastern Barents Sea. The situation was similar in the Arctic zone of the Russian Federation. Across all sectors of the Russian Arctic, the trend toward increasing average temperature began in the late 1970s and intensified sharply in the 21st century. In 2024 alone, the temperature increased by 1.9°C.

Warming over the 45-year period from 1995 to 2024 across the Arctic Zone of the Russian Federation is 0.69°C/10 years (Figure 9). Based on observations and modeling, total annual precipitation in the Arctic (rain and snow combined) increased by more than 9% from 1995 to 2024, with rainfall increasing by 24%, and the greatest increase occurring during the cold season—from October to May.



**Figure 9. Dynamics of air temperature in the Arctic zone of the Russian Federation and the linear trend since 1995**

Combined with disruption of glaciological processes in the Arctic, increasing precipitation is leading to increased river flow: the volume of freshwater flowing through eight major Arctic rivers into the Arctic Ocean has increased by 7.8%. A distinctive feature of the Arctic zone of the Russian Federation is a significant area of permafrost, characterized by low temperatures and a thin layer of seasonal thaw (Figure 10). The freezing depth of rock in some places reaches 1.5 km. Since the 1970s, Arctic permafrost has warmed by 2–3 °C. In many colder permafrost areas, the rate of warming over the past 20 years has been higher than at any time since 1979. The seasonally thawed layer has become deeper in many areas since the 1990s, and landscape observations indicate thawing of permafrost throughout the Arctic.

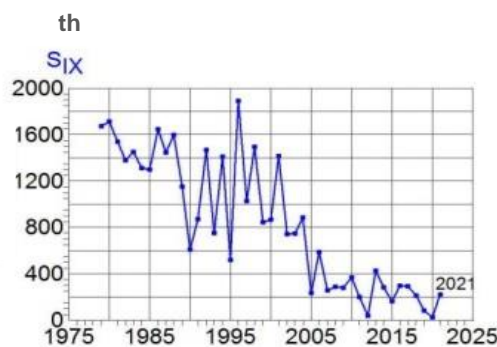
Climate warming has had a significant impact on the ice cover of the Arctic seas. The area of Arctic sea ice at the end of summer has decreased by 43% over half a century; it has become younger and thinner. Strong, persistent winds over the ice-free sea surface generate severe storms and gales. The area of sea ice in the Siberian Arctic seas began to decrease especially rapidly after 1996 (Figure 11). The rapid melting of ice led to a sixfold reduction in the ice area of the Russian Arctic seas over ten years (1996–2015) (from 1,400 to 234 thousand km<sup>2</sup>), a further sixfold reduction from 2015 to 2018 (from 234 to 37 thousand km<sup>2</sup>), and a 1.4fold reduction from 2018 to 2024 (from 37 to 26.3 thousand km<sup>2</sup>). In 2024, the ice area increased by 26% compared to 2023.

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**Figure 10. Map of permafrost processes in the Arctic zone of the Russian Federation**



**Figure 11. Dynamics of sea ice extent in the Siberian Arctic seas**

The speed and scale of changes caused by global warming, as well as the limited capacity of Arctic nature to self-regenerate, are leading to the transformation and degradation of the unique ecological systems of circumpolar countries.

Researchers are already noting the disappearance of ecosystems on some glaciers, including shelf glaciers, which are retreating under the influence of high temperatures. The number of epi shelf lakes, each with its own unique ecosystem, is

shrinking. Arctic freshwater bodies are becoming polluted and acidified, negatively impacting the reproduction of zoobenthos and fish. The combined effects of long-term warming (rising water temperatures, longer ice-free seasons, melting permafrost) and extreme events (storm waves and swells) are increasing erosion. Coastal erosion is accelerating in many parts of the Arctic, where some of the highest erosion rates on Earth are observed.

Thus, climate change is a pressing issue in the

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Arctic, where temperatures are rising much faster than the global average, and widespread changes in precipitation, snow cover, permafrost, and sea and land ice are transforming the Arctic environment, with long-term impacts on sustainable development. These changes have long-term consequences for the Arctic. While warming in these areas offers new development opportunities, it also brings new risks to sustainable development. This has intensified the struggle for the Arctic, which is taking place on several fronts, namely:

First and foremost, new opportunities for mineral development. The Russian Arctic is extremely rich in mineral resources (Figure 12); however, most deposits are located in hard-to-reach areas with harsh climates, above the Arctic Circle. Due to melting glaciers and a generally milder climate, extracting and transporting natural resources

in the Arctic will become much easier, simpler, and cheaper. Deposits that were previously impractical to exploit are becoming accessible and are moving from the off-balance to the balanced category. Global warming also opens up new opportunities for geological exploration and the search for new deposits. Experts estimate that the Arctic contains 13% of the world's undiscovered reserves.

The Arctic contains oil reserves, 30% of which are gas reserves, rich deposits of uranium and rare earth minerals, as well as gold and diamonds. However, the majority—84% of the world's most significant energy minerals—are located offshore. The Arctic is of interest to industrialists from many countries as a region for industrial mineral development due to the value of the natural resources found there.



Figure 12. Mineral deposits in the Russian Arctic

The importance of the Arctic as a source of resources for Russia is obvious.

In the Arctic zone of Russia there is, %:

- All-Russian reserves: gold - 40, oil - 80, gas, nickel, copper, antimony, cobalt, tin, tungsten, mercury, apatite, phlogopite - 50-90, chromium and manganese - 90, platinum metals - 99, local diamonds and vermiculite - 100;

- World reserves: diamonds and natural gas - 30, nickel - 20, apatite - 50, niobium - 35, copper, platinum group metals and tin - 15, oil (excluding shelf) and cobalt - 10, tungsten and mercury 6-8.

Of the expected 90 billion barrels of oil and 50 trillion cubic meters of gas, the Russian Arctic zone accounts for approximately 30 billion barrels of oil and 33 trillion cubic meters of gas. American experts have estimated 11 billion barrels of oil in the Barents Sea alone, equivalent to \$1.25 trillion at current prices. Regarding gas, 11 trillion cubic meters have been discovered in the Russian Arctic zone. The

region is also rich in biological resources, including fur-bearing animals (arctic fox, sable, mink, etc.). The number of reindeer is estimated in the millions. The Arctic and subarctic seas are home to the largest populations of commercial fish. Based on this, it can be concluded that the Arctic is an important component of the Russian economy. This territory is of strategic importance to our country, securing its geo-economic position in the world and influencing the domestic development of industries related to the use of natural resources extracted in the Arctic. The total value of Arctic resources could reach trillions of dollars. It is precisely because of such significant potential revenues that attention to the Arctic is growing. Every country wants to improve its economic situation through sustainable development, including through rational use of natural resources during the extraction and processing of minerals and the exploitation of other natural resources, and climate change is opening up new opportunities for this.

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Secondly, new logistical opportunities have predetermined the struggle for trade routes. What is the Arctic in this context? The Arctic represents billions of dollars, the opening of new zones of influence, and, of course, new trade routes. Melting glaciers are opening up previously inaccessible trans-Arctic shipping routes, which, in turn, has a huge impact on economic rivalry in the Northern Hemisphere. The main countries involved in this rivalry are Russia, China, and the United States. The release of ice from the water surface makes the Northern Sea Route navigable along its entire length, increasing navigation times. Climate change will alter global logistics routes: transporting sea cargo between the Western and Eastern Hemispheres via the Arctic will become easier, safer, faster, and therefore commercially viable. However, using the Northern Sea Route also brings new risks, primarily those of natural origin: ice-free Arctic waters are exposed to strong winds; As a result, storm waves and swells arise, significantly impeding navigation.

Furthermore, there are risks associated with the creation and development of infrastructure. Operation of the Northern Sea Route requires high-tech ports and cargo hubs capable of receiving, sorting, and shipping cargo. Most of these facilities are under construction, but under the sanctions imposed on Russia by unfriendly countries, this is becoming increasingly difficult. While it was planned to use foreign technologies, equipment, and machinery in the construction and operation of port and warehouse facilities, the delivery of many of these has been suspended or even cancelled. Global warming is also leading to the thawing of permafrost, forcing a change in Arctic construction technologies and significantly increasing the cost of infrastructure projects. The expansion of the icebreaker fleet is a particular concern. The Russian Federation is currently focusing on the construction of powerful icebreakers: they are essential for the operation of the Northern Sea Route, but under the sanctions, these plans could be disrupted. Moreover, icebreakers built with great difficulty and significant financial costs may not be in demand due to both political restrictions and further global warming and accelerated melting of ice;

Third, the development of Arctic territories plays a huge role in the development of the mining and processing industries. The Arctic accounts for approximately 11% of Russia's national income and 22% of all Russian exports. Russia extracts virtually all of its diamonds, apatite-nepheline and copper ores, phlogopite, vermiculite, 97% of its platinum, 90% of its nickel, 95% of its gas, 60-80% of its oil, rare and rare earth metals, and antimony in these regions. Climate warming will expand access to minerals. Technological advances and improved accessibility will likely reduce the costs of extracting and processing Arctic resources. At the same time, it is worth noting that decarbonization of production,

aimed at reducing greenhouse gas emissions, is essential. The Russian Federation has committed to sequestering CO2 emissions, reaching complete carbon neutrality, which limits the potential for expansion of the mining and processing industries in the Arctic. It should also be taken into account that, due to the weak protection and low self-cleaning capacity of Arctic ecosystems, the consequences of major man-made disasters and accidents will be particularly significant. Therefore, Arctic industrial facilities and technologies for the extraction, transportation, and processing of minerals must have an increased "safety margin" in environmental terms. Furthermore, materials and technologies used in the construction of industrial buildings and structures must have special characteristics capable of withstanding extreme natural and climatic conditions. All this leads to increased costs for economic activity in the Arctic. Melting permafrost negatively impacts the development of industrial enterprises in the Arctic, resulting in ground subsidence and the formation of swamps. This leads to damage to buildings and structures and disruption of industrial and social infrastructure. Over the past fifty years, the resilience of buildings and infrastructure constructed in permafrost zones has significantly decreased. Particularly negative consequences of global warming have been observed on the Taimyr Peninsula, where almost all industrial buildings and structures, as well as transport lines, including pipelines, have been damaged. Furthermore, as with the construction and operation of port infrastructure, geopolitical factors associated with sanctions against Russia exacerbate the risk.

Fourth, climate warming is opening up new opportunities for fishing and fish farming. More than a third of Russia's commercial fish and seafood are already harvested in the Arctic, and approximately 20% of canned fish is produced. Rising water temperatures and reduced thickness and duration of sea ice are leading to an increasing number of subarctic fish and marine mammal species migrating to Arctic seas that were previously unsuitable for their habitat. This is increasing the potential for commercial fishing in the Arctic parts of the Barents, Bering, and Okhotsk seas. Our research shows that the economic benefits of fisheries have a significant positive impact on the social development of coastal Arctic settlements. Aquaculture is also expanding further north, creating additional opportunities for economic development in Arctic territories. The social risk of artificial fish farming lies in potential competition with local fisheries, and the environmental risk lies in the spread of parasites among wild fish species.

Fifth, the opportunities of the tourism business in the Arctic, which gives rise to a competition for tourists. Tourism has become a part of the daily life of almost a third of the world's population, which is a huge number of people. In 2024, 10.2 million

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foreigners visited our country in the first 9 months of the year, a very large number of people that cannot but impact our country's economy. Arctic routes are attracting more and more tourists. Due to the shrinking ice area in the Arctic, new routes are emerging, and tourists are willing to pay a lot of money to see the northern lights and interact with the local population. Many researchers have noted a significant increase in cruise tourism in the Arctic. Here are just a few examples: the number of cruise ship passengers in Iceland increased from 265,935 in 2023 to 402,834 in 2024, which is more than 66%. In the ports of Northern Norway, the number of cruise passenger voyages increased by 33% between 2023 and 2024; The number of cruise ship passengers in

Svalbard increased from 39,000 in 2018 to 63,000 in 2021; in Greenland, the number of passengers increased from 20,000 to 30,000 during the same period. The number of people visiting the Arctic increased from 67,752 in 2018 to 98,238 in 2024, an increase of over 57%. Interest in Arctic continental tourism, primarily ecotourism and nature tourism, has increased significantly among Russian residents and foreign visitors. For example, the Russian Arctic tourist park was visited by 1,306 people from 44 countries in the summer of 2022 (Figure 13). The "Chasing the Northern Lights," "Visiting the Polar Bear," and other programs developed by Russian tour operators are in steady demand.

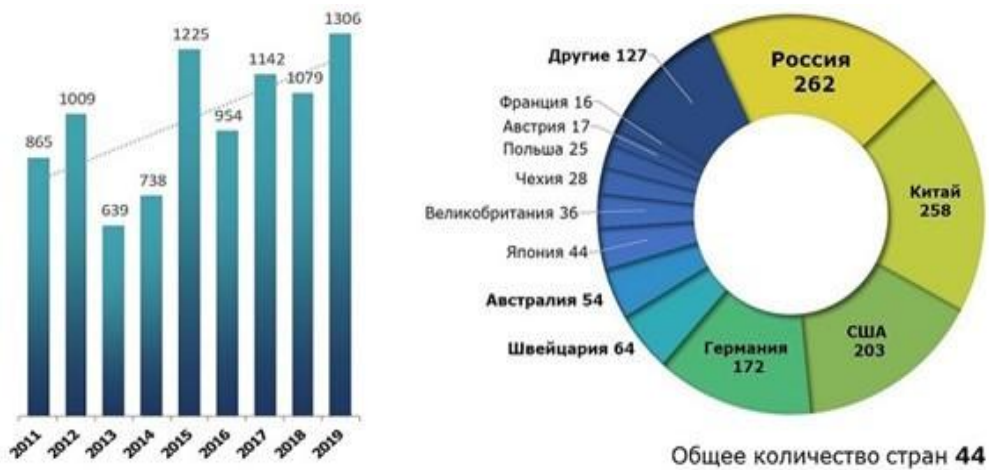


Figure 13. Statistics of visits to the tourist park "Russian Arctic".

It should be noted, however, that the natural and climatic conditions, unique landscapes, and inaccessibility, which, among other things, make the Arctic attractive to tourists, ultimately impact the logistical, infrastructural, and economic aspects of organizing activities. Experts also note challenges in permitting visits to some Arctic territories and specially protected areas.

Despite this, Arctic tourism is beginning to have a noticeable impact on the Russian economy: new jobs are being created, the northern territories as a whole are developing, new educational and cultural programs are emerging that help retain young people in the northern territories, the economies of Arctic regions are diversifying, and increased revenues are flowing into budgets at various levels. The COVID-19 pandemic significantly altered these established trends in 2024, when most Arctic tourist trips were canceled or postponed. A little later, political factors led to Russia and the countries that joined the sanctions, including all circumpolar countries, virtually ceasing tourist exchanges. The deterioration of interstate relations and declining household

incomes are the most significant risks to the development of Arctic tourism. In addition to political risks, sociocultural risks stemming from the impact of tourism on the livelihoods of local communities, as well as the exacerbation of environmental and economic risks accompanying the development of tourism infrastructure, can be identified.

Sixthly, global warming opens up new opportunities for strengthening. The military presence in the Arctic is intensifying the struggle for geopolitical influence. The Arctic's significant military potential cannot be ignored. The state borders of several circumpolar countries run through the Arctic Ocean. The Arctic is home to defense industry facilities, land, air, and naval military bases, airfields, and other military infrastructure facilities of circumpolar states. The Cold War ended many years ago, and it would seem that relations between Russia and the "collective West," comprising Europe and the United States, should have normalized. However, the military operation in Ukraine, which began in February 2024, led to a sharp increase in tensions between Russia and, above all, the United States.

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Thus, the significance of Russia's military presence in such a vital region of the Earth as the Arctic has increased. Russia has long been building new military, land, and naval bases on northern continental territories and on islands in the Arctic seas, including Koteln Island. The Russian army actively conducts military exercises in the Arctic, while the armies of other circumpolar countries, like Russia, regularly conduct their own exercises in Arctic territories. Furthermore, circumpolar countries are actively working to develop military equipment capable of operating in high Arctic latitudes, as logistics are crucial for increasing their military presence in the Arctic. Climate warming allows for an increased range of weapons capable of operating in Arctic temperatures, the expansion of military bases, and improved comfort for troops stationed there.

Several key areas of international cooperation among circumpolar countries necessary for ensuring sustainable development in the Arctic can be identified. First and foremost, it is essential to thoroughly study natural, anthropogenic, and socioeconomic processes in the Arctic to better understand the impacts of climate change. For various reasons, these processes are intensifying and accelerating. It is essential to thoroughly document the identified features of Arctic territories, with particular attention to endangered ecosystems and indigenous northern peoples whose traditional cultures are being lost.

The creation of a unified international open database reflecting the environmental, economic, and social status of Arctic territories, based on sustainable development requirements, is a long-standing need. Creating a unique, unified database to ensure sustainable development in the Arctic requires the joint efforts of national and international scientific organizations. Information sources can range from satellite data to local monitoring using autonomous vehicles, providing objective and reliable information about hard-to-reach areas of the Arctic. Most importantly, the creation of such a database must have common goals and objectives aligned with the requirements of sustainable development in the Arctic.

An important condition is the openness of such a database to researchers and policymakers in all circumpolar countries, which is necessary for the development and adoption of informed and well-founded management decisions at the international, national, and regional levels. Currently, there is a lack of global, cross-border, comprehensive studies assessing the impact of industrial development and climate change on coastal and offshore production infrastructure, mineral extraction and transportation systems, oil and gas pipelines, and so on. Understanding the consequences of such cumulative and complex impacts is important for mitigation, namely:

firstly, man-made risks of emergency situations; and secondly, for financial risks associated with the economic activities of enterprises with production assets in the Arctic.

Adequate understanding of the impacts of climate change is essential for effective management and efficient responses to emerging risks. Significant gaps remain in the study and understanding of the social consequences of industrial development and climate change in the Arctic territories of circumpolar countries. This only confirms the urgent need for comprehensive monitoring and assessment of the social impacts of climate change in the Arctic. Moreover, research should be conducted not only in large cities and towns, but also in remote indigenous settlements, where ecosystem changes have the greatest impact on the livelihoods of the population. Ensuring sustainable development requires coordinated climate and ecosystem monitoring in key locations, combined with community-based monitoring that utilizes the knowledge and experience of Arctic indigenous peoples. A key area of international cooperation in sustainable development should be the identification of thresholds for the functioning of Arctic ecosystems. These include, for example, the maximum acidity of freshwater bodies for the development of juvenile fish, the maximum seawater temperatures for various phytoplankton species, or the minimum area and thickness of sea ice required to preserve the habitat of polar bears, seals, killer whales, and other Arctic animals. Such thresholds require more careful assessment, particularly with regard to potential ecosystem degradation. Forecasting the future of the global Arctic ecosystem and the Arctic Ocean requires a better understanding of its changing productivity, related to sea ice and open water, physicochemical processes, nutrient cycling, and the ability of primary producers to adapt to changing conditions. The impacts of climate change are transnational and transcontinental in nature and can interact, overlap, and mutually reinforce or weaken each other. Research costs can be reduced and the accuracy of predictive models can be improved by comparing the rate of climate change in the Arctic and other regions of the Earth. This requires joint research and data exchange not only between circumpolar countries but also with all other countries. A detailed analysis of policy documents from circumpolar countries, conducted by the authors, revealed the following. The key priority of Russia's Arctic policy is the development of Arctic territories and the advancement of transport logistics, as well as the exploitation of natural resources through the creation of an optimal configuration of the main factors of industrial production. In Sweden and Finland, the knowledge economy is the foundation of Arctic policy implementation, while in Denmark (a new Arctic development strategy for the period up to 2035 is

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currently under development) and Iceland, the green economy is the foundation.

These circumpolar European states are formulating their Arctic policy and strategy based on the EU's unified Arctic policy.<sup>15</sup> In Norway, which is not a member of the EU, achieving sustainable development in the Arctic has been declared a national priority. Based on three principles—presence, activity, and knowledge—governments, businesses, and local communities collaborate to harmoniously address economic, environmental, and social challenges.<sup>16</sup> The key Arctic policy priorities of Canada and the United States are based on four complementary principles.<sup>17</sup> These principles encompass both domestic and international issues: security, climate change and environmental protection, sustainable economic development, international cooperation, and governance.

An analysis of the national strategies of circumpolar countries revealed a shared commitment to working closely with international partners to achieve the common goal of creating a peaceful, economically successful, and sustainable future for the Arctic. All these countries are members of the Arctic Council, within which most joint programs on sustainable Arctic development are implemented.<sup>[18]</sup> Russia, which chaired the Arctic Council in 2021, has prioritized responsible governance for the sustainable development of the Arctic. Currently, all official meetings of the Arctic Council, which it chairs until 2023, are suspended until further notice. All other cooperation between circumpolar countries and the Russian Federation on environmental protection, ecosystem conservation, detailed and in-depth study of natural, anthropogenic, and socioeconomic processes in the Arctic, expanded monitoring and documentation of changes (including climate change), and the development and implementation of mechanisms to limit further warming have also been suspended.

Cooperation between the Arctic regions of circumpolar countries and adjacent Russian Arctic regions has also been suspended, although in previous years it formed the basis of regional strategies. In Russia, cooperation with adjacent Arctic regions of other countries is enshrined in regional strategic documents, namely:

- "Strategy for the socio-economic development of the Nenets Autonomous districts until 2035";
- "Strategy for the socio-economic development of the Murmansk region until 2025 and until 2035";
- "Strategy socio-economic development of the Yamalo-Nenets Autonomous Okrug until 2035";
- "Strategy socio-economic development of the Chukotka Autonomous Okrug until 2035", etc.

More recent versions of regional socioeconomic development strategies for Russia's Arctic regions do not exclude international cooperation, but in practice,

it is not implemented. The exclusion of the Russian Federation from decision-making processes is another, and crucial, risk to sustainable development in the Arctic. Thus, the current Arctic policies of European circumpolar countries, as well as Canada and the United States, greatly increase the risks to sustainable development in Arctic territories.

### Conclusion

Taking into account the above, we had to decide first, namely: to determine the conditions for the sustainable development of the Russian Arctic.

New opportunities have been explored and new sustainability risks have been identified. The development of the Russian Arctic in modern conditions. The following has been established. Arctic climate change, caused by the accumulation of greenhouse gases in the atmosphere, largely produced by anthropogenic activity, on the one hand, and natural cyclical processes of temperature fluctuations on the other, combined with factors governing the Russian Arctic, offers new development opportunities, namely:

Firstly, due to the increase in extremely low temperatures, the reduction in the thickness of snow and ice cover, and the melting of permafrost, the extraction and transportation of natural resources is becoming much easier, simpler and cheaper, and the development of technology and better accessibility will lead to the fact that in the future the costs of extraction and processing of Arctic natural resources will only begin to fall;

secondly, climate change and increased interest in the development of the Arctic, accompanied by government support, provide impetus for the development of new industrial projects and social and production infrastructure;

thirdly, the reduction in the thickness and duration of ice cover in the Arctic waters opens up new logistical opportunities, and new national and transnational trade routes are being developed;

Fourthly, rising water temperatures are leading to more and more species of subarctic fish and marine animals migrating to Arctic seas that were previously not suitable for their life, which increases the possibilities for industrial fishing and farming of fish, edible mollusks and crustaceans in the Arctic parts of the Barents, Bering and Okhotsk seas;

fifthly, climate change opens up new tourist routes, which, together with government support programs, contributes to the development of the tourism business, which is beginning to have a significant impact on the socio-economic development of the Arctic territories;

Sixth, new opportunities are opening up for strengthening the military presence in the Arctic: climate warming makes it possible to increase the range of weapons capable of operating in Arctic temperatures, expand military bases, and make the

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contingent's stay there more comfortable.

At the same time, the current situation is giving rise to new risks to sustainable development. These include, first and foremost, natural risks associated with global warming: ice-free Arctic waters are exposed to strong winds, resulting in storm surges and swells that significantly impede navigation. Melting permafrost, resulting in ground subsidence and swamping, is forcing changes to Arctic construction technologies, leading to a dramatic increase in the cost of infrastructure projects. Increasing anthropogenic impact has highlighted a trend toward disrupting the fragile ecological balance of Arctic territories and increasing the risk of sustainable development due to environmental pollution. On the other hand, the commitments made by the Russian Federation to reduce CO<sub>2</sub> emissions to achieve complete carbon neutrality will to some extent mitigate the impact of negative anthropogenic pollution on Arctic ecosystems, but at the same time, the Arctic's productive development potential will be constrained.

Geopolitical risks are becoming increasingly significant: under the sanctions imposed on Russia by unfriendly countries, large-scale Arctic development projects are becoming increasingly difficult and expensive, as many foreign technologies, equipment,

and transport routes are becoming less accessible or even unavailable. The decline in energy exports from Russia to European countries due to political and economic factors is leading to an increase in the share of coal, fuel oil, and wood as energy sources, resulting in increased greenhouse gas emissions and a weakening of decarbonization policies. Risks to sustainable Arctic development have been greatly increased by the suspension of the Arctic Council, as well as other cooperation between circumpolar countries and the Russian Federation on studying natural, anthropogenic, and socioeconomic processes in the Arctic, monitoring and documenting changes, and developing joint programs to limit further global warming, protect the environment, and ensure sustainable natural resource management.

The study showed that the effectiveness of sustainable development management in the Russian Arctic, assessed by comparing pollutant emissions and environmental protection expenditures, is largely dependent on foreign policy and socioeconomic conditions. Decision-making processes in managing sustainable development in Arctic territories occur in a climate of uncertainty, which is intensified by the emergence of new challenges.

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Article



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## ON THE NEED FOR AN INTEGRATED APPROACH TO MANAGING THE QUALITY OF MATERIALS AND PRODUCTS

**Abstract:** In this article, the authors came to the realization that an integrated approach to managing the quality of materials and products has so far remained a mystery. The reason is simple: most authors merely planned such research but never implemented it due to its complexity. Currently, this problem is solvable because it is now manageable and a step toward philosophical closure is possible. It may not all work out, but we decided to take the risk.

**Key words:** integrated approach, quality management, philosophical shore, materials, finished products, hedgehog in the fog, comprehensive research, worldview, methodology.

**Language:** English

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### Introduction

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Surprisingly, it's a fact that research must begin, in the classic manner, with a statement and a general objective. Despite numerous studies on the topic

formulated by the authors, and equally clear assessments of its comprehensive analysis, the problem of a comprehensive study of quality management remains a "hedgehog in a dense fog." The reason is simple: with the exception of the work of B.S. Aleshin and his co-authors, the promise of a comprehensive study of the problem remains wishful

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thinking. The content of studies typically does not extend beyond one or two aspects of quality and the feasibility of quality management. Other perspectives are either declared or included in such a sequestered state that their presence is perceived as a kind of burden for the pleasure of engaging with the authors' reasoning on a topic that is undoubtedly relevant for all times and for any activity. This shortcoming is also inherent in our works devoted to the problem of quality. Our only excuse, to some extent, is that we have thus far avoided making claims about a comprehensive study of quality in the context of management. A harsh reaction from our critics is entirely possible and even predictable. They will likely throw our conclusions back at us, finding a weak link in our work. And rightly so. Others—and we, too—will heed the criticism and move forward, collectively solving what is beyond the power of individual researchers, even when they combine their diverse cognitive resources and when, as in our case, an industry specialist, a systems economist, and a philosopher come together. Quality management theory is based on the philosophical development of this concept. "Quality" is a philosophical category, and the extent to which the philosophical component is represented in quality management theory determines the solution to the problem at hand. In philosophy, there has never been a unified interpretation of quality, and there is no mutual understanding today. This leads to an important conclusion: before developing a quality management strategy, it is necessary to determine which philosophical "shore" you intend to land on.

Quality is a general and fairly stable definition of a set of objects. Only the forms of existence and its substance—the only things immutable by definition—are more stable than quality. Quality, however, also flows along the river of time and changes. Quality changes within itself, shifting its states, and radically, losing its definition, transforming into a different quality.

### Main part

Differences in philosophical understandings of quality are due to the complexity of quality as a subject of study, but even more so they are a consequence of the philosophical worldview and methodology upon which it is formed. "Materialism," "idealism," "metaphysics," and "dialectics" are philosophical concepts well-worn by class ideology. Conservative philosophers did well in Soviet times, erecting barricades from behind which they hurled arrows of wrath at their enemies, absolutizing the political underpinnings of philosophical movements. Critics, triumphant in the embrace of liberal democracy, who are dealing with the restless legacy, do not appear in the best light. Inspired by "noble anger," they have essentially turned to the past and are not so much "trampling" on

this hated past as marking time, hindering the progress of the cognitive process. "Materialism," "idealism," "metaphysics," and "dialectics" should not be abandoned, but rather purged of their pseudo-ideological "husk," thereby revealing the rational meaning inherent in these phenomena. These concepts are a kind of "boundary pillars" of philosophical and scientific knowledge, warning, on the one hand, of the need to adhere to certain guidelines in knowledge, and on the other, requiring the development of conditions for boundary interaction. Boundaries in knowledge are intended not to limit, but to isolate one from another. Their rationality lies in the fact that they regulate the cognitive process. K. Marx, who wrote that Hegel's idealism was "materialism turned on its head," bears no responsibility for his followers, who simplified Marxism and, in particular, the philosophy of Marxism—dialectical materialism. The idealist Hegel is equally not to blame for the fact that Erich Mach took the idealist idea to the point of solipsism and, with his philosophical exercises, damaged the rationality inherent in the highest achievements of idealist philosophy. The history of philosophy warns anyone who has embarked on the path of knowledge: fear one-sidedness above all else. It inevitably leads to absolutism, a state of knowledge in which the natural connection between the ideal and the material is severed, preventing progress toward truth. Quality management begins with the philosophical—that is, the ideological and methodological—orientation of the theory. There are no alternatives. In developing management theory, it is pointless to deviate from philosophical foundations. We must actively seek collaboration with philosophy, rationally interpreted. The question of where this rational philosophy is located has long been rhetorical, since the time of the first philosophers. It has not existed, is not, and never will exist in its ready-made form as a "magic wand," a "magic tablecloth," or a "philosopher's stone." Rationally interpreted philosophy is an exclusive product of the interaction of professional thinking with philosophical heritage. Objections like "not everyone can do this" are entirely appropriate. True, everyone can do this, but not everyone takes on the responsibility of building a quality management system. Most people are waiting for instructions and regulations in full. The current fashion: a briefcase full of documents. Our Russian market has not only ugly torn the national economy apart, handing some fat morsels of lucre, but has left others with the faint hope that one day their meager lives will change and a new life will come. The Russian market has deprived us of national unity, devaluing what is widely known as the "enigmatic Russian soul," or, simply put, our inherent desire to reflect on life in general, including personal and national issues. Germans are distinguished by law-abidingness, Americans by adventurism, and Italians by

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spontaneity. Our ancestors were distinguished by responsibility, which is fading before our eyes. The philosophy of quality is a collective concept, synthetically constructed. The understanding of quality in various philosophical theories differs significantly, as it is "tailored" to the system and the method used in its development.

In such an ambiguous situation, one must begin with the conclusion: everyone is right and no one is wrong. "What kind of gibberish is this," someone accustomed to thinking according to the inherent "either-or" formula will say. "We don't need riddles; we want everything to be based on the principle: 'to each his own.'" The task is precisely to put everything in its place. It's simpler, clearer, and you can't make mistakes. Formal logic of thought develops spontaneously, reflecting the world of things as a first approximation, roughly. F. Engels rightly compared it to elementary mathematics, which is incapable of describing processes and is therefore limited to operations with finite quantities. "What is good and what is bad" is the domain, formally, of logical reasoning, for which "every cloud has a silver lining," or "two different sides of the same coin" are judgments that are illegal and forbidden. Political ideology also imposes restrictions on thought, dividing thoughts into those considered one's own and those considered hostile, right and wrong, forcing public consciousness to operate according to the simplified rules of the formal logic of individual thought. Logical blinders are justified, pseudo-ideological ones are unjustifiable, as are the actions of those who stun views that differ from their own ideology, unwilling or unable to critically evaluate them. The Marxist and Hegelian concepts have more similarities than differences.

The main thing is that the most essential understandings of quality coincide. K. Marx and F. Engels, distancing themselves from Hegelian idealism, zealously defended his dialectical understanding of thought, developed his propositions, and defended them from criticism. They, better than anyone, understood the potential inherent in Hegel's dialectic of knowledge. For both Hegel and the founders of dialectical materialism who wrote after Hegel, quality was, namely:

- firstly, a set of essential properties of phenomena that are interconnected in a certain way;
- Secondly, they understood quality as an objective state, even in the case when it is created by human consciousness, since consciousness creates quality in accordance with the objective order of the world. Quality is invariantly objective;
- thirdly, in their understanding, quality changes in accordance with the dialectic of the world's development.

It has a concrete, historical mode of expression. All three of these quality characteristics form a methodological framework: quality theory and quality management strategy.

Hegel's celebrated predecessor, the English philosopher John Locke, also contributed to the philosophy of quality. Locke divided quality into two groups: the objective qualities of things, which are inherent to them, and qualities that arise in the process of cognition. The latter are absent in things but are formed through the interaction of things and human senses. Things excite certain senses, which respond by creating qualities—sensations—that correspond to the received signal. Only the laziest have failed to criticize Locke's duality of quality theory. He received criticism from materialists for his concessions to idealism; idealists also did not spare him for his group of objective qualities. Does such vigorous criticism of the English thinker's convictions mean he was wrong about everything, having lost his way in the thicket of quality philosophy? Not at all. The ideas of an intelligent person cannot be stupid unless they are a joke, and John Locke was not joking. The philosopher sought to find a solution to the contradictions in the development of quality theory. He was dissatisfied with the view of quality offered by either simplified materialism or the subjective idealists, whose arguments led to dead ends. John Locke was far from attempting to combine the ideas of these opposing theories and resolve the existing conflict with such a primitive approach. He wanted to emphasize the role of consciousness in the history of quality formation, the subject's activity, but he was unable to consistently implement his plan. The essence of his initiative—his desire to incorporate the subject's activity into a theory of quality—deserves special attention. Time passed, and the idea matured under the influence of practical factors. Philosophers returned, no, not to John Locke's philosophy, to his idea of the subject's activity and the role of its activity in shaping the quality of things. Not to mention the fact that the problem of the unique quality of the activity itself, which creates quality in things, has also become relevant.

It's enough to recall the modern, international quality control system ISO 9001-2015. Its core concept is precisely the idea of quality in activity. It would be a mistake to equate quality with a thing. As a specific combination of properties, quality, by definition, is not the same as a thing. Hegel defined the quality of a phenomenon simply and, within the framework of philosophical understanding, which in market conditions aligns with consumer evaluation, with the concept: "quality is that without which an object ceases to be itself." It "ceases to be itself," but does not cease to exist altogether. By failing to meet quality requirements, a phenomenon transforms from one state to another, or into a different phenomenon.

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An expert examination concluded that the product did not meet technical (and consumer) parameters. The product was reclassified as substandard, a defective item, but the thing remained, along with some prospect of its disposal: eliminating the non-compliance with the standard, recycling. You can't wear shoes, you can try to bail water out of a leaky boat with them, tamp down tow, chat, and who knows what a useless boot can be useful for in a big household - you can even put it on a samovar.

It's a mistake to separate quality from its object, not only from a philosophical perspective but also from a non-philosophical perspective. Otherwise, quality will become something independent, like "The Nose" in N.V. Gogol's story, and quality management will lose its objective definition. F. Engels emphasized: "There are no qualities, only things that have quality, and an infinite number of qualities at that." Experts note a shift in market demand toward quality products. The market is maturing. This is confirmed by demand monitoring. In this long-awaited situation, it's important not to lose philosophical ground when developing a business plan in accordance with the new circumstances. Quality is both the highest and permanent goal, so one must be oriented toward the future while the other is shaped by the present. Only a proper orientation toward a specific time, as a life span when it is most relevant, guarantees successful product sales. Manufacturers and sellers must be modern. Their modernity stems from the ability to find the optimal product range and match a specific product with the expected quality level, thereby achieving the optimal price range dictated by the consumer's effective demand, which expresses their need for the product. Quality for the consumer is not an abstraction created by the professional thinking of the manufacturer. Consumers view quality through the lens of their wallet. As long as the market exists, price remains its calling card. If a buyer first asks to see a product and only then asks how much it costs, then rearranging the elements of behavior does not change the outcome. The client will inevitably ask their sacramental question, the answer to which will determine how the transaction will be resolved. Quality is not adapted to independent existence. A thing—a commodity—is presented as quality when it appears on the market. And this is where the most important aspect of quality theory begins, so let's pause and examine the problem in more detail. The quality of things that make up nature arose naturally, spontaneously, according to a complex combination of natural laws. It follows that the quality of such naturally created phenomena is unequivocally objective in all respects. The history of the quality of phenomena created by human activity is different. The spiritual component of man is realized in social practice. Man builds a house, sews shoes, clothes, coordinating his actions with the mechanical,

physical, chemical, and biological properties of natural things, but we do not create the final product for nature—let's ignore specific cases. We realize our goals, needs, and interests in the thing we create, in its properties, in its quality: we either materialize or objectify it. In the quality of things produced by human practical activity, in the quality of this activity itself, the objective properties of things and the subjective forms of human existence are intertwined and fused. The quality of man-made things is objective, But their objectivity expresses the rationality (or unreasonability) of man. And here lies the knot of contradictions between producer and consumer. It can only be resolved by aligning the manufacturer's views on the consumer properties of a product with a realistic assessment of consumer needs and capabilities. Product quality should be developed exclusively with careful marketing monitoring in mind, increasing production reserves accordingly. We continue to observe a fragmented market mechanism. This explains the problems with the sale of domestic products. Professional activity, like a sculptor, molds the quality of an object, relying on the natural properties of the material, elevating them through talent and labor to a state that awakens a specific interest in the mind. Objects of natural origin also attract human interest through their ability to evoke aesthetic feelings, have a therapeutic effect, and serve as a material or a prerequisite for everyday production. This is understandable—man "emerged" from nature, remaining a special part of it. However, their quality retains its "natural purity." Professional activity is a systemic factor in ensuring the quality of a product with added value. According to the regulations, it should also be the initial link in the development of a quality management ideology. A quality product can only be produced through high-quality professional activity, namely:

- This is the first and fundamental law of production quality. Natural disasters are capable of much. People use them to acquire precious stones, methods, and building materials. A diamond is a product of the elements. The mineral possesses an original, unique, natural quality, but diamond jewelry builds on this natural quality with so many new qualities that are of interest to humans that natural quality essentially remains important only to those who process natural stone. The final diamond product, whether jewelry or a technical element, is the result of professional work. In the precious stone market, there are differences in interest in the raw material—its deposits—but most importantly, in who will transform the rough diamonds into diamonds. The quality of a diamond is determined by the combination of raw materials and craftsmanship. And since the craftsman selects the raw materials, the contribution of their professionalism to the quality of the product is decisive.

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- hence the second law of production quality: to ensure product quality, high-quality training of specialists capable of maintaining and increasing professional skills is necessary;

- The third law of production quality requires professional activity to be focused on improving the technological process through integration with science and technological progress. The concept of "quality," reflecting the world's subject diversity, must therefore reproduce objective differences within itself. This is achieved through the structuring of quality. The structuring of quality is a particularly significant factor in quality management theory. It is advisable to divide quality into the following seven structural levels, based on the significance of the contribution of the "human factor," namely:

- quality of natural objects;
- quality of natural material;
- quality of recycled natural material; quality of technical equipment;
- quality of the software product;
- quality of production activities;
- quality of organization and production management.

Organizational and managerial activities aimed at producing a high-quality, marketable product themselves require quality assurance. An audit of organizational quality and production quality management presupposes the structuring of the corresponding activities. The logic of creating quality in human-made objects pushes the quality of activity to the forefront, focusing research on the attributes of quality activity and the need to build their systemic relationships. Philosophical literature on this topic is largely silent. Philosophers continue to wage war. Proponents of the objectivity of quality demonstrate the inconsistency of their opponents' views, instead of considering quality not only in the context of the objective reality of the world but also in the context of human, professional activity that transforms the material world. It is impossible to develop a scientific and philosophical doctrine of quality in the spirit of pre-Marxist materialism, for the old materialism was, essentially, a philosophy of contemplation, not of transforming the world. Not for nothing did Karl Marx teach: we must not only reflect the world, but also change it. Dialectics is a materialistic worldview based on the practical interaction between humans and nature. Activity, primarily creative activity, is the credo of dialectical philosophy and science. The universal model of relationships between the systemic properties of professional activity is explained by the diagram we've already presented and the one we'll propose:

The attributes of professional activity included in the framework are well known. They are commonly associated with professionalism in both scientific and practical thinking. The novelty lies not

in the attributes themselves, but in their representation as a systemic entity, which imbues them with a new level of meaning. In representing the system, researchers typically cite Bertalanffy's discovery of the systemic relationship of properties: the divergence between the sum of the system's attributes and the sum of the attributes of the elements that make up the system. This effect, described by Bertalanffy, allows us to judge the systemic organization of attributes, actions, and phenomena as the most effective form of relationships, which is important for both management effectiveness and organizational excellence.

Building on its philosophical interpretation, quality management takes the next step toward a systemic organization of the activity program, understanding the arrangement of systemic activity attributes so that the resulting system is sustainable, relevant, and reasonably safe. A systems approach is currently the highest-quality method for understanding and organizing the management of any complex activity. There are probably no longer any doubters of the systems approach's superior effectiveness. There are those who inadequately perceive and evaluate the undeniable advantages of a systems approach, overemphasizing its importance at the expense of other methods, particularly an integrated approach. An integrated approach, both in theory and practice, has not lost its value in competition with a systems approach. They combine quite well, complementing each other and enhancing the effectiveness of both organizational, managerial, and cognitive activities. It is more convenient to analyze the quality of an activity from the perspective of a systems approach. We believe it makes more sense to build quality management theory on the foundation of an integrated approach.

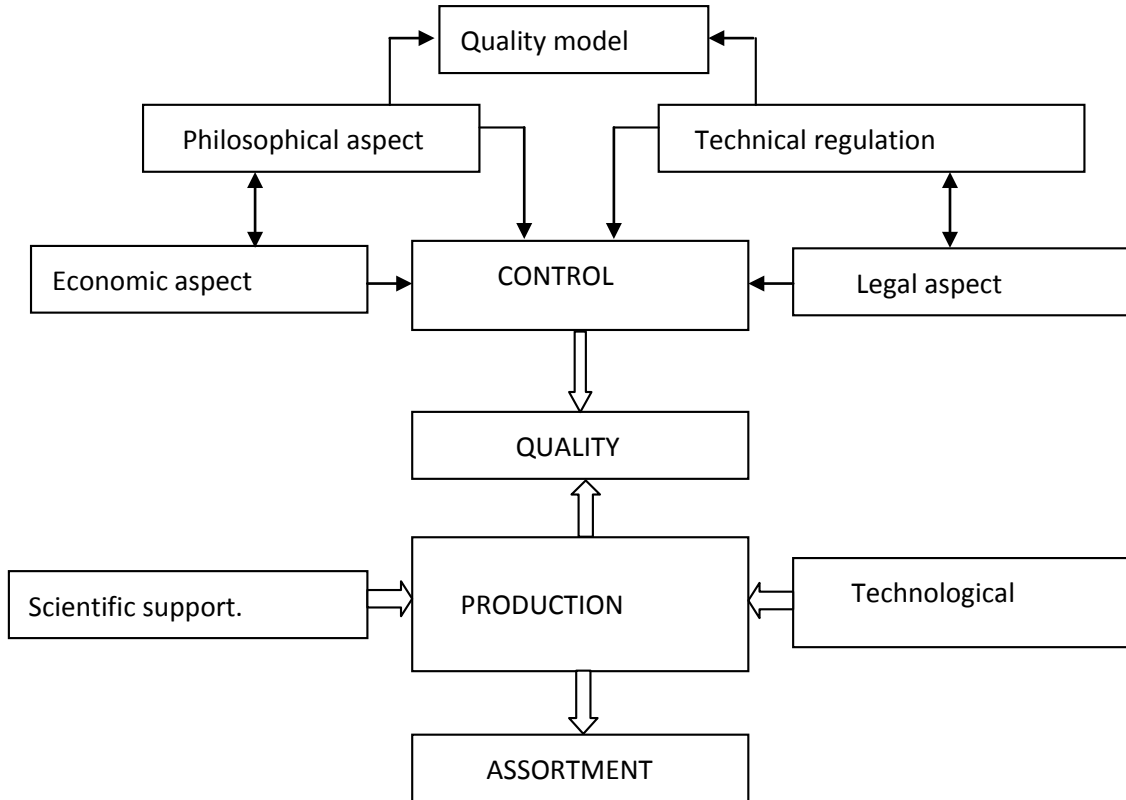
The current situation in specialized – not philosophical – knowledge (and in practice as well) compels us to return to the distinction between integrated and systems approaches, as these methods have become too frequently interchanged. A systems approach is fundamentally distinguished by its method of constructing knowledge, in which the relationships between the elements and attributes that form phenomena are built according to a basic relationship called the system-forming factor. The system is formed, similar to the process of crystallization, through the sequential addition of components. It is advisable to systemically construct, for example, leather, fur, and textile products, when a certain, agreed-upon state of material quality is taken as the system-forming factor, and the entire range of products offered for production is "tied" to it. Quality and market position in this case will be determined by the quality of the corresponding state of the material used in the manufacture of each specific product line. An integrated approach is

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based on a specific qualitative foundation and requires a comprehensive analysis of the quality of a phenomenon, with research aspects being both equivalent and dependent on a certain ranking. A good example of the use of an integrated approach is

the development of quality management. Schematically it looks approximately as shown in Figure 1.



**Figure 1. Schematic diagram of integrated production quality management**

The diagram above demonstrates the interconnections and roles of the key elements involved in preparing and implementing the production quality management process. It clearly demonstrates the key relationships: the connection between the philosophical aspect and technical regulation, allowing for the concretization of methodological and theoretical developments to the level of normative and technical specifications; technical regulation with the legal aspect, including the use of patented and licensed elements; and philosophical and economic analysis, which provides the former with a specific subject orientation in market conditions, and the latter with a methodological perspective, emphasizing the dependence of production quality on the technological state of production and scientific equipment. A fundamental diagram of the interconnections between philosophical concepts describing quality, linked to economic categories, will help complete the philosophical analysis of quality at the level necessary for the practical application of this knowledge in the economic

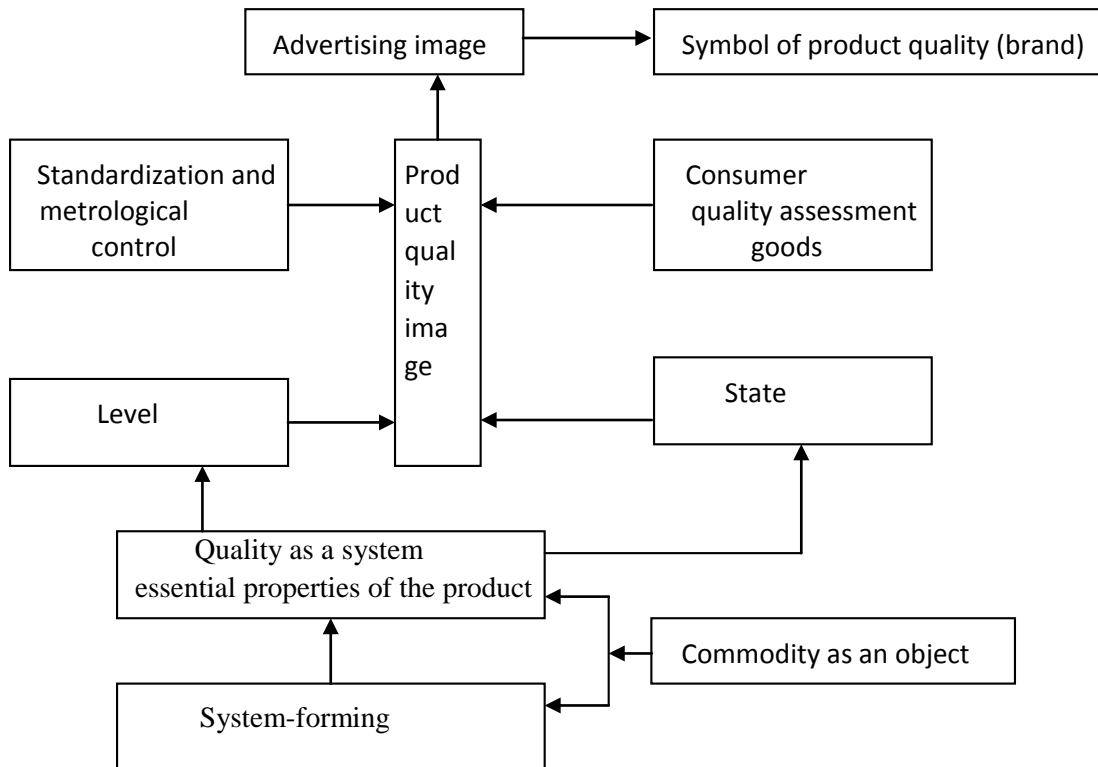
management of production quality. We developed this diagram several years ago. Our return to it is forced. The reason is that we were left with no choice. Philosophers continue to analyze quality, abstracted from specific forms of economic practice, in light of their professional interests. Economists conceptualize quality in a narrow, empirical sense, driven by mercantile interests. Philosophy cautions that the objectification of quality makes real sense only in its epistemological context: when addressing the nature of quality. Indeed, in the context of the "object-subject" relationship, quality is primary—it is objective by its very nature. Even when constructing quality, we are deprived of absolute creative freedom. Professional creativity is limited by the objective roots of the quality it creates. The quality of both things and theories is objective, with the only difference being that the quality of a thing is objective in material terms, whereas the quality of a scientific theory is objectified by the adequacy of its reflection of the objective quality of the thing, the relationships between which are reproduced in the scientific theory. The quality control system is shown

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in Figure 2. In quality management theory, it is important to correctly understand dialectics as the organization of production; as an activity organized by production; and, finally, as a produced good—objective and subjective. The prominent Russian scientist and public figure L.P. Krasavin coined the term "qualification" to emphasize the active nature of quality, linked to the subjective creativity of a professional. The subjective side of product quality is revealed in the marketplace through complex relationships between creators, intermediaries, and

consumers. These relationships intersect with distinctive national mentalities: in the United States and Western European countries, a pragmatic, utilitarian approach dominates the interpretation of quality in the marketplace, while in Russia, the traditional approach to product quality has been contemplative. Even today, quality goods are more than just something for consumption for most Russians.



**Figure 2. Quality control system**

Creators and producers of quality goods must cultivate the awareness of potential consumers, recognizing that in a marketplace, product quality is a collective image. While the image of a quality product or brand name can certainly be promoted through advertising, such one-sidedness is uninhibited and dangerous. The sustainability of a quality product's reputation is ensured by the entire marketplace, including its extensive infrastructure. An educated consumer actively participates in the "fight" for quality. The market needs them, like a pike in a pond, to keep a crucian carp awake. A reluctance to spend substantial resources on educating consumers, a desire to "cheat" them with false, superficial advertising, will inevitably boomerang. Unfortunately, many Russian manufacturers aren't afraid of the boomerang. They know they won't last long in this sector. By the time the market sorts everything out and responds

appropriately to pseudo-quality, they will be different, and this "nonsense" will lose its relevance. Although experts believe the Russian market has shifted toward product quality, objectively, the market situation hasn't changed significantly. The small percentages on which these encouraging conclusions are based are far from being qualitative characteristics. The solvent demand of the overwhelming majority of Russian citizens doesn't allow them to focus on product quality. A shift toward interest in product quality must necessarily involve expanding the range of products available to the masses, and Russians haven't yet completed this stage. This, however, doesn't mean product quality has become irrelevant.

Integrating the above, we present formula (1), which allows us to uncover the components of a commodity's quality—that is, a product produced by humans to satisfy specific needs. This formula can

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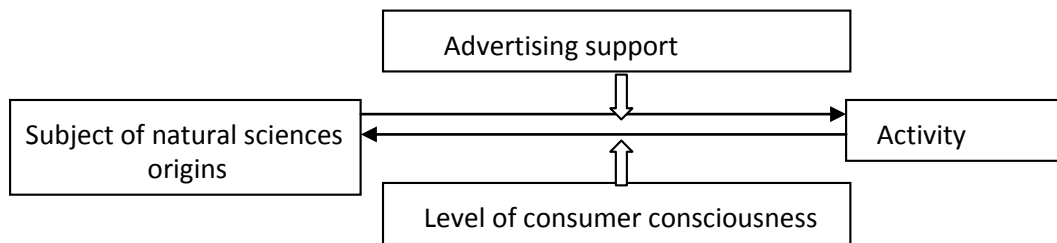
also encompass natural phenomena integrated into market relations: clean air, mineral springs, therapeutic mud, clay, warm sea water, etc., as well

as those whose production is not intended for sale, considering these cases as a simplified, subjective component.

$$CT = \underbrace{\sum Ye}_{ec} + \underbrace{D + W_p}_{SP} + R$$

Where CT – quality of goods; objective component.  
 ∑ec – the sum of the natural properties of the material;  
 D– activity, natural prerequisites are transformed into a commodity;  
 SP– buyer consciousness;  
 R- advertising support.  
 The graphical equivalent of formula (1) is shown in Figure 3. This formula also describes the

quality of an intellectual product. This requires expanding the definition of "natural properties" to include the intellectual and psychophysiological prerequisites of creative activity. The economic understanding of quality, upon which all known concepts of production quality management were directly developed, evolved according to dialectical laws, despite the fact that economists themselves were not always aware of the dialectic process.



**Figure 3 Graphical equivalent of the formula above.**

The development of economic awareness of quality was driven by "the contradictions between the internal and external goals of the producer—ensuring the quality of manufactured products and, accordingly, strengthening the producer's position in the market (external goal), as well as increasing production efficiency, that is, increasing company profits (internal goal). At each stage of production, the market, and society, this contradiction had its own specifics and was resolved differently." B.S. Aleshin identifies four phases in the development of the modern philosophical and economic interpretation of quality, namely:

- "culling phase";
- "quality management phase";
- "phase of continuous quality improvement";
- "quality management program phase".

The history of economic quality management dates back to the era of guild production. Guild organizations were a must in medieval cities, one of whose most important functions was the certification of craftsmen. To become a recognized craftsman, one had to pass rigorous quality testing of their products. All products of guild masters bore the author's "hallmark" and were unique in their kind. Quality management was simplified by the production itself, its manufactory nature, which prevented large-scale production. Naturally, no agreed-upon quality standards existed at that time due to the difficulty of

comparing strictly individual products of craftsmen, much less attempting to develop a model for imitation. The uniqueness of a craftsman's work precluded imitation altogether.

It was only much later that Colt's arms factories began standardizing product quality. This unusual approach was prompted by the fact that, under mass production conditions, the final product was no longer assembled from specially made and customized parts, but from randomly selected parts from the corresponding batch. For the first time, production was equipped with special gauges, and trained inspectors used them to check parts before assembly. The idea of standardization flourished during the era of automobile production in the United States. H. Leland, the founder of Cadillac, devised a pair: "pass" and "no-pass" gauges. H. Ford, having built the assembly line, took it a step further. He replaced incoming component inspection with outgoing inspection, allowing calibrated, high-quality parts to be delivered to the main production line—the assembly line—significantly increasing labor productivity and significantly improving the quality of the final product. Ford's factories also pioneered the creation of a quality control service independent of production. Henry Ford's associate, F. Taylor, who worked in close collaboration with his patron, undertook significant work on the scientific understanding of innovations in production.

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Ultimately, he succeeded in formulating the principles of scientific management focused on production quality: a systems approach; human resources management; the mandatory division of responsibility between performers and organizers in achieving high-quality and efficient work; and the need for scientifically based labor standards.

F.W. Taylor, the undisputed founder of scientific management, was the first to discover the "exhaustion" of the effectiveness of the fundamental principle in management practice: "initiative – reward" for quality work. "In contrast," argued F.W. Taylor, "the development of scientific labor management suggests the development of numerous rules, laws, and formulas that will replace the personal judgment of the individual worker and which can be usefully applied only after systematic recording, measurement, and so forth of their effectiveness have been made." One cannot but agree with D.M. Gvishani's summary of what constitutes Taylorism in the strict sense of the term, which boils down to the following:

- creation of a scientific foundation that replaces old, traditional, practically established methods of work, scientific research of each of its individual elements;

- selection of workers based on scientific criteria, their training and education;

- cooperation between management and workers in the practical implementation of a scientifically developed system of labor organization;

- equal distribution of labor and responsibility between management and workers.

F. Taylor himself envisioned the guarantees of production quality and efficiency as follows: "Science instead of traditional skill; harmony instead of contradiction; cooperation instead of individual work; maximum productivity instead of limited productivity; the development of each individual worker to the highest possible productivity and maximum well-being." Try to argue with F. Taylor. It's no wonder his views on the organization and management of machine production captivated his contemporaries.

Some believe that the concept of F. Taylor, G. Ford, A. Foyle, and M. Weber "has survived in its basic features to this day and has become the model for organizing production at most modern enterprises. Only in the 1970s did it begin to be replaced by another concept – the Toyota Production System." The ideology of the "rejection phase" was simple and clear: only high-quality products should emerge from production; the consumer and defective products should not be allowed to meet. Management efforts should focus primarily on component quality control and finished product assembly. The relative simplicity of the "rejection phase" concept lay in its reliability, and its relative reliability necessitated

subsequent innovation. The reliance on the "rejection phase" in production quality ideology has had practical effects. It would be surprising if the results were not positive. Increased attention to quality control is a logical prerequisite for the functioning of production. This demand for market-based understanding has accompanied the development of manufacturing activity throughout its existence. The sustainability of the economic (and, to a certain extent, social) impact achieved by the pioneers in developing a scientific solution to the problem of production quality management is astonishing. And yet, the previously hidden side of the "rejection phase" was bound to emerge. The shift in management to the phase of high-quality production preparation—essentially toward the special status of control functions—signaled an increase in the corresponding costs of ensuring high-quality products. Production quality and the quality of the manufactured products are integral, but not the same. The development of manufacturing is undoubtedly determined by the quality of the goods manufactured. E. Deming rightly placed "production planning that is not oriented toward goods and services for which the market demonstrates demand" at the top of his list of the "seven deadly diseases" of modern manufacturing. In the transition from an industrial to a post-industrial mass consumer society, production is increasingly becoming a function of the market. "The buyer is always right"—no matter how repugnant this well-known adage may be, a seller forced to adapt to customer demand has no choice. Manufacturers, for whom the "seller" is the "buyer," have no choice either. Product quality is the hallmark of production. However, a "concert" cannot consist of just one song. Production quality is also characterized by its economic efficiency. The pursuit of product quality cannot be the end in itself; otherwise, a good cause will turn into a fatal disease. Product quality cannot compensate for overall production inefficiency. Improving the quality of the final product always requires investment, which poses a challenge for those developing efficient production strategies. The goals of increasing production efficiency and improving product quality were incompatible within the concept of the "rejection phase," so it was replaced in the 1920s by the "quality management phase." Its developers attempted to overcome the critical importance of product quality costs, evident during the "rejection phase." They were unable to resolve the resulting contradiction, but they managed to mitigate it. Among the innovators in reconstructing the "rejection phase" was W. Shewhart, an employee of the quality control department at the American company Western Electric, who proposed a method for constructing diagrams better known as the "Shewhart chart."

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At first glance, the American specialist's initiative appears quite radical. Shewhart rejects the key quality control model of F. Taylor and G. Ford. The production process itself becomes the focus of quality management, rather than the pre-production stage, where defective products must be rejected. Shewhart's system of methods was aimed at improving the technological process, which was intended to increase the output of finished, high-quality products. Shewhart's concept initially reveals a dialectical approach. His predecessors tried to "divide production into its components" and load them to achieve the desired result. Ultimately, they overloaded one of the peripheral components, and the entire structure became distorted. The pre-production control stage became the most costly, while the main stage—the technological one—became dependent on it and was pushed to the periphery of the management process, suffering unfairly.

V. Shukhart called "things" by their proper names and ranked the stages according to their rank, emphasizing the technological one. By simplifying the pre-production stage, he risked reducing the quality of components. In return, he hoped to gain gains in the core production chain.

By prioritizing technological improvements, manufacturers strengthen their production processes, making them fundamentally more efficient through improved organization and technical equipment. As for defects, it's more practical to monitor them within the production environment, relying on scientific research and the timely implementation of new technical processes, along with measures to ensure the quality of workforce preparation.

The primary object of quality management in W. Shewhart's concept is the production process. Its output is a flow of quality parameter measurements for individual products. Shewhart retires Ford's previous goal of "meeting tolerances." Ford's idea had served its purpose and sparked new thinking. In its place, Shewhart forms a tandem of goals: ensuring process stability and reducing stability variations. Shewhart considered the presence of variations to be a natural phenomenon. He even developed a criterion for process quality: process stability should be considered statistically. Variations in product parameters are nothing more than the implementation of a stable random process whose distribution function remains constant over time.

Shewhart believed that variations in product parameters are the result of two groups of causes: specific and general. Specific causes are rooted in disruptions in the production process. They are identified using a control chart and are eliminated based on the chart's readings. General causes are embedded within the process itself. There are many of them, but individually they are not significant. The danger lies in the combined effects of these causes. Common causes of product parameter variations are the concern of managers, often highly skilled and qualified. Through their research and actions, they can limit the effects of common causes. In this regard, V. Shewhart made two valuable conclusions that should guide production managers:

- Firstly, identifying the culprits is necessary, but once we find them, we are rarely able to influence the situation. It is necessary to seek out the causes of the discrepancy and eliminate them, involving all participants in this process;
- Secondly, process variations become the source of defects and inconsistencies.

Reducing variation in W. Shewhart's quality management system is a complex goal. By linking the amount of variation to the organization of the production process, W. Shewhart clearly recognized that reducing variation requires a new configuration of relationships among people involved in production.

The essence of such a new configuration should be comradely cooperation. People are united into teams by the very nature of production. W. Shewhart's system is a significant advance over F. Taylor's. F. Taylor emphasized the mechanism of action, while W. Shewhart focused on the mechanism of human interaction across the entire spectrum of their relationships: technical, economic, and psychological. B.S. Aleshin is absolutely correct when he asserts: "The concept of 'tolerances' (one of F. Taylor's most important inventions) undoubtedly remains in practical work. 'Tolerances' are the form, the language of quality requirements, the result of quality planning. What changes is something else: the juxtaposition of the tasks of planning, execution, control, and corrective action. Such tasks are performed by teams." A comparison of the two aforementioned economic quality management systems can be presented as follows (Figure 4).

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Figure 4. Comparison of the systems of F. Taylor and W. Shewhart

At the same time, it should be noted that W. Shewhart's ideas and methods continue F. Taylor's quest to place quality management on a scientific basis and to utilize scientific methods in organizing production. But here, too, W. Shewhart "leads" Taylor. For F. Taylor and H. Ford, science (and scientific methods) boiled down to those concepts that allow for the quantitative measurement of the mechanical actions of an individual performer, the identification of the optimal route of movement, and the effective control of that movement, having first loaded it with a full program of tasks. The "classical" (Taylorian) theory of quality management was based on the centrifugal forces and movements of production: the division of labor, the specialization of actions, and the individuality of the performer. This one-sidedness was recognized by critics. W. Shewhart considered the mechanistic view of production development in general, and quality management in particular, to be a clear simplification. The production process not only unites the interactions of centrifugal and centripetal forces—individual and collective actions—it also defies the reduction of what occurs within it to mechanical relationships. Humans participate in production as subjects of actions and relationships. Moreover, humans, as subjects of labor, are the decisive factor in production. The development of production must be based on the development of the subject and the relationships between subjects. Subjective potential, in the form of individual knowledge, skills, and aspirations, is the main reserve of production efficiency, which science helps to activate and organize properly. In this understanding, science includes social and humanitarian components. An inherent flaw in the "classical" theory of production quality management

is its oversimplification of the understanding and nature of human behavior in an organization. V. Shewhart understood this, explained it as best he could, and hoped to be understandable and relevant to practical management. V. Shewhart's new ideas did not go unnoticed by businesses, but apparently the inertial forces of business movement are so great that ideas begin to influence them only over time and ultimately. The shortcut to profit was habitually considered the simplest. Any complication is associated with additional costs. Will they be justified? Moreover, measuring the mechanics of action is much easier than the motivation for activity. But it is surprising that, almost half a century later, J. March and G. Simon noted that in the United States, two views on the position of people in an organization are widespread: "viewing the employee as an inert instrument performing a designated purpose, and treating personnel as something given, rather than as a variable in the system." Another authoritative scholar, M. Hare, agrees with them: "There are implicit assumptions about man on which, as it seems to me, the classical theory of organization and management is based: he is lazy, short-sighted, selfish, prone to error, has poor judgment, and may even be a little dishonest." In M.'s text, Hare explains that the classical interpretation of management organization remains quite popular in practical management. The three main tenets of "classical" quality management theory have not yet been outlived. They continue to impress, warming the hearts of managers, soothing their self-awareness, and bolstering their self-confidence in their own privilege. Everything is so neatly laid out, namely:

- the worker is an executor, essentially a "rational animal" with a clearly expressed dominant drive to maximize economic results;

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• "each individual responds to economic incentives as an isolated individual";

• "People, like machines, can be treated in a standardized way."

W. Shewhart had many supporters who left their own noticeable and appreciated mark: M. Follett, E. Mayo, C. Barnard, F. Roethlisberger, and G. Simon. The 1930s were marked by the "humanistic challenge" of the "preaching of administrative responsibility." In theory, events unfolded according to a logical scenario. Practice, however, was not so receptive to changes in views, so the effectiveness of the new approach to economic quality management left room for reflection on the complex relationship between theory and practice. The structure of the economy itself hindered the comprehensive implementation of progressive ideas. For people to develop as actors in production—to mobilize their knowledge—it is imperative that the economy turn its face toward people, to acquire a "human face." There is no other way to integrate individual talents into the fabric of production, to make them interested colleagues. Dialectics warns: truth is concrete. Theory is effective within a specific historical framework. Its life may be long or short, but it is always finite. The elements of theory and the experience of its application, expressed in historical lessons, continue to work, embodied in other, relevant theories and practical actions. Today's economic component of quality cannot ignore the achievements of W. Shewhart, M. Follett, G. Simon, and all those who demonstrated the need to engage the subject's thinking and passion in the struggle for quality. In particular, in our view, the power of W. Shewhart's "control charts" remains. They are simple and allow for monitoring the quality of the process and the performance of those performing the work. For those performing the work, they are more understandable than the manager's often unclear dissatisfaction, so we provide a sample of them (Figure 8).

By developing a model of a sustainable process, W. Shewhart significantly expanded the capabilities of scientific analysis of production quality, revealing aspects and stages of production that had remained obscured in the "classical" concept. He introduced the concept of "process adjustment based on measurement data" into the definition of production quality, which can be considered a concretization of the concept of "feedback" in quality management.

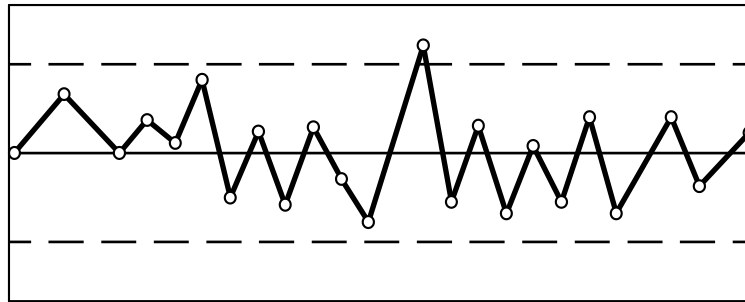
In the theory of random processes, the quantitative measure of the dependence of a

sequence of random variables is the autocorrelation coefficient, which takes values from 0 to 1. When its values are close to 0 for adjacent observations (in practice, <0.2-0.3), the process is considered "white noise." If the autocorrelation coefficient values are close to 1, then various feedback control systems should be used for this process. It is easy to see in Shewhart's concept an attempt to theoretically understand the specific state of mass production of his time. He attempted to look at the assembly line through the eyes of science. And he achieved much. At least, W. Shewhart's ideas, although outdated, are still viable today. With a creative approach, they produce good results. A remarkable contribution to the practice of quality management was the creation of a quality audit service, the function of which differed significantly from the tasks facing F. Taylor's quality control departments. It was not engaged in rejection, but rather in verifying the operability of the quality assurance system by inspecting small production runs from batches of products. Thus, W. Shewhart found a way to reduce quality costs, which had increased disproportionately when organizing production according to F. Taylor's recommendations. However, W. Shewhart's original thinking and organizational talent did not resolve the long-standing contradiction between the need to ensure production efficiency and the market's demand for quality goods, as well as the production itself's need for high-quality raw materials and components. Every production process has a limit to the output of quality products. This limit is not inherent in the process. It is an attribute of the system practiced at the enterprise, a product of all the combined activities, the specifics of labor organization and production management, including production quality. Approaching the limit leads to an escalation of the fundamental contradiction. Quality assurance requires ever greater resources, which leads to a decrease in production efficiency. In the 1950s, a new concept of quality management emerged, inspired by E. Deming. The name of the next stage in the development of a philosophical and economic understanding of production quality management underscores its essence: "the phase of continuous quality improvement." E. Deming's version of production quality assurance proved long-lived, remaining influential for nearly half a century, until the mid-1990s. We believe the continued practical relevance of E. Deming's concept can be explained by its skillful placement on the foundation laid by W. Shewhart and its subsequent development into a software product.

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Upper control border  
 Central line  
 Lower control border



1

DATA COLLECTION: Collect data and map it

2

CONTROL: Calculate trial control limits from process data.

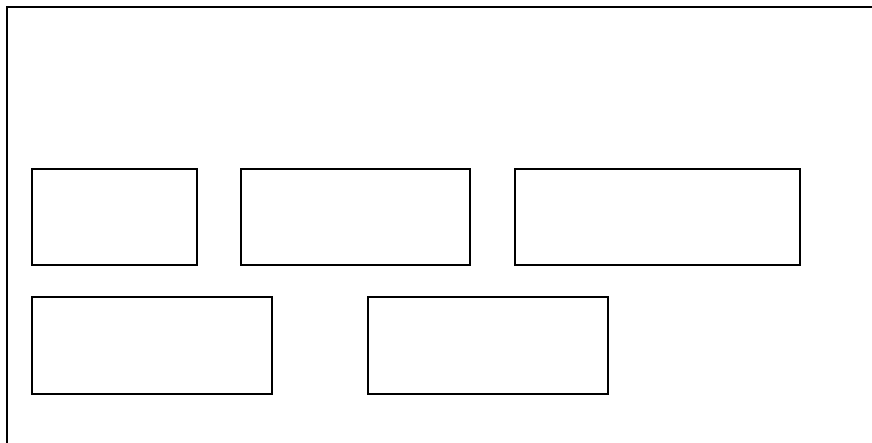
Identify and address specific causes of variation

3

ANALYSIS AND IMPROVE: Evaluate special cause variations and take steps to reduce

them

Repeat these three phases to continuously improve the process.



The result of the measurement process

**Figure 5. Shewhart's control chart**

E. Deming's management program is built on three axioms oriented towards industrial practice, namely:

- The first practical axiom states that any activity should be defined as a technological process, from which follows the conclusion about the possibility of its improvement;
- The second practical axiom was formulated by E. Deming as follows: production has two states—it is either stable or unstable. In both cases, solving specific problems is insufficient; fundamental changes are necessary;
- The third practical axiom of E. Deming is this: the top management of an enterprise is obliged to accept responsibility for the result in all cases.

The practical concreteness of E. Deming's axioms is achieved within the framework of a special management program, which summarizes the theoretical and practical experience of organizing production quality management. The program represents several levels of understanding and practical implementation of ideas: "Fourteen Points," "Seven Deadly Diseases," "Difficulties and False Starts," "The Deming Chain Reaction," and "The Principle of Continuous Improvement (Deming Cycle)." The penultimate and final sections of the program are of particular interest for the practice of improving quality management in enterprises. The "Deming Cycle" is essentially a scheme proposed by W. Shewhart, which Deming also recognized. "The

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Chain Reaction" is a product of E. Deming's own creativity. The Deming-Shewhart cycle consists of four stages, namely:

- observation;
- development of measures to improve the situation;
- implementation;
- analysis.

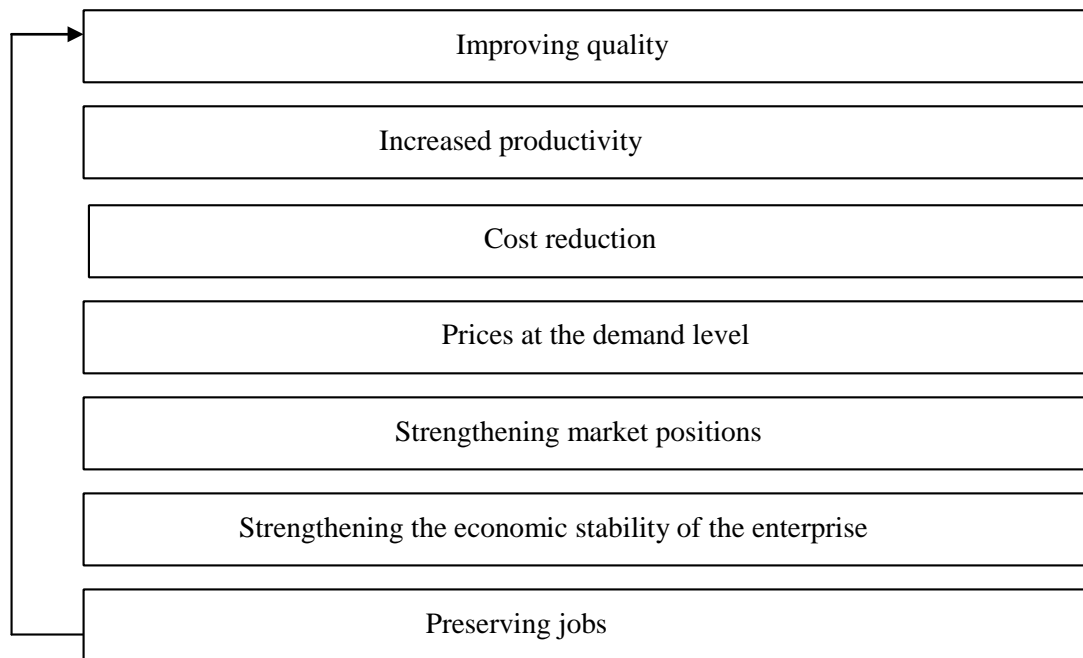
The task of the quality manager at the first stage is to collect information and identify weak production links that require restructuring.

In the second stage, the manager develops organizational measures aimed at changing the situation. This includes engaging all employees through motivation.

The next third stage is the implementation and monitoring of the modernization process.

The cycle concludes with a phase of analyzing the results obtained from implementation, building on experience to repeat the cycle. Perhaps graphically, the Deming-Shewhart cycle best illustrates the development spiral; each turn of the spiral is a relatively closed cycle of actions. The next turn "builds upon it," continuing the overall process. If it weren't for the tradition of naming such discoveries after their authors, the Deming-Shewhart cycle would be called the "spiral turn cycle" of quality management. The Deming-Shewhart cycle is undoubtedly relevant today for improving production organization, as it reflects the universal law of management design.

One cannot help but give credit to E. Deming for his development of the "chain reaction" in quality management, shown in Figure 6.



**Figure 6. "Chain reaction" by E. Deming**

In it, he linked economic and social actions, emphasizing the nature of historical time. The heyday of E. Deming's work is associated with the revival of the Japanese economy. The country's government and industrialists believed in E. Deming's arguments, and he deservedly shared the glory of the "Japanese miracle." His contribution is also evident in the achievements of Japanese specialists in improving production quality, which are clearly highlighted in the study by B.S. Aleshin and co-authors, namely:

1. Long-term, consistent and purposeful solution of quality problems based on all the advanced technologies accumulated by theory and created by practice in this field.
2. Consistent and persistent development of a system for studying consumer demands (prevention of the main "deadly disease of the economy"

according to E. Deming's classification – ed.), formation of a respectful attitude towards the consumer and his demands up to the cult of the consumer – (the consumer is always right – ed.) the consumer (in this case) is understood in a broad sense, as the next link in the technological chain.

3. Striving for total participation in achieving quality, from senior management to those performing specific tasks.

4. Understanding that even a well-functioning work organization system loses its effectiveness without constant testing and improvement.

5. Organizing quality assurance work directly with foremen and team leaders. Training, including special national television programs and national conferences for foremen and team leaders.

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6. Particular attention is paid to mobilizing the physical and intellectual potential of workers. Quality circles are a group analysis of the situation in a specific area and the development of proposals for improving quality and enhancing the efficiency of processes and production.

7. Widespread development of a permanent system of propaganda of the importance of high product quality to ensure high rates of economic growth.

8. State influence on the radical improvement of quality, primarily for export products, including mandatory state certification. Attempts to export uncertified products are considered smuggling. State support for exports and assistance in promoting goods to foreign markets."

We deliberately chose not to abridge the section describing the Japanese practice of creating a quality management system because it, like a mirror, reveals Russian miscalculations—specifically, Russian ones. Having declared the Russian Federation the successor to the USSR, Russian politicians and economists close to them systematically destroyed the socialist experience of building production quality in the 1990s instead of rationally modifying it. In the 1990s, no one responsible for quality cared for it. The economy was reoriented toward raw materials, the quality of which was either determined by their natural origin or "compensated" by the quality they achieved.

A comparison of Japanese economic policy in the 1950s and later with Russian economic policy in the 1990s, heralded as a Russian revival, leads to a sad conclusion: grand pronouncements rarely match deeds. During Yeltsin's democratic reforms, politicians were least concerned with the interests of the Fatherland, and quality was completely ignored, squandering the previous national gains. However, the political assessment of this period in our history has long been given, and we are interested in the part of the theory that directly benefits the country's economy. In this context, it is appropriate to review a number of Japanese achievements, keeping in mind the possibility of drawing practical political and economic lessons from them. The overall conclusion is beyond doubt: economic effectiveness is determined not by the quality of goods produced, but by their variety and quality. Only those who oversimplified dialectics could have anticipated the transformation of quantity into quality. It is not quantity that is transformed into a new quality, but quality alone. The Japanese were taught by the Americans, but they learned very seriously from the experience—both positive and negative—of the Soviet Union. We, however, have still not made up our minds in practice. Our current declarations and certifications are viewed with skepticism by the entire world. Those who fail to appreciate and utilize their own achievements are incapable of truly

mastering those of others. In Japan, the emphasis on quality has become a national idea, embodied in a "struggle" in which everyone, from the janitor to the CEO, relished participation. A system of mutual interests has emerged, supported financially, organizationally (career building), and spiritually. We continue our protracted search for an idea that would unite the nation. Quality is nowhere to be seen, even in the context of what is being proposed. It is not even considered a candidate for a national idea. Only enthusiasts seriously pursue quality, wading through the thickets of democracy, apathy, and so on. Our "helmsmen" have no time for quality. "Captains" continue to pave the way for the West and invest in economies other than their own. Paradoxically, foreign investment in the Russian economy will soon exceed that of our compatriots. Having lost the prospect of becoming an oligarch and feeling pressure from fiscal authorities, would-be oligarchs sought their fortunes in distant lands. The Japanese concentrated their capital in their homeland. Patriotism meant more to them than personal gain. This is the reason (and not the only one) for the "Japanese miracle." In 1945, the Allies destroyed everything on the Japanese islands except national self-esteem. And this became the launching pad for the country's revival. It should be emphasized that the Japanese actively sought specific mechanisms for transforming quality into the nation's fundamental interest in the practice of quality management in the USSR: "Personnel decide everything!", "Quality is the primary focus!", "Everything in the service of quality!"—these are slogans from Soviet history. And behind them stood strict party and state control. The Japanese have subordinated all national and state (municipal) resources to the pursuit of quality, forcing even television to focus on quality. Crucially, the media didn't limit themselves to advertising quality. They organized schools, courses, and universities to teach quality to key players: foremen and team leaders. National finances were channeled into education and training in quality work and its organization. What do we have? Quality has been outsourced to anyone who profits from training and education. What they've done is shoehorned the problem into advertising. We lack a national quality assurance program. Nor do we have a state priority project (along with the well-known national projects). One gets the impression that, having officially declared support for international quality systems, Russia's top political leadership considered its mission accomplished, deciding that the market would regulate the rest. E. Deming's ideas were continued in the concepts of another American who worked on the "Japanese miracle," Yoshihiro Juran. J. Juran shifted the emphasis in developing a quality management system from statistical methods to emphasizing the importance of the customer, dividing emerging problems into random and

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chronic. Random (sudden) quality problems are one-off (isolated) and not inherent to production. Random problems should be resolved routinely within the framework of ongoing management. To this end, it is necessary to clearly assign managerial responsibilities for implementing control measures and the timely implementation of corrective actions. Chronic problems are a different matter. They are present in the process and are, so to speak, "planned" from the start. J. Juran understood chronic problems as the result of assumptions made in the preceding phase of the process. Dividing emerging problems into random and chronic. Random (suddenly) arising quality problems are one-off (isolated) and not inherent to production. Random problems should be resolved routinely within the framework of ongoing management. To this end, it is necessary to clearly assign management responsibilities for implementing control measures and timely implementation of corrective actions. Chronic problems are a different matter. They are present in the process and, as it were, "planned" from the start. J. Juran understood chronic problems as the result of assumptions made in the preceding phase of the process. Dividing emerging problems into random and chronic. Random (suddenly) arising quality problems are one-off (isolated) and not inherent to production. Random problems should be resolved routinely within the framework of ongoing management. To this end, it is necessary to clearly assign management responsibilities for implementing control measures and timely implementation of corrective actions. Chronic problems are a different matter. They are present in the process and, as it were, "planned" from the start. J. Juran understood chronic problems as the result of assumptions made in the preceding phase of the process.

Up to a certain point, such tolerances don't significantly affect quality; then, under the influence of implementation conditions and their own development, they acquire significant significance and become unacceptable. J. Juran "blamed" chronic problems for stagnation or loss of quality indicators. Company management shouldn't be complacent about good performance compared to the past. They must look forward, not backward, otherwise they can easily fall into a crisis. Management complacency is a "fatal disease" for production. Trying to solve chronic problems with orders is pointless. One must begin by identifying their root causes and sources. Understanding the causes, according to J. Juran, is usually beyond the capabilities of line managers. This requires a collaborative approach to analyzing the situation—a "brainstorming session." The second half of the 20th century was marked by the intensive intrusion of mathematical methods of process research into quality management. A new scientific discipline emerged—management decision theory, a

development of operations research. Decision theory focused on decision making. It was interpreted as a process that could be quantitatively measured.

Research was conducted in two directions. Proponents of the first sought to find mathematical models suitable for use in real-world production situations (Fogal, Luce). Developers of the second turned to statistics and game theory, making extensive use of statistical testing methods (the "Monte Carlo method"). The one-sidedness of both approaches gave rise to a third school, whose founders sought to tie mathematical research as closely as possible to the problems of quantifying economic phenomena. This resulted in the so-called "econometric" approach to the analysis and management of economic processes, primarily production efficiency and quality. According to the above concept, an economic-mathematical model should have four components, namely:

1. It must include economic phenomena of qualitative content, expressed in specific units of measurement. Such quantities are the model's parameters;

2. It must include specific quantitative relationships and dependencies between parameters. These may be balance relationships or more complex dependencies linking process results to their underlying causes;

3. The model must define the area of acceptable changes in the model parameters in time, space and volume – "restrictions placed on quantitative dependencies";

4. It should represent a system of interconnected parameters, dependencies and constraints with defined inputs and outputs.

Controlling such a system, that is, achieving specific outputs, should be accomplished by influencing only the inputs, without interfering with its internal structure. The most famous economic models are attributed to L. Klein and A. Goldberg. V. Leontief, who received the Nobel Prize for his work, also contributed to the mathematical modeling of economic activity. The effectiveness of economic-mathematical modeling for relatively large-scale economic phenomena is not high. Without denying the importance of such modeling, the prominent economist T. Haavelmo wrote: "It is quite possible that as increasingly sophisticated methods develop, we will come ever closer to recognizing one unpleasant fact: economic 'laws' are difficult to measure precisely, and therefore we actually live in a world of large, but largely superficial or spurious correlations. One can, of course, cite, as always, poor statistical data. However, I think we can find explanations elsewhere, namely, in the imperfections of economic theories." Quality management is somewhat of an exception. Unlike the low efficiency of using mathematical tools when studying the economy as a whole or individual industries, the

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application of mathematics to quality management has proven quite acceptable. Both Deming and Juran actively exploited its potential. An analysis of economic strategy in the field of quality management shows that the effectiveness of quality management depends on consistent macro- and microeconomic perspectives. This is also evident from real-world Japanese experience. The solution to the quality problem itself requires a step-by-step approach, from problem identification, through diagnosis and the search for solutions, to implementation, maintenance, and development of achieved results.

In the first stage, J. Juran called it "a problem with a pre-programmed solution." Problems are identified, priorities are determined, and a ranking order is established; executors and their responsibilities are determined. During the diagnostic stage, optimal symptoms of the condition are identified; hypotheses are developed and tested; and causes are sought. The solution-seeking stage involves, namely:

- finding optimal solutions;
- development of necessary measures;
- implementation of adopted decisions.

The final stage consists of verifying the effectiveness of the implementation results and comparing the achieved results with the planned ones. The high effectiveness of Deming's and J. Juran's concepts prompted F. Crosby to combine their systems with the quality management experience accumulated in the United States. Crosby's "Zero Defects" program was not fundamentally new in quality management theory, but it contained interesting ideas. For example, the assertion of defect prevention; the need to develop a "quality policy"; and the requirement to involve non-production units in quality management. F. Crosby believed that every technological area should have an engineer responsible for quality. His professional responsibilities include, namely:

1. presenting a daily list of issues that cause significant and frequent defects;
2. systematization of them according to their degree of importance for quality;
3. determination of corrective actions;
4. involvement of personnel employed at the site.

The "continuous quality improvement phase" helped overcome the contradiction between quality costs and achieving production efficiency. Consumers began receiving high-quality goods at an affordable price, bringing the idea of a "consumer society" closer to reality. From the producer's perspective, an ideal situation emerged. However, the assessment of the situation was one-sided, from the consumer's perspective only; quality parameters were not determined by the consumer, the target market.

Quality was standardized within the manufacturer's standards and, naturally, primarily

reflected its own interests. Consumers were left with a choice: to purchase a product of a certain quality or not. This again led to production overheating and increased costs, as miscalculations in consumer needs were common. A high-quality product (according to the manufacturer) that was affordable failed to meet the necessary consumer demand.

This new form of contradiction had to be resolved with consideration for the consumer's interests. The "continuous quality improvement phase" gave way to the "quality planning phase." The work of G. Taguchi is considered the beginning of this new phase. He introduced the concept of the "loss function" into quality management theory and developed a modern methodology for planning industrial experiments. Taguchi's research aimed to overcome the contradiction between quality assurance and production efficiency in its existing forms. The concept of quality planning was founded on four new ideas, namely:

- the conclusion that product defects are mainly due to poor quality actions at the design stage;
- A conclusion was reached regarding the need to focus core products not on full-scale testing of product models, but on mathematical modeling of both the products and their production process. This was expected to promptly identify and eliminate the causes of increased defects. It was proposed to bring design and technological processes under control before actual production;
- the idea that the concept of "zero defects" should be replaced by the idea of "satisfied customers";
- High quality of goods should be emphasized by an acceptable price and constant price reduction, thereby ensuring a stable market demand for quality goods.

A new stage in the development of quality management has overcome the fundamental contradiction between quality and production efficiency, but not the contradiction itself. Currently, another "ecological" form is emerging. Incorporating environmental friendliness into product quality specifications requires significant investment. The uniqueness of the current stage of quality management lies in the fact that enterprises are practicing all known formulas. B.S. Aleshin, reflecting this unusual way of coexisting between history and modernity, constructed the "Quality Tower." It is of both theoretical and practical interest (Figure 6). In the 1970s, A. Feigenbaum summarized the accumulated intellectual and practical experience in developing the problem of economic quality management and laid the foundation for what is now known as TQC (Total Quality Center).

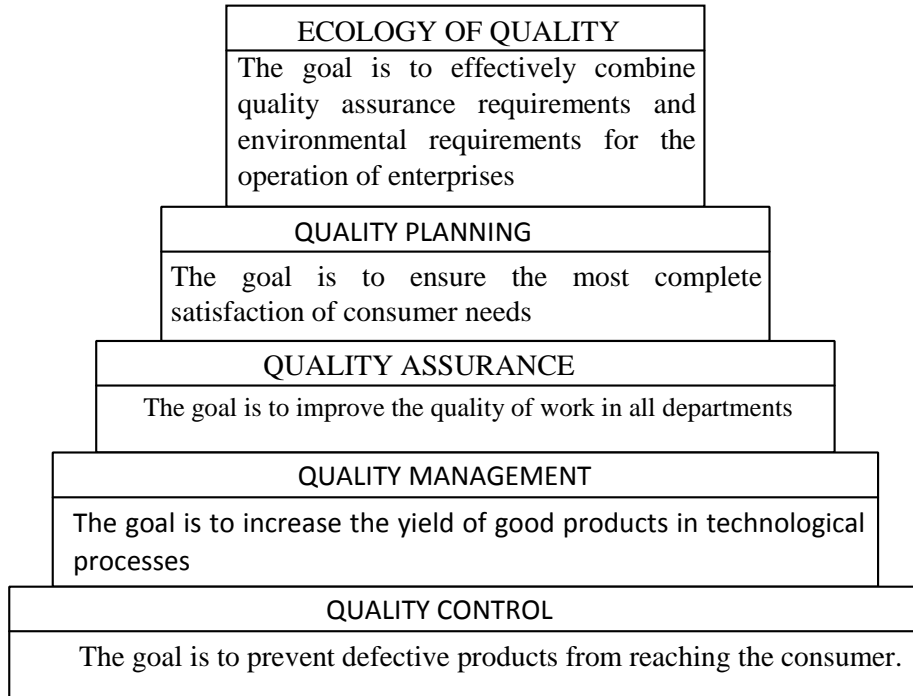
Essentially, TQC – Total Quality Center – is not a quality management system, but a system of sufficient conditions for a quality process. Development logically led to the development of

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TQC. All previous steps toward quality management, despite their progressive nature, were monotonous. They tied the solution to the problem of economic quality management to a specific fragment or fragments of the process. Thus, improving quality

management bypassed the essence of the production process – its unity and the systemic nature of its unity as specifically structured connections and dependencies.



**Figure 7. "Quality Tower" by B.S. Aleshin**

E. Deming, K. Ishikawa, F. Crosby, and A. Feyegenbaum came closest to understanding a quality system as a reflection of a production system. The following conditions can be considered the main conditions of TQC:

- Ensuring total participation of all employees in solving the quality problem;
- awareness of the total responsibility for quality of all participants in the process, understanding that no specialized unit (quality control, quality management, etc.) is capable of coping with the task;
- Compliance with quality standards across all stages of the product's life cycle: from product concept development and marketing research to product and packaging disposal methods. Given increasing environmental requirements in some countries, such as Japan, product certification requires mandatory development of a recycling method for even the packaging;
- total improvement of knowledge and skills of performers and managers; regularity of specially organized forms of advanced training; planning of corresponding costs;
- Achieving a comprehensive understanding that quality work is achieved not so much by technology and equipment as by focusing on the

quality of employee motivation. This motivation should not be one-sided, focused solely on financial returns. Then it will be stable;

- Total structuring of activities, their differentiation into operations, interconnected technological processes, and transitions, with each process element clearly defined for its purpose by all performers. Studies on eliminating the causes of defects have shown that up to 90% of problems submitted for review are resolved, with 75% of these being resolved by controllers (direct performers and organizers) themselves;
  - totality in the consumer's understanding;
  - the consumer is not someone outside the production process, the consumer is each subsequent link in the production process itself - the "internal consumer", therefore, an awareness of responsibility to the consumer throughout the entire production cycle is required;
    - total cultivation of the special status of the consumer and his interest in the quality of the product;
    - continuous quality engineering;
    - understanding the importance of defect prevention and its economic advantages over defect elimination;

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- team spirit of all participants in the process; corporate culture;
- leading position in quality assurance activities, top management, understanding of quality as a business goal.

### Conclusion

In the 21st century, quality management relies on the reciprocity of total quality management (TQM) and quality system standards (ISO 8402; ISO 9000; ISO 9001). The main difference between quality system standards is that in many countries, including Russia, they have acquired state registration and are administratively enshrined. Therefore, clarity in the definition and content of the concept of "standard" is important. In the USSR and the Russian Federation, it was common practice to assign a "quality mark," officially certifying that a product meets certain agreed-upon parameters. A "standard" in Russia and most other countries is a set of strictly defined, often administratively defined, characteristics of products, services, and activities. Analogues of our "quality marks" are found in European countries, particularly in Sweden (TCO 92; TCO 95; MPR for monitors). The concept of a

"standard of technological modernity" (industrial standard) has been developed, and the Bologna Protocol is based on it. From a consumer perspective, the "standardized" concept of "standard" is not as relevant as it is for the manufacturer. The latter, taking advantage of the initial advantage, considers its own interests first. Hence the conventionality and relativity of any standard and "standard label" until the standard balances the mutual interests of both parties: the manufacturer of the product and its consumer. The most widespread quality system standard, ISO 9000, is built on the idea of a special organizational system. The basis of this idea is the thesis on the documentation of all processes related to production: the procurement of raw materials and components; the preparation of its organization; the delivery of products to the consumer; the provision of warranty support; the scientific and technical equipment of production; and human resources management. As a result, the concept of "quality" acquires new facets, expands, and the traditional understanding of quality is modified. The content of the concept of "quality" is loaded with knowledge corresponding to the changed situation. A classic example of the dialectic of concept development.

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Issue

Article



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## FEATURES OF THE STRUCTURE OF INDUSTRIAL PRODUCTION IN THE RUSSIAN ARCTIC FOR ITS EFFICIENCY

**Abstract:** In this article, the authors examine the systemic and emerging challenges, risks, and opportunities for economic development, including sustainable development, in the Russian Arctic. An analysis of the characteristics, trends, and prospects for industrial production in the Russian Arctic is provided, revealing the problems and specific features of its operation. single-industry towns. Installed readiness The Russian Arctic regions are working to overcome current economic instability from a labor market perspective. The problems and prospects for creating conditions for the integrated use of raw materials in Arctic regions are examined and substantiated. The conditions and prospects for shift work transformation as a means of changing migration trends and developing the Arctic labor market are identified.

**Key words:** current issues, investment projects, global recessions, geopolitical processes, problems of increased costs, socio-economic processes, Arctic zones, economy of the Arctic Zone of the Russian Federation regions.

**Language:** English

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### Introduction

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To establish such aspects and justify the tasks, the following facts are relevant: which We relied

on V their own research and the results of which are reflected in this article, namely:

Firstly, the results of the consideration of the global and national levels influences on prospects development regions Arctic Zone of the Russian

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Federation, which Confirmed the potential for economic and associated socioeconomic growth for the Arctic Zone of the Russian Federation regions, the development of industrial production, and the mitigation of risks to increasing the primary exports of extractive regions. It should be noted that the current consequences of the SVO in Ukraine have increased the risks of realizing these promising opportunities, but the "pivot to the East" and the implementation of Russia's full-scale national economic policy support the preservation of the established potential.

secondly, the established preservation of the strategic goals for the development of the Arctic, the implementation of which is ensured by the accelerated implementation of a mechanism for increasing investment activity in the Arctic Zone of the Russian Federation;

thirdly, clarification essence politicians and practices state and corporate governance during the COVID-19 pandemic in the regions of the Russian Arctic pointed to the primacy of environmental issues, social responsibility, conjugated questions Climate change. This is fully consistent with the latest global trends in accelerating the implementation by enterprises of strategies to ensure sustainable development factors in the regions where they operate, including greening production, adhering to ethical standards, promoting regional economic growth, and corporate social responsibility.

These facts confirm significance chosen ones us wide the context of the study of the development of the Russian Arctic not only from the standpoint of achieving the economic indicators of specific enterprises and target indicators for the development of the Arctic established at the regional and national levels, but it is precisely in the context of movement within the framework of a global strategy for the development of the oil and gas, mining, and metallurgical businesses, taking into account risks, possibilities, a also new roles V public stabilization in the context of the COVID-19 pandemic and growing geopolitical tensions.

This broad context naturally indicates the scale of the new tasks that must be taken into account, namely:

- on the one hand, updating the risks and opportunities for greening production and social responsibility for enterprises in the Arctic Zone of the Russian Federation;
- on the other hand, the supporting role of the state as a regulator conditions for development business initiatives private sector V the Arctic is intensifying possibilities development and influence business on socio-economic processes, but simultaneously forms restrictions development business, necessity provision complex measures security—epidemiological and environmental,
- on the third hand, the need to achieve

strategic development goals Arctic Zone of the Russian Federation, fixed V complex strategic indicators development of the Arctic Zone of the Russian Federation, including demographic ones, the probability of achieving which we justify as low (the main target indicators are reflected in the Arctic Zone Development Strategy, the Program of the Russian Federation "Socio-Economic Development of the Arctic Zone of the Russian Federation". With taking into account the above us was ahead to decide first, namely: to find out the conditions for sustainable development of the Russian Arctic:

to establish the specifics of the structure of industrial production in the Russian Arctic.

In quality separate territories, demanding special organizations and legal regulation of economic development, the Arctic has fully entered V sphere state interests Russia only V Soviet time. In the first years of the establishment of the new government, several trade expeditions were conducted across the Kara Sea, which gave a powerful impetus to the development of regular Arctic shipping and demonstrated the importance of the Northern Sea Route (NSR) for the formation and exploitation of the economic potential of Siberia and the Far East. To fulfill this task, the North Siberian State Joint-Stock Company of Transport and Industry—the Northern Sea Route Combine (Komseverput)—was established in 1928. Its functions included not only ensuring navigation along the NSR but also the industrial development of Arctic territories blank and alloy forests by Siberian rivers, export cargo (grain, oil, products of the hunting and fishing industries, etc.), construction sawmills factories, new river and sea ports.

An even greater contribution to the development of industry and infrastructure in the Arctic contributed the Main control Northern sea paths (Glavsevmorput, GUSMP). It should be noted that before the creation of this organization in 1932, there were heated debates in the USSR between supporters of the construction of the transpolar railway "Great Northern Route", which was supposed to united transport system, related with Trans-Siberian and Amur-Ussuri iron roads and including river paths messages Siberia, highways and railway branches providing access to mineral deposits and supporters focal character development natural resources Arctic on basis development SMP. End discussions was laid down in 1932 at the First All-Union Conference on the Development and Deployment of Productive Forces of the North, where "the Northern Sea Route was chosen as a strategic direction for the development of the Arctic."

With the creation of the Main Directorate of the Northern Sea Route (Glavsevmorput), the USSR created a multifunctional organization that simultaneously organized and implemented state plans aimed at the economic development of vast

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Arctic territories. As part of the GUSMP mobilization program, construction of new ports began (for example, Ust -Lensky was founded in 1933). port, subsequently became village Tiksi, for him appeared the port villages of Ambarchik, Pevek, Dikson, Provideniya), airports, land routes, radio- and hydrometeorological stations, naval and aviation defense bases; training of personnel in various Arctic specialties began; scientific expeditions were carried out. Cost state budget on ensuring the activities of the State Emergency Service of the Russian Federation only for first five-year plan his existence amounted to 922 million rub. In result such powerful support already during the first navigation, conducted in 1935 according to a unified plan, the volume of transportation by SMP compiled 585 thousand T, V that time how for preceding creation GUSMP Soviet period total volume transportation compiled total 545 thousand tons

In addition to the development of the NSR and the corresponding infrastructure, the tasks of the Main Directorate of the Northern Sea Route Also entered responsibilities conducting geological prospecting and other exploration work for the comprehensive study and subsequent development of the Arctic's natural resources. Thanks to the discovery of mineral deposits fossils, already V 1930s gg. Here were formed first "hotbeds" of industry: the Apatit mining and chemical trust (1929) and the mining and metallurgical plant Severonikel on Kola peninsula (1939); mines No. 1 And No. 2 Vorkutaugol plant (1931), mining oil and stone coal V swimming pools Ukhta and Pechora; Norilsk Copper-Nickel Plant on Taimyr (1935); enterprises for the development of coal, tin and gold deposits of the Kolyma -Indigirka edges and Chukotka.

### Main part

In the post-war years, industrial exploitation of previously existing resources began in the Arctic. And again, open deposits useful fossils, what until almost the end of the 20th century, this ensured the growth of industrialization in this macro-region. The most outstanding events were the discovery in the 1950s and 1960s of the Timan-Pechora and West Siberian oil and gas provinces, which formed the basis of the country's fuel mineral resource base (in the Tyumen region alone, 28 oil and 27 gas fields were discovered in the first half of the 1960s). And huge resources offshore gas Barents and Kara Seas in 1970s–1980s these and other discoveries contributed to the formation of an industrial economic model in the northern territories, in which the extraction of fuel and mineral resources occupied a dominant position. Large territorial production complexes created in the USSR (Murmansk, Timan-Pechora, North Yenisei, West Siberian TPK still represents today by yourself industrial frame Russian Arctic zones. According to the calculations of V. N. Leksin and B. N. Porfiriev,

“during the Soviet development of the Arctic, more than 80% of the resources used to one degree or another were created V the present time of its national wealth.

With the onset of perestroika, economic activity in the Arctic slowed significantly, and after the collapse of the USSR, a profound socioeconomic crisis began here, as throughout the post-Soviet space. The logistics system for the Arctic territories was effectively eliminated. Centralized budget financing was replaced in all areas by mixed funding, which, given the lack of companies' own funds, led to the curtailment of many production programs. The Arctic transportation system, which had always been supported by the state, began to crumble. states, which ultimately led to the loss of transport companies, the closure of ports, polar stations and civil aviation airfields, a reduction in the volume of repair work on various infrastructure facilities, etc. period market transformations (1990–1999 gg.) investments V the Arctic has shrunk by almost 5 times, and industrial volumes have decreased by more than third. Let's note the following feature: investment decline was more significant, how V average by country, a reduction in production - on the contrary (Figure 1), which is explained by the relative simplicity of the extractive industry economy. Like this thus, the Arctic regions became “a kind of buffer, mitigating the negative consequences of the decline in production in the country.”

In beginning 2000s gg. because of continuous and long-term growth world prices for oil and gold, the situation in the Russian Arctic, as in the country as a whole, it began to change radically. Infrastructure began to develop projects, get comfortable new deposits, But V The changes affected the regions with a raw materials export-oriented economic model to the greatest extent on oil- and gold mining. So, favorable situation on world energy market conditioned start active prey oil in Nenets autonomous district, as a result what economy region right up to offensive global financial crisis demonstrated outstanding performance growth: for 2000–2018, the volume of gross regional product the district grew more how V 8 once (medium annual pace growth GRP compiled about 17.6 %), production industrial products — 3.5 times, and investment inflows increased by 11.7 times. In the Chukotka Autonomous Okrug, for example, during this period, the development of large gold and silver deposits began, which by 2018 made it possible to increase production volumes comparison since 2005 in 5.9 times. Note that what's in other regions Arctic zones pace growth industrial production and investments did not exceed the Russian average. In subsequent years, the development of the Russian Arctic took place in conditions of instability. The global financial and economic crisis of 2018–2019, currency crisis 2021–2024 gg. brought to whole spectrum negative

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consequences for economy Russia: fall course ruble, height inflation (For example, V 2018 Inflation in the country exceeded 13%, and the core consumer price index was 113.6%), a reduction in gold and foreign

exchange reserves, and a large-scale capital outflow for line, decline practically in everyone industries economics, height unemployment, decline in real incomes of the population, etc.

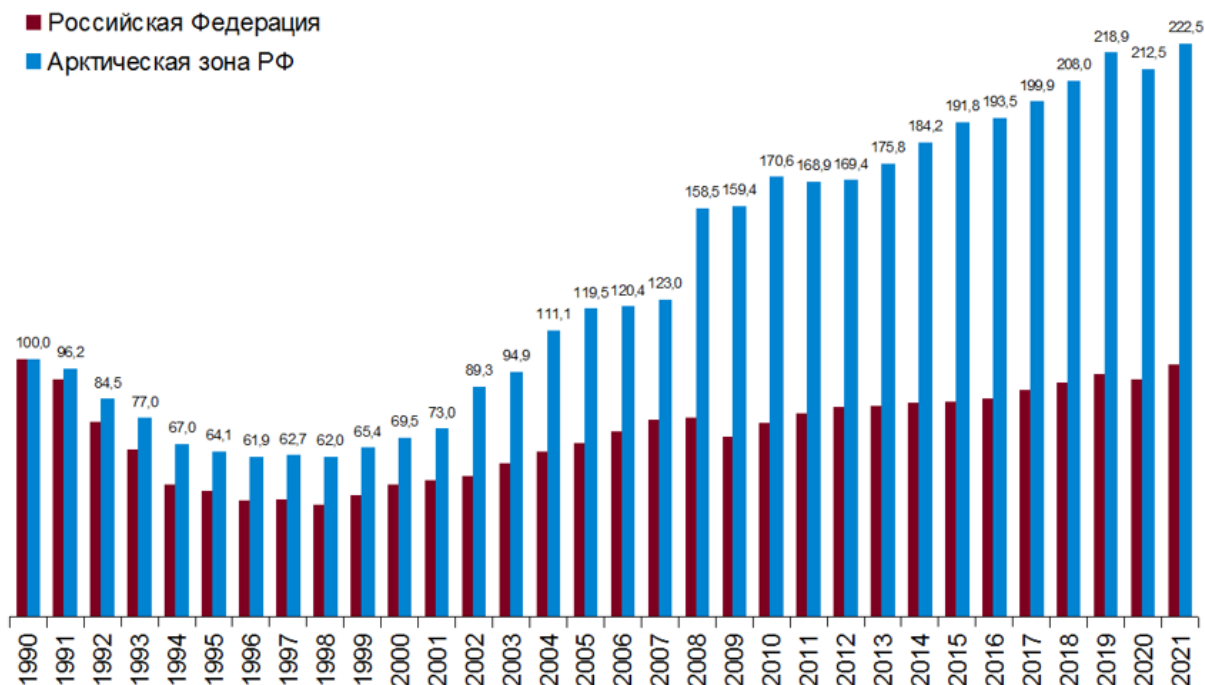


Рисунок 1. Динамика промышленного производства (1990 г. = 100 %).

The crisis has also affected most industries in the Arctic zone, but they, as before, have demonstrated greater resilience relative to national trends: during the 2018–2019 crisis, the industrial production index of all Arctic regions was higher than the same indicator for the country as a whole (90.7%), and the Nenets and Chukotka Autonomous Okrugs showed very significant growth (126.3 and 114.6%, respectively). According to renowned northern studies scholar V. S. Selin, this is due to special position industrial sectors Arctic zone in the economy of our country, which is predetermined by “the presence of long-term export contracts <...> and the relatively high investment attractiveness of individual industries and the Arctic regions as a whole.” Except Togo, exactly V this period were designated the first outlines of Russia's state policy in the Arctic, which envisage fundamental changes in the further development of Arctic territories, including "extension resource bases, providing needs countries in hydrocarbon resources and other types of strategic raw materials."

The results of our previous study of structural features development industry Arctic zones in confirming the resilience of Arctic industrial production to external shocks this period: despite enough the strong (much stronger than the national

average) structural fluctuations that caused the crises did not have any significant impact on the Arctic industry. Thus, calculations indices Kazintsa ( I K ) and Ryabtseva ( I R ), evaluating average deviation from each other of the specific weights of elements in the analyzed structure and the level of scale changes structures in time respectively, showed, what's in period first waves world crisis V added cost industrial production in the Arctic zone showed a "significant" deviation in the share ratios industrial species activities, V That time how, in the country as a whole, structural changes were “insignificant”, while there were no significant changes structures gross additional cost (VDS) neither in the first nor in the second case did it happen (Table 1). More strong fluctuations were observed in time crisis V investment sphere Arctic zones, however, this practically no way Not influenced on the structure of investments directed towards industrial production. Among the Arctic regions "significant" changes structures investments V this period were characteristic only for Republics Karelia for check significant influx of capital investment V development hydropower and Republics Sakha (Yakutia), where it continued financing project construction oil pipeline "Eastern Siberia - Pacific Ocean" (the project has been implemented since 2004).

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Overall, for 2003–2024, the structure of GVA of industrial production in the Arctic zones practically not has changed, although V her and there were “significant” structural fluctuations (Table 1). They were mainly were due to the transformation of the structure of the GVA of the Murmansk region (*I R GRP 2005–2016* = 0.377; *I K GRP 2005–2016* = 9,831), Chukotka Autonomous Okrug (*I R GRP 2005–2016* = 0.675; *I K GRP 2005–2016* = 24,252), Krasnoyarsk edges (*I R GRP 2005–2016* = 0.260; *I K GRP 2005–2016* = 12,452). Moreover, if the structure of the VAT of the Murmansk region has changed for check abbreviations production V processing sector (for 2005–2016 gg. weight structural shift amounted to -16.3 p. etc.), that on in Chukotka and Krasnoyarsk Krai, economic transformations were driven by the onset of more active subsoil use (the structural shift in mineral extraction in the regions amounted to +41.7 and +15.3 percentage points, respectively). It's worth noting that in the latter regions, the structure of investment directed to the industrial sector also demonstrated "significant" differences: V Krasnoyarsk edge share capital investments, directed V prey, increased with 6.9 to 15.5 % (+8.6 p. etc.), V Chukotka autonomous district - With 0.3 to 34.7 % (+34.4 p. p.). Promotion shares mining sectors V this the period was also observed in the Republic of

Yakutia (Sakha) (+11.6 percentage points), Murmansk region (+4.8 p. etc.), Republic Komi (+0.6 p. p.) and Nenets autonomous district (+0.5 p. etc.), what and determined positive dynamics shift by to this foreign trade activity in the Arctic zone as a whole (+7.9 percentage points). In turn, the negative shift in the manufacturing sector of the Arctic (-0.2 percentage points) was due to a decrease his specific weights V structure VAT of all arctic regions, for with the exception of the Komi Republic (+0.1 percentage points). It should be noted that in the country as a whole for these two types economic activities was noted negative dynamics (-1.9 and -1.5 percentage points, respectively). Similar calculations for 2018–2024 gg. showed, what V this in this period, a “significant” level of structural differences in the added value created by the industrial sector was characteristic only of the Murmansk region. (*I R GRP 2017–2020* = 0.487), where "strong" shift (*I K GRP 2017–2020* = 11,840) caused an increase shares processing industry (weight shift amounted to +23.1 p. p.) along with decrease specific weights the rest species industrial activities (V in particular, weight shift prey useful fossils amounted to -4.9 p.p). In the rest regions noticeable changes not happened, what and determined "short" level structural differences by Arctic zone as a whole (Table 2).

**Table 1. Coefficients structural shifts (*I K*) And differences structures (*I R*) added cost of industrial production in 2005–2024**

Subject	2005 G.	2007	2008	2009	2018 G.	2019 G.	2020 G.	2021 G.	2022 y.	2023 G.	2024 G.
TO previous year											
Russian Federation*	0.569	0.911	0.469	1,634	0.707	0.497	0.370	0.245	0.436	0.545	0.208
Arctic Russian Federation zone *	1,879	0.887	3,655	0.709	2,725	0.733	0.707	0.324	0.271	1,231	0.985
Russian Federation **	0.022	0.035	0.018	0.068	0.030	0.020	0.015	0.010	0.019	0.023	0.009
Arctic Russian Federation zone **	0.049	0.024	0.098	0.019	0.067	0.017	0.016	0.008	0.006	0.028	0.021
By 2005											
Russian Federation*	0.569	1,465	1,745	2,121	1,515	1,034	1,155	1,378	1,718	1,203	1,408
Arctic Russian Federation zone *	1,879	2,759	1,740	2,371	2,998	3,539	3,725	3,781	3,583	4,315	5,197
Russian Federation **	0.022	0.056	0.068	0.086	0.060	0.040	0.046	0.055	0.070	0.048	0.056
Arctic Russian Federation zone **	0.049	0.073	0.044	0.061	0.072	0.085	0.090	0.092	0.087	0.102	0.120

**Table 2. Values coefficients structural shifts (*I K*) And differences structures (*I R*) added value of industrial production in 2018–2024.**

Subject	2018	2022	2024	2018	2022	2024
		To previous year			To 2017 G.	

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Index Kazintsa (IK)						
Russian Federation	0.935	0.361	1,508	0.935	0.822	0.849
Arctic Russian Federation zone	0.797	0.556	1,639	0.797	1,272	1,811
Index Ryabtseva (IR)						
Russian Federation	0.043	0.016	0.072	0.043	0.038	0.041
Arctic Russian Federation zone	0.021	0.014	0.042	0.021	0.033	0.048

Like this in this way, obviously, what prey and processing useful fossil fuels have been and remain the dominant and most attractive sector of the Arctic zone economy for investment, demonstrating great sustainability to external shocks, happening V our country with 1990s years. To further increase investment activity in the Arctic in 2024, accepted law, providing for various preferences — tax and administrative - for investment projects implemented here, first of all total oil and gas<sup>28</sup>. In particular, by law provided transition to taxation of additional income<sup>29</sup> from the extraction of hydrocarbon raw materials in the north of Yakutia, the Taimyr Peninsula and Chukotka, as well as a 12-year exemption from paying the mineral extraction tax (under the effect of these benefits get there three Yamal project JSC NOVATEK — "Arctic LNG -1, Arctic SPG-2 and "Obsky" LNG") and provision tax deduction by it is for the Vankor cluster (Krasnoyarsk Krai), which is being developed by Rosneft Oil Company. It is worth noting that the Yamal projects are currently the most promising for the development of the Arctic zone. More than 40 projects, approved as priorities by the State Commission for Arctic Development, are already being implemented or are planned for implementation here, namely:

within the framework of the Yamal megaproject (PJSC Gazprom), the Bovanenkovo and Kharasavey oil and gas condensate fields are being developed;

Within the framework of the Yamal LNG project (OAO NOVATEK), a plant was built for production liquefied natural gas (LNG), international Sabbeta Airport and Seaport;

- joint efforts of the Government of the Russian Federation, the Government of the Yamalo-Nenets autonomous districts, PJSC Gazprom, JSC Russian Railways and JSC the development Corporation began construction of the Northern Latitudinal Passage (NLP) railway line, but in November 2024 it was suspended due to the impossibility of implementing concession agreements;

- As part of the Arctic LNG 2 project (NOVATEK OJSC), a plant is being built for the production, storage and shipment of LNG and stable gas condensate (SGC), consisting out of three technological lines, built Utrenny Airport, construction of a terminal of the same name is planned, etc.

Such large-scale investment projects do not have immediate economic viability, so the initiative and leading coordinating role in their implementation should undoubtedly belong to the state. However, as has been rightly noted, in A. Kryukov and I.M. IN. Kryukov, V basis economy Arctic and the industrial development of its mineral resource base must be based on the cooperation of various participants in the economic activity process, including foreign ones. In that same time, no follows forget, what the possibilities of cooperation with foreign companies depend not so much on internal factors, how many from geopolitical and geoeconomic environment. For example, in 1990s — beginning 2000s gg. American companies accepted the most active participation V Russian oil and gas projects, equipping their not only investments, but also advanced management and the latest technologies. Participation in the development of Russian subsoil resources was in fact a condition for ensuring energy security for USA Togo period — largest importer energy resources. However, the development of shale oil production technologies (the "shale revolution" V 2018 g.) forced American companies look for alternative markets sales, from which the most promising is European, but exit on which was possible only for check restrictions presence their Russian companies.

In the end this determined shift strategic priorities USA V sphere provision energy security — from cooperation with Russia to increase tensions using the events in Ukraine in 2014 as a formal occasion for introduction sanctions. Because of sanctions foreign oil and gas companies were forced to abandon joint projects in the Arctic or significantly reduce their participation in their implementation. For example, the American company ExxonMobil came out from joint with Rosneft project V Karsky sea, what, however, subsequently brought to her huge losses (losses companies in 2021 alone amounted to \$1 billion). New phase total economic restrictions by political motives for Russia began V 2022 G., but decrease volumes export V the unfriendly countries were offset by a significant rise in prices on global energy markets. Despite the existing tensions, international cooperation in the Arctic continues. In recent years, the Russian-Chinese partnership has particularly increased, as evidenced by the active implementation Yamal LNG project together with China National Petroleum Corporation and the Silk Road Fund Co Ltd. This suggests that in

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the medium term, there will be no objective reasons for a significant decline in production in the Arctic, and investment activity will remain at its current level.

### Conclusion

The specific structure of industrial production in the Russian Arctic has been established. The results of the study indicate significant differences in the dynamics of the structural features of industrial development in the Arctic Zone regions of the Russian Federation in the periods examined. Moreover, in the period 2017–2020 gg., characterized by conducting active Arctic policies, a “significant” level of structural differences in the added value created industrial sector, was inherent only Murmansk region, where a “strong” shift was caused by an increase in the share of the manufacturing industry (the shift amounted to +23.1 percentage points) along with a decrease in the share of the rest species industrial activities (V in particular, weight shift mineral extraction was -4.9 percentage points). In the remaining regions, there were no noticeable changes, which determined the “low” level of structural differences. By Arctic zone V in general. Like this in this way, obviously, what extraction and processing useful fossils was and remains dominant and the most attractive sector of the Arctic zone

economy for investment, which demonstrates big stability to external shocks, happening in our country since the 1990s.

For subsequent increases investment activities V Arctic V 2020 G. was accepted law, which provides for various tax and administrative preferences for investment projects implemented here, before total oil and gas. In in many ways this initiated large-scale investment projects V Russian Arctic on basis cooperatives various participants process economic activities, V volume number at active the role of the state and foreign companies (the latter factor created certain risks to the sustainable development of industrial production in the Arctic).

A new phase of total economic restrictions for political reasons for Russia began V 2022 G., however decrease volumes export V unfriendly countries was compensated significant growth Global energy prices. Despite the current tensions, international cooperation in the Arctic continues. In recent years, the Russian-Chinese partnership has grown significantly, as evidenced by the active implementation of the Yamal LNG project in partnership with the China National Petroleum Corporation and the Silk Road Fund Co Ltd.

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Article



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## FEATURES OF THE SUBJECTIVE FACTOR AS HUMAN IN PHILOSOPHICAL HUMANISM DIVIDED BY THE MARKET

**Abstract:** In this article, the authors came to the conclusion that an integrated approach to managing the quality of materials and products remains a mystery. The reason is simple: most authors merely planned such research but never implemented it due to its complexity. Currently, this problem is solvable because it is now manageable and a step toward philosophical closure is possible. It may not all work out, but we decided to take the risk.

**Key words:** integrated approach, quality management, philosophical shore, materials, finished products, hedgehog in the fog, comprehensive research, worldview, methodology.

**Language:** English

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### Introduction

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The most obvious illustration of this is the fairly frequent reports of reputable companies like Ford, Toyota, and others recalling their products due to the discovery of a technical defect in just one component. It would seem simpler and cheaper to have service

centers replace the defective components. In reality, these companies are acting wisely, given the competitive market and their brand's position within it.

In a complex system, a design or manufacturing defect in one component inevitably impacts the entire system, so replacing just one component or unit is not enough. The entire product must be thoroughly tested

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to ensure the manufacturer's warranties meet the stated standards.

ISO 9000 and its modifications, ISO 9000-2000, do not guarantee product quality. They are designed to ensure production conditions that allow for the "most probable" quality reserve of productive activities. Another weakness of these systems is that they explain "what should be done," but they offer virtually no explanation of "how to do it."

ISO 9000 proponents assert that "What should be done?" is a standard question and subject to standardization. The question of "How should it be done?", however, is determined by the specific production conditions of each individual case. Therefore, the "how" must be determined by manufacturers on-site. With the introduction of ISO 9000-2000, the concept of "QS" (quality system) became obsolete, giving way to QMS, as defined by the International Organization for Standardization, namely:

- continuous monitoring of consumer interests;
- systemic leadership of the manager, ensuring unity of goals and directions of the company's activities, as well as a stable internal environment based on cooperation and comprehensive motivation;
- maximum involvement of employees' abilities, knowledge and skills in the production process;
- use of a process approach in managing activities and resources;
- the need for a systematic approach to management;
- striving for continuous improvement of the company's activities;
- making decisions only after taking into account a comprehensive analysis of the entire possible volume of "information for reflection";
- development of mutually beneficial relationships with suppliers.

From now on, international quality standards require that the "quality seal" be awarded not to products, but to the method of their production. "Quality" is the conformity of the organization and management of an enterprise's activities with the quality management system (QMS). The modern history of the economic aspect of quality management reveals a highly instructive interrelationship between specific scientific, technical, and philosophical approaches to solving socially relevant problems of production.

Philosophical theories on quality have undoubtedly always influenced economic understanding. K. Marx began with G. Gogol, completed a course in economic analysis, and founded the historical-materialist view of social development. He then returned to economic analysis

and left an impressive mark on social philosophy and economic theory. Something similar can be said about the creative paths of A. Proudhon and J. S. Mill.

### Main part

History is repeating itself at a new stage. Thinking economists are moving from practice to philosophy, using philosophical knowledge and method to develop a deeper understanding of the subject of their research. All modern concepts of quality management owe no less to philosophy than to economic theory. Philosophical analysis of the social process has led to the conclusion about the increasing role of the "subjective factor." In philosophical humanism, the "human factor" has always been considered the decisive factor in history. This was the view of leading thinkers of Antiquity, the Renaissance, and the Enlightenment. But the "human factor" and the "subjective factor," contrary to the widespread practice of conflating them to the point of equating them, are far from the same thing.

The "human factor" is a concept that characterizes the entire complex of human capabilities. It expresses the duality of our nature—the combination of the biological and the social; organization and personality; physics, physiology, psychology, intellect, behavior, and activity. As advertising likes to portray it: "all in one" or "in a package." The "human factor" is essentially the person themselves, in the context of their ability to realize their full potential. The intelligent, educated Oblomov, reclining on the couch, as well as the active Stolz, are examples of contrasts in the context of the term "human factor."

The concept of "human factor" does not express a preference for either the biological or the social. I think that's correct. To define "humanity in action"—no matter what kind: Oblomov, rolling over with a newspaper in his hand, or the active, enterprising Stolz—a synthetic concept is necessary.

It has been proposed to call the abstract individual in a state of abstract activity the "human factor," thus incorporating the abstract individual into the abstract historical process. In theory, the key is to find a conceptual equivalent to describe the object of study. In our case, the object of study is social progress. The task is to understand the factors that set history in motion and give it progressiveness. The logic of the argument is straightforward. Human history is either an objectification outside of human substance (an objective idea, the Universal Mind, the Universal Will, God, etc.), or a product of the activity of people themselves: their minds, feelings, will, and practical activities.

The problem can be simplified because both options involve human activity, the only difference being that in the first case, history is made by humans according to a program developed outside of human

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life, while in the second, humans chart a historical path guided by their own ideas and motives. In history, no matter how you look at it, human participation is inescapable. History is "tied" to humans just as humans are "tied" to history.

This is when it becomes relevant to "disassemble" the "human factor" into its component qualities, to separate what exists within the human being only in unity. To divide it conditionally, depending on the contribution to historical progress of the two "halves" of the human being: biological and social.

The concept of the "subjective factor" emerges. Its components—the "individual" form of the subjective factor and the "collective form of the subjective factor." Politicians who emphasize the historical nature of human activity note the collective nature of this activity. In relation to production and production quality, the "subjective factor" is concretized to the level of the "performer," "manager," and "team." To those who object, believing that we have narrowed our understanding of man within the structure of the economic form of his activity to the dimensions of a "subjective factor," ignoring his biological status, which is also present in production and influences its quality, we answer: no, modern production—that is, knowledge-intensive, high-tech production, based on the power of knowledge, not muscle; on responsibility and organization—depends precisely on the "subjective factor" of man.

The logic of the development of economic quality management convincingly demonstrates that total quality management, toward which everything has been moving, is possible with the complete mobilization of human subjective forces: knowledge, convictions, desires, will, interests, upbringing, and education, concentrated in a professional form of culture. The classics of economic quality management theory, from Taylor to Crosby and Freigenbaum, were seriously concerned with mobilizing the motivation of production participants, correctly believing that it was the lifeblood of quality work. But they were realists, and realistic experience told them: don't overemphasize the moral factor, no matter how significant it may be. Quality is created by free will, but it is controlled administratively and legally. The legal aspect of achieving TQC objectives is highly significant and requires constant attention. Is it possible to imagine a situation where quality is achieved solely through the self-organization of the manufacturer, thanks to team spirit, the social dedication of each and every one, and a high level of professional qualifications? The answer is up to the reader, but the hint is obvious: it is not impossible. So what's the deal? Is legal regulation optional, or superfluous? No. Experimental fantasy ignores the purpose of production, which, by the way, is very clearly defined in TQC. The purpose of production is

not product quality (that's a misleading goal, a self-deception). The purpose of production is not production quality (that's also misleading). The purpose of production is customer satisfaction with quality!

Even in a subsistence economy, where the producer and consumer are one and the same, production does not exist in isolation and for its own sake. As for the commodity form of production, the consumer is the primary figure.

Therefore, understanding quality is not the sole responsibility of the manufacturer. It is formed through the mutual interest of the manufacturer and consumer in the properties of the product (and its price) intended for sale.

Manufacturers have one small advantage in their relationships with consumers. It's difficult to exploit, but the opportunity is quite real. Manufacturers of technically complex products that require knowledge and skill to operate can try to shape consumer preferences through education and advertising. While this is certainly a costly mechanism, it's unlikely to win the fierce competition in the market any other way.

The interests of producers and consumers don't always coincide, not immediately and not for long, for they are the interests of productive entities separated by the market barricade. The market is their ring. The producer is interested in profit. The consumer is interested in preserving their finances. One strives to fill the cash register, the other to keep his wallet open. At the same time, both view quality as a reward for victory in battle. Legal regulation helps to civilize the duel and prevent fraud. The state cannot remain aloof from events unfolding in the market, for economics gives birth to politics; market movements determine the movements of large social groups. And if class struggle has lost its relevance today, tomorrow the place of the proletariat and peasants will be taken by dissatisfied consumers—some with quality, some with price—whose numbers will be no less numerous, and their desire to win even greater. The state is unable to manage the fate of each individual citizen, and it's hardly advisable. But the fate of social groups should be a special focus for any state, and always—unless, of course, the state itself wants to avoid being the focus of that core segment of society that, in times of peace, is called the electorate, and in times of trouble, the people, when quality is, first and foremost, a matter of policy, and, secondly, a product of the intricacies of market relations. Advocates of absolute market liberalization are "scholars" who provoke tension in social relations and "subverters" of national security. All modern social experience confirms that participation in quality management is a function of the state and even interstate cooperation. The Bologna Agreement serves as an example. It was drafted by a social movement, but, to give it real power as a regulator of

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educational quality, it was legitimized by collective political will. "The state's attention should be focused on:

- intensification of the import substitution process by improving the quality of domestic products;

- increasing the production potential of enterprises, creating progressive technologies and new types of high-quality products, so that as the domestic market develops and integrates into the global economy, the share of Russian products in the domestic and foreign markets will expand."

Updating the state's legal resources across the entire vertical of political power in the area of quality management will undoubtedly contribute to achieving the following key results, namely:

- Ensuring a high standard of living for the population, without which we will definitely not escape the demographic collapse. To be a leader in terms of more than just absolute indicators—a reserve fund, early repayment of a loan, partial write-offs even for those unable to repay in the foreseeable future—we must improve the quality of social services and products;

- strengthening security, territorial integrity, and preventing military aggression;

- strengthening Russia's position in international relations and greater compliance in economic partnerships;

- creating an image of Russia as a truly great, and not just a huge country;

- development of environmentally sound policies and economic practices.

Integrating the analysis of the actual and consequential effects of the state's intensified behavior in the quality marketplace, we note the most important point. This is the only effective way to ensure national security—that is, what ranks above all else in the state's priorities, since achieving all other objectives is only possible within the framework of national sovereignty. A systems approach to addressing quality issues in the USSR began to emerge in the 1950s. The Saratov system of defect-free manufacturing, the NORM, KANARSPI, and KS UKP systems, were quite successful examples of the socialist implementation of the need for production quality management. In the mid-1960s, the Lviv initiative, recognized as the "defect-free labor system" (DLS), gained widespread acceptance in domestic industry. The highest achievement of the "struggle for quality" was, arguably, the creation of the Integrated Product Quality Management System (KS UPK), based on a combination of a serious experiment (VNIIS) and a comprehensive review of practical work to improve quality at leading Lviv enterprises. This system was the first to use enterprise standards as the organizational and technical basis for product quality

management. Unfortunately, the effectiveness of applying best practices was low. By the early 1990s, only 10% of civilian technical products met the best foreign standards.

The state has extensive and multifaceted influence over production quality and product quality. The legal mechanism within the state's control can directly and indirectly influence improvements in the quality of the production process. Tax policy can stimulate high-quality production and discourage low-quality production. By protecting consumers from low-quality products, the state actively prevents unscrupulous manufacturers from entering the market. The foundation of legal support for production quality in our country is the Constitution of the Russian Federation. The 1993 Constitution was drafted during the height of the redistribution of property, and therefore its drafters ensured that the provisions (articles) of the supreme law were as abstract and declarative as possible. However, even in its abstract form, the Constitution of the Russian Federation did not ignore the rights of Russian citizens to quality goods. The relevant articles were formulated to reflect the time of its birth; nevertheless, in this form, some clarity is present. Article 41 of the Constitution of the Russian Federation states: "Everyone has the right to health protection." Of course, it would have been better to add "and a healthy lifestyle." Or even better: "the right to health protection and a healthy lifestyle of Russian citizens is guaranteed by the state." However, this option would have harmed the "legitimate" interests of future oligarchs, so we settled on what we have. This article doesn't seem to have a direct connection to legal quality management. It has an indirect connection, mediated by the protection of the country's population's right to health. Products for immediate and long-term consumption must meet the required quality standards to avoid harm to health. Otherwise, severe legal and financial sanctions are imposed on the manufacturer and seller. To ensure the protection of the right to health protection, all possible tolerances (MPCs), sanitary and hygienic requirements, state standards for products and services, and industry standards within the company were developed, which also included the company's own "standards" (TU). Management structures were created, or modernized, those inherited from the socialist era.

A modern quality management structure has been built on the foundation of citizens' rights to quality goods, as proclaimed by the Constitution. The state does not interfere with production quality management technology. Its activities are aimed at controlling production methods to prevent harm to the health of citizens (and non-citizens) and damage to the natural environment where people live, as well as preventing the appearance of dangerous, low-quality goods on the market, consumer fraud, and

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legally regulating relations between sellers (producers) and buyers in situations that require such measures. The market is designed for environmental action within the framework of normalized relations. Prices, priorities, supply, demand, and advertising are all market mechanisms as long as they remain within

the bounds of economic relations that are ethical for these same markets. A diagram of the legal framework for quality management is shown in Figure 1.



**Figure 1. Scheme of legal support for quality management**

Many violations of economic relations inevitably lead to the intervention of law enforcement agencies, designed to protect the affected party within the framework of current legislation. Any act of "purchase and sale" is a subordinate act, and the legislator or the executor is obligated to participate in the process. Otherwise, the rights of the owner will be harmed, and the violator of market relations under their jurisdiction will not be punished. The situation with legal support for quality management is complex. The market has separated the producer and the consumer, squeezing intermediaries (and more than one) between them. Therefore, it is necessary to differentiate the concepts of "quality of production"; "quality of the manufactured product"; and "quality of the product purchased" by the consumer.

An intermediary—a "speculator"—is quite capable of violating technical specifications during delivery, storage, and preparation of goods for sale. This will result in changes in the product's quality. Consumer protection laws outline all possible situations and the seller's liability.

Consumer protection legislation emerged in European countries and North America long ago and

has been refined over centuries. In its current state, it is quite effective, forcing violators to comply with it to avoid serious financial penalties from deadly negative advertising.

Russian experience in legal regulation of relations in this area is significantly poorer, and, moreover, it developed under the specific conditions of the socialist market.

The Russian Federation Law "On the Protection of Consumer Rights" was adopted in 1992 and has been amended several times (January 9, 1996; December 17, 1999; December 30, 2001) to make it more relevant to the evolving economic situation. The party whose interests this law protects is the consumer who has purchased a product, or more precisely, a product that does not meet all consumer and technical specifications. The object of legal relations is the quality of the product.

Thus, the Law has a dual effect: it protects consumers from low-quality products and shields the market from low-quality goods. Manufacturers (and intermediaries) received a legal signal about the need to offer quality products for sale on the market. Legislators also paid less attention to the increased

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activity of several federal agencies: those responsible for standardization, metrology and certification, sanitary and epidemiological surveillance, and environmental and natural resource protection. The categorical apparatus of the Consumer Protection Law consists of the following concepts: "consumer," "manufacturer," "seller," "standard," "product defect," "significant product defect," and "product safety." As we can see, the categorical apparatus of the Law makes no mention of "quality," despite the fact that it protects consumers from low-quality goods and, through its double clause, seeks to protect the market from defective and counterfeit products. Those who developed the Law's ideology acted logically. They dissected the concept of "product quality" into its constituent parts: "product manufacturer," "contractor," "seller," "standard," and "consumer," constructing a system from these components, with "standard" as the defining factor. The relationship between consumer and producer is regulated in the Law through the concept of "standard," which is subject to change within a specific system of units. "Standards" are understood to exist at two levels: a universal, state-controlled level, and an industry-specific, private level, established independently by producers and having undergone the necessary certification procedures. According to the logic of subordination relationships, the requirements of a higher organizational level serve as benchmarks for the rest of the "pyramid." In the event of a conflict, priority goes to the one who (or what) is higher, i.e., more important. Introducing the concept of "quality (of a product)" into the Law's conceptual apparatus was unnecessary. It was successfully replaced with the more verifiable concept of "standard," reminding all market participants, from the manufacturer and contractor to the consumer, who is boss.

From a philosophical and economic perspective, the law's main flaw is its localized nature. The state remains hypnotized by the effectiveness of American-model economic liberalism, overly delicate in expressing its economic interests, forgetting that these interests are not those of the state administration, but of the Russian people. The state, especially the executive branch as the top manager, should pursue the interests of the people instead of fearing misunderstanding by foreign partners. Foreign partners, when necessary, tighten the screws. The state should implement a more comprehensive economic policy regarding quality; then its impact will be more significant, and private, judicial practice, which has considered private claims against a seller for defective goods, will be sharply reduced. A private lawsuit for a manufacturer of a defective product and the wholesaler who controls it in the market is as insignificant as a mosquito squeak. The market must be protected from low-quality goods, as Henry Ford Sr. did when he assigned the

"pre-rejection phase" to a specialized facility, removing quality control from the core production process. As a result, low-quality components stopped entering the assembly line. The state shouldn't strive to be a market participant; it should be above the market, incentivizing producers of high-quality goods and preventing low-quality goods from entering the market. In the former case, economic incentives are required; in the latter, administrative and criminal sanctions. Currently, the state is approaching quality management issues with a half-turn, modestly distancing itself. It is necessary to turn its attention to them and tackle quality head-on, rolling up its sleeves. Only then will the time come when ministers will no longer be able to use their authority to postpone the implementation of presidential directives for years.

The modern economy is increasingly described as "smart," "efficient," and innovative. This is a more understandable definition than "post-industrial," but whether it adequately characterizes its state is a pressing question. Character manifests itself in development and determines economic policy planning. The recent crisis clearly demonstrates this:

firstly, that planning is not only compatible with the market economy, but is necessary to prevent and mitigate the negative phenomena generated by undivided economic freedom bordering on arbitrariness;

Secondly, the ongoing crisis has revealed the limitations of the desire to present the existing economy as "smart." A smart economy must exist; it cannot be built with intelligence alone.

The central figure in commodity production is not finance, as many politicians, including Russian ones, believe. Money is merely the equivalent of a commodity and will always remain so. A commodity, however, creates labor, which is itself a commodity. Consequently, the movement of production is rooted in the collective expression of human activity, primarily the work of consciousness and its potential.

The mind is not equivalent to consciousness. The mind is a tool for constructing consciousness. "An intelligent consciousness is knowledgeable, cunning, flexible—but nothing more. The mind, like any force, needs a vector to guide the application of the mind, to construct consciousness. The role of the vector is played by values, namely:

- professional;
- national;
- universal.

Consciousness fuses them into a unique, personal expression. A "smart" economy is worthless unless it is grounded in values. The most important aspect of a person—the decisive factor in social reproduction—is their morality. Not everyone is cut out to be a top manager, a chief designer, or a political VIP. Some must work with their brains, others with their hands. Trouble occurs when the "brains" and

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"hands" become sticky and are contaminated by things they shouldn't be. Immorality undermines the foundations of professional culture and professional activity, transforming their creative power into its opposite—destroying what has been created. A "smart" economy could become a terrifying reality if it continues to be immoral. We are not utopians or idealists; we understand the concrete, historical position of morality. Today, we are not talking about equality and brotherhood, but exclusively about conscience and responsibility. The economy can and should be, first and foremost, responsible and "conscientious," and only then "intelligent." So far, free competition is subordinated to calculations of how best to deceive partners, consumers, competitors, and the state; it is built on corruption, lobbying, and manipulation of media outlets, all of which are natural to market development. Cyclical economic crises will be compounded by unnatural, systemic ones. The system-forming factor of the latter is the unscrupulousness and irresponsibility of the largest manufacturers. The classic "greed ruined the sucker" seems childish compared to what American and transnational companies have done. And what should the state, called upon to be the social guarantor in a democratic society and the protector of citizens' rights, have done? It was forced to "add fuel to the fire"—subsidizing businesses bankrupted by fraud—in order to avoid economic and social collapse. True, European leaders simultaneously dispatched "firefighters" to the "sources of the fire," making the future operations of offending firms contingent on moral principles, and introducing moral and financial regulations designed to sober up the insolent businessmen. It's symptomatic: it was France and Germany—the initiators of strict moral and financial monitoring—that first felt signs of economic recovery. Greater corruption and less inclined to moral dictates, England and the United States, continue to reap the benefits of their magnates' freedom from conscience and social responsibility. Russia, as expected, missed a real opportunity to use the crisis to galvanize national industry. First, they injected funds into the banks, then took very vague steps to awaken the conscience and responsibility of bankers. As if forgetting that a banker with and without liquidity are two very different things. There was a chance, through national funds, to force banks to act as a financial lever for boosting industrial production, science, and technical creativity in the country. They shouldn't have worshiped the banks; they should have educated them with the ruble (currency). It's naive to hope that, having had their fill, the "wolves" will, instead of continuing their robberies, begin to serve their savior. Ultimately, the currency earned on the global market has flowed back, and we have to "start all over again." How many more opportunities do we have to step on the same rake, standing in the same

corner? There's certainly a margin of safety. The situation can be changed by combining intelligence—we have plenty of that—and conscience—the deficit of which has grown surprisingly quickly over the years of democratic reforms. The reason for this state of affairs should be sought in economic chaos and the disproportionate growth of the administrative apparatus. It's strange: the more officials there are, the less effective the administration—the dynamics are obvious, but the course remains the same. Our lagging behind others is natural. In a historical "peleton," subjects have their place, and they change places—that's how it should be. It's a tragedy for national development to fall behind the times, to lose our place in the pack. We were eighth in the G8, but we were still in the G8. Time will tell what we'll be like in the G20 in 5-10 years. Economically, we're no longer eighth, but we're still holding on to a place in the top ten. Yet, most Russians still remember the time when the USSR ranked second in the global economic rankings. History doesn't return, but that's no reason to forget it. Whatever the continuation of history, it is its continuation. By abandoning national traditions, you can end up with nothing. Not only is World War II being falsified, but the country's scientific, technological, and industrial achievements are being distorted and hushed up. Faith in national strength and the people's ability to regain lost ground is being undermined. The current situation is extremely complex, yet it is no more critical than those turning points in Russian history that seemed hopeless: the devastation following the civil war, the loss of the most developed territories in the early years of the Great Patriotic War, compounded by the colossal loss of life among the working-age population and specialists. Back then, the finances available as seed capital today did not exist. Therefore, the solution to the problem of creating a modern economy rests technically on the need to develop an effective management system and oversight of the implementation of adopted programs. A program has replaced a plan. And what has replaced responsibility for plan failure? The lack of an effective oversight system is the most serious flaw in current economic policy, which allows amateurs to lead while feeling like they have something to do. Economic revival is impossible under the current conditions of professional irresponsibility. Only professionalism and the associated responsibility for the cause one serves can achieve the necessary transition to a new economic quality, building a lean and flexible economy based on the comprehensive development of science, the stimulation of technological progress, and the improvement of professional training. The economy of the 21st century can be called by many names. The essence of the definition lies not in the name, but in the content of the concept. The diversification of names demonstrates the

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multifaceted nature of the modern economy. Methodologically, it is important to identify the leading element or elements within this multitude. Undoubtedly, the quality of the economy is among the obvious contenders. The presence of quality in the characteristics of any phenomenon is invariant, as quality combines its most essential attributes. At the same time, it must be clearly understood that quality itself changes—it is historically specific. Accordingly, the concept of quality changes—and must change. From the first attempts by A. Fayol, G. Ford, and F. Taylor to control product quality, which were crowned with significant success, it became theoretically clear: the future quality of the economy lies in activity. The determining factor for the economy will not so much be the quality of the product accepted for production, but the quality of the organization and management of its high-quality production. For artisans and small-scale production, the quality of the sample and the finished product are combined with technology, which generally remains unchanged. Here, quality depends entirely on mastery of the technology and adherence to the stated technology under conditions of limited production scale. Often, the foreman, technologist, manager, and marketer are all one and the same. Henry Ford pioneered the production of complex products by separating operations and responsibilities, thereby defining a turning point in the fate of quality. From then on, the fate of quality was determined by "introduced" factors—production organization, management, and control. The skill of the direct manufacturer came to the forefront, rather than the ability to masterfully organize production, including its expanded reproduction—that is, procurement, marketing, and personnel management.

Diversification of activities revealed its unique position in achieving high-quality results. World War II confirmed that personnel and management are everything! Since the 1950s, the search for quality management programs through operational quality has sharply intensified. While technical regulations for products and components gained relevance at the beginning of the 20th century, half a century later, the significance of technical regulations has been significantly clarified. Technical regulations for the organization and management of production have become the focus of interest, a fact confirmed by the modern international quality regulation system.

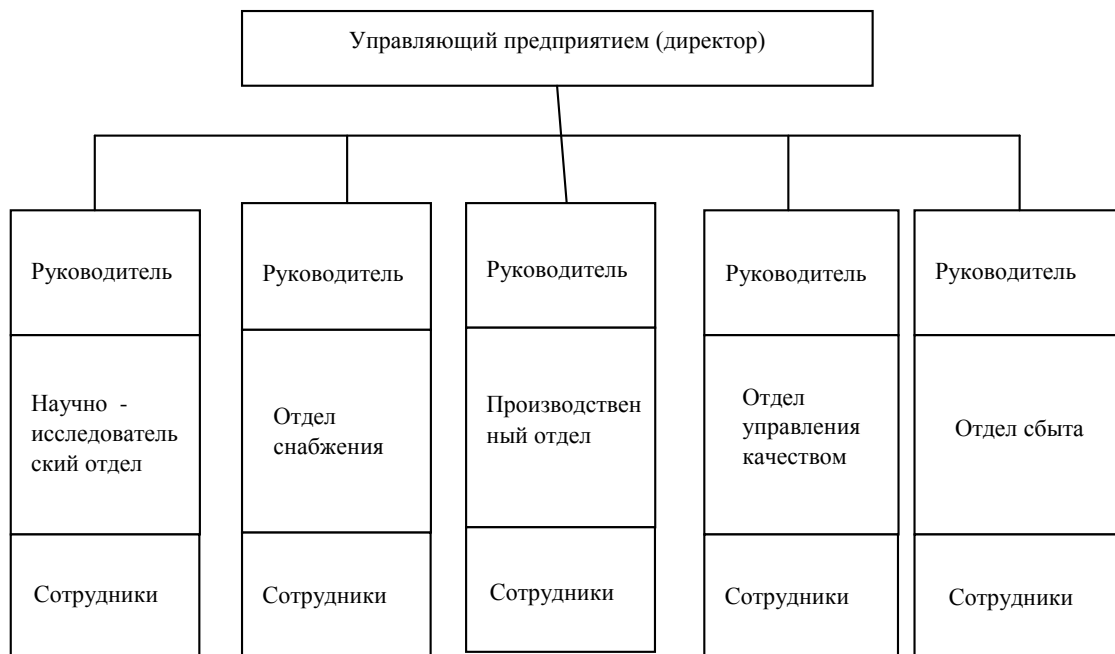
The shift in the focus of economic policy aimed at ensuring the qualitative sustainability of

production toward technical regulation of activities was not without costs and dead ends, which was, in principle, expected. The activities integrated into production are neither homogeneous nor autonomous, so problem-solving ran into methodological and theoretical shortcomings in professional thinking. The concept of "key activities" was first substantiated by A. Feigenbaum. His book "Total Quality Control" was published in 1951.

ISO 9000 and ISO 14000 were developed based on A. Feigenbaum's proposals. Both series of international standards were expected to facilitate the transition from "conglomerate enterprises" to "system enterprises." As industrial production developed, driven by scientific and technological progress, a contradiction rapidly emerged and intensified between the pace of material change and the evolution of management thinking regarding the organization and harmonization of the production process. The latter clearly lagged behind the former, hindering progress and increasing risks and costs. The rigidity of centralized planning only worsened the situation, explaining the stagnation of the 1970s and the decline of the 1980s. The organizational structure of the "conglomerate enterprise" was poorly suited to the transition to a systemic organization of enterprise work, primarily because it failed to stimulate initiative and creative potential. It's no coincidence that "shock workers," "innovators," and "rationalizers" in the USSR were primarily the work of party, Komsomol, and trade union organizations, which essentially stood outside the immediate production process and formed a superstructure above it. A simplified organizational chart of such an enterprise looks like this (Figure 2). A management structure in which the main production units are functionally autonomous and indirectly linked through a common manager is counter-systemic. When someone designs something, others must manufacture it, others must monitor quality, and still others must market the product, this disunites production participants and hinders creative collaboration. Everyone is a nominal participant in the process and has little understanding of who is doing what and why. Team spirit is absent; everyone acts independently, at their own risk, often at the expense of their colleagues, thereby undermining them.

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**Figure 2. Organizational chart of the enterprise**

The fundamental misconception of "conglomerate enterprises" managers is the belief that their "brains" are sufficient to promptly recognize and correct force majeure in the production process. Despite the presence of a specialized department, the management scheme of a "conglomerate enterprise" essentially coincides with a quality management scheme, as the functions of the quality management department are reduced primarily to control activities. In 1924, W. Shewhart proposed optimizing this management method using the principles of the theory of statistical variation, providing managers with a statistical control chart. Improved performance was immediately reflected in results, but the impact was limited to partial improvements. The "philosophy of the theory of variation," instead of being used as a basis for management, was relegated to the level of statistical tools used by technical specialists with limited and highly specialized areas of responsibility. Ignorance of the theory of industrial process behavior rendered management incapable of correctly recognizing situations requiring or not requiring action. This left management extremely vulnerable to three types of costly management errors, namely:

- treating all variations in the output parameters of a process as unexpected behavior and, in fact, suppressing their apparent causes, which leads to destabilization of the process;

- treating all variations in the output parameters of a process as natural manifestations and failing to detect and suppress the causes that cause them, which leads to unstable behavior;

the assumption that process optimization and stabilization are technical decisions for which a

specific department is solely responsible, rather than solutions to organizational problems that require full management support and the efforts of several departments."

Restructuring enterprise management based on the principles of systemic organization ensures, namely:

1. Interconnecting key activities so that various departments of a company are consistently involved in coordinating actions, for example, revising product quality based on specific customer feedback, improving staff training, advertising campaigns, etc.

2. Integrating other processes into key activities.

3. Integration of new key activities into existing ones.

A dangerous misconception in the development of "enterprise- system" management is the interpretation of optimality as the sum of optimal restructurings of individual divisions. In this case, the enterprise is still viewed as a conglomerate, a sum of departments each playing their own specific role. A view of activity as the integration of all its components is absent. A new term, "quality revolution," is increasingly encountered in European literature. We will not discuss how adequately it captures the dynamics of policies aimed at improving production quality; we will simply note that the inclusion of the concept of "revolution" in this study seems entirely natural. A comparison of modern quality management practices with the not-so-distant past clearly demonstrates a radical restructuring of the understanding of quality technology. The "quality revolution" is divided into four stages, namely:

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1960s – the stage of self-determination of product quality as the main factor in market competition;

1970s – shift from the dominance of product quality to the quality of technology and production;

1980s – transition from the quality of technology and production to the quality of the “quality system” or “quality management system”;

1990s – an ascent to the quality of education, the quality of intellectual resources.

The Europeans' path to the Bologna Accords was long and difficult. It revealed many shortcomings and contradictions. In particular, namely:

- the obvious gap between the demands of societies in industrialized countries on the education system and its capabilities;

- the discrepancy between the fact that the most significant discoveries and inventions are made primarily at the intersection of sciences; while education is based on the separation of subjects;

- insufficient mobility of the organization of retraining of specialists, its increasing lag behind the acceleration of changes in technology, engineering, and science;

- inertia in the development of new educational paradigms, programs, and methods, and a lag in the development of new educational literature.

Nevertheless, there has been significant progress – three levels of education quality assurance have been identified and balanced: university, national, and European.

The intellectualization of the economy, reinforced by the transformation of science into a direct force of production, a theme so beloved by 21st-century experts, has exposed the fundamental contradiction in human consciousness between intelligence and decency. Philosophers sought its resolution in the rationality of homo sapiens, emphasizing the basic function of morality. By hypertrophying the activity of consciousness through the actualization of intellectual abilities, emphasizing the creative powers of the mind, and reducing consciousness to thinking, proponents of the “smart” economy fail to see, or refuse to see, the dependence of intelligence on morality, contrasting the role of intelligence with the significance of moral values. We have already noted that the power of knowledge can only have its own vector on a private scale. Systemically, the power of knowledge is guided by the fundamental, rather than the private or corporate, interests of the producer. Morality emerged as the primary derivative of labor, as a means first of survival and then of human development. The primary criterion for social progress cannot be production efficiency—it is a purely economic parameter. Man is a social being, and the extent of his achievements is determined by the extent to which movement strengthens human relationships—primarily moral

ones. Economic activity must be wise, when the mind focuses not on itself, but on collective, personal, national, and universal human interests. It's time to understand the dangers of treating humanity like a mass of idiots and building corporate happiness through the hands of others. Without a strict moral code that subordinates all other aspects of human existence, there is no historical perspective. Intelligence is only effective as an operator, clearing the path toward the economy of the future. If someone likes to call the economy of the future smart or intellectual, then it is imperative to clarify that by smart we mean a rational economy, built not on cunning and private gain. The current crisis has exposed the vulnerability of democratic relations. The amorphous nature of democratic postulates, the unintelligent worship of the market's regulatory powers, and the inadequate perception of the actions of the “powers that be” allowed freedom for the actions that led to the crisis. Innovations in economic development express a new human mindset, fusing intellect and morality.

The first to build an innovative economy will be the Chinese and Indians—those nations that have preserved the authority of moral values in their consciousness, subordinating scientific and technological achievements to national interests. They will, in the near future, “swindle” the Europeans, the Americans, and, apparently, us too!

One hundred and fifty years ago, Karl Marx wrote, “In our time, everything seems pregnant with its opposite. Even the pure light of science can apparently only shine against the dark background of ignorance. All our discoveries and all our progress seem to lead to the material forces being endowed with intellectual life, while human life, deprived of its intellectual side, is reduced to the level of mere material force. This antagonism between modern industry and science on the one hand, and modern poverty and decline on the other, this antagonism between the productive forces and the social relations of our era is a tangible, inevitable, and incontestable fact.”

One may disagree with Karl Marx's communist conclusion, but one thing is certain: he was absolutely correct in his assessment of the socio-economic situation of the mid-19th century. A restructuring of public consciousness was and remains necessary. Money must not rise above morality, otherwise the main citadel of homo sapiens—his wisdom—will collapse. The validity of Karl Marx's conclusions is confirmed by the socio-economic situation that has developed in the Russian footwear industry today. The liberalization of foreign economic relations played a fatal role in the catastrophe that has unfolded. On the one hand, a flood of higher-quality imported footwear poured in, resulting in a decline in demand for Russian footwear. On the other hand, exercising their right to set prices at will, our manufacturers raised them to the

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level of imported footwear, while the quality remained unchanged. And for this reason, people stopped buying them, too. The government should have intervened and protected its producers (with cheap loans and customs barriers), but it did not. The government didn't provide assistance due to the erroneous belief that our light industry was uncompetitive, there was no point in investing in it, and it would be cheaper to import it from abroad. In short, the government considered light industry, like agriculture, a "black hole," unworthy of investment. And in both cases, we ended up with what we have today. When we hear about protecting Russian manufacturers of anything—machine tools and cars, clothing and footwear, food and furniture, etc.—we always think about the downside of such innovations: product quality. Footwear companies lose the incentive to improve and update their footwear selection, since without imports, people will buy anything. But manufacturers have something else in mind: decriminalizing the entry of clothing and footwear into the domestic market. The demand for the Russian light industry market, with a total volume of 1.25 billion rubles, is generated by the following sources: 230 billion rubles (18.4%)—legal Russian manufacturers; 240 billion rubles (19.2%) are legal imports; 780 billion rubles (62.4%) are illegally imported and counterfeit goods. The same picture is typical for the footwear market. Today (2025), the Russian population buys about 600 million pairs of shoes, the domestic industry produced only 52 million pairs (in 2017 - 46 million pairs), 100 million pairs are officially imported. Where do the remaining four hundred million come from? They are imported by all sorts of illegal means, i.e., a huge volume of shoes remains that would be in demand if domestic shoe companies were provided financial support and legal protection. Why is there no end to those wishing to invest in the oil and gas industry? Why are automobile companies coming to Russia? Why are there even those willing to invest in agriculture? And why, against the backdrop of all this "why aren't investors going to light industry?" The general answer is: there are no favorable conditions for investors. That's why joint ventures in the oil and gas and automotive industries are so easy to establish, as ministers and governors oversee each enterprise. Officials are certainly wary of taking bribes and won't push investors through the bureaucratic rigmarole. Meanwhile, the opening of light industry enterprises, due to their small scale, is entirely in the hands of officials. Furthermore, foreign companies reason: why set up enterprises in Russia and take risks when our products are already selling well there? So, Russian and Western firms are turning to China, where investment conditions are ideal; where there's a cheap, disciplined labor force; and where there's a stable, favorable tax system. Today, equipment at light industry enterprises is extremely worn out. The

replacement rate in recent years has been 0.4-0.6% per year. Meanwhile, at foreign enterprises, technological equipment is replaced every 5-7 years, or 15-20% annually. How can one compete here? Resources are needed for technical re-equipment of the industry. These resources can be earned by the companies themselves, provided as loans, or received from foreign investors. The companies' own resources are quite limited. Commercial bank loans are expensive, the government doesn't encourage preferential lending, and, as already mentioned, foreign investors are not interested in the industry. This leads to the question: what to do?

*Firstly*, provide enterprises with loans at minimal interest rates, or even better, without any interest rates (as for food producing farms, under the national project "Development of the Agro-Industrial Complex").

*Secondly*, to create such conditions that in Foreign companies entered the light industry, bringing, in addition to capital, their design, production culture, management, etc.

It's worth noting that the last twenty years have shown that light industry enterprises are very responsive to even the slightest attention from the authorities and to changing economic conditions. Take 1991, for example, the year known for the default. Import prices rose, and the light industry immediately revived. Growth continued for three years. Another example: exceptionally low export duties on raw hides led to their massive export abroad. Leather and footwear factories found themselves without raw materials. In 2000, a prohibitive duty of €500 per ton (instead of €100) was introduced on the export of hides. As a result, finished leather production in Russia increased from 1.1 to 2.2 billion square decimeters. Leather goods began to be exported instead of imported. The fact that reviving the light industry is not only necessary but also possible is supported by examples of successful operations by individual enterprises in the Southern and North Caucasian Federal Districts, both established and newly established. Let's name at least a few. The Novorossiysk shoe factory "Breeze-Bosfor" (CEO I.K. Zykov), created from scratch, produces 16 million pairs of shoes annually, and all of them are in demand. The Rostov enterprise "Gloria Jeans" (CEO V.V. Melnikov) is also new, having started as a cooperative. It produces 7 billion rubles worth of products (up to 10% of all Russian clothing and up to 30% of children's clothing). Its products are exported, including to the United States. So, if *Rodina* lends a helping hand, its light industry, which has found itself in such a dire straits, especially in the Southern and North Caucasian Federal Districts, will start working again. *Not to mention that a revival of light industry would also help solve the social problems of small towns in the Southern and North Caucasian Federal Districts, which are currently home to over 16 million*

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people. Here, with the onset of reform, small factories (branches of associations) were the first to go. But they seem small on the scale of the country or the industry. Meanwhile, for a regional center with a population of 10,000-20,000, a shoe factory with 300 employees is a large, city-forming enterprise that not only contributed to the budget and produced goods needed by the population, but also provided a decent living for many residents of the small town or regional center. And now the factory is gone. It's unlikely that these cities will ever see the construction of automobile factories or defense plant branches, while light industry factories are welcome. But so far, as far as we know, the government isn't even discussing the issue in this way.

There's no sign of concern about another problem, or even threat, arising from the collapse of the light industry. Previously, every light industry enterprise, like any other, had mobilization reserves (equipment, tools, materials, etc.) that would allow them to switch to production of the goods needed by the army within 24 hours if war broke out. Instead of fashionable shoes, they would make tarpaulin boots; instead of suits and coats, they would make tunics and greatcoats; instead of "fashionable sheepskin coats," they would make soldier's sheepskin coats, and so on. God forbid this happens—we won't have anything to clothe and shoe our army, especially since the Southern and North Caucasian Federal Districts are border districts in a difficult situation. This is yet another reason why we need to seriously address the light industry. The supply of children's footwear has become extremely pressing. Most Russian footwear companies continue to reduce production of children's footwear due to high price increases caused by the cancellation of federal budget subsidies, and some shoe factories, including those in the Southern and North Caucasus Federal Districts, have ceased production altogether. In 2024, children's footwear production decreased by 21% compared to 2018. In the consumer market of children's goods in the Southern and North Caucasus Federal Districts, domestic manufacturers have been actively displaced by foreign suppliers, who can afford to transfer shoes for sale with the condition of payment after their actual sale. However, the flood of beautiful and fashionable children's shoes flooding our markets from abroad, for the most part, lacks certificates of conformity, not to mention hygiene certificates, which is a crime against children. Consumer demand is the main factor influencing the formation of the product range, which, in turn, is aimed at maximizing and satisfying public demand. Consumer demand encompasses a whole group of indicators that will shape the niche for domestic footwear.

*taking into account age characteristics and work activity, namely:*

- shoes for children;
- shoes for the elderly;

- leisure footwear;
- special purpose footwear;
- office shoes.

*for socially vulnerable groups of people:*

- shoes for unemployed people receiving social benefits;

- shoes for pensioners;
- Footwear for people with chronic illnesses,

*taking into account regional characteristics:*

- national footwear;
- exclusive shoes;
- Elite footwear.

Thus, implementing the key parameters that shape consumer demand will help define the distinctive features that a new footwear range must meet. These parameters determine demand, namely:

- comparative competitive advantages;
- the product must have clearly defined features or clearly defined advantages compared to existing market analogues, products, or services of competitors;

• social orientation; it is necessary for the product to fit into existing social conditions, so that the proposed product corresponds to the established lifestyle and value system of the consumer; the ability to satisfy the consumer;

- The product must perform all functions to satisfy the key needs and demands of the buyer.

The following set of measures is proposed, namely:

- *creation of* regional programs for the development and support of domestic footwear production in the districts;

- *Taking* measures to reduce the import of imported footwear into the regions. These measures should include, first and foremost, preventing the sale of footwear smuggled in and without permission to sell it on local markets;

- *help* in the employment of young specialists and university graduates in existing and newly established footwear enterprises;

- *Assistance* to businesses in promoting domestic footwear brands in local markets. First and foremost, it is necessary to develop a sound marketing strategy for regional footwear companies;

- *creation of* a special lending program for regional light industry enterprises, taking into account the specifics of production: the seasonal nature of the products sold and the specifics of the turnover of working capital of enterprises in the industry.

In our opinion, the successful implementation of all of the above measures requires the commitment of both federal and regional governments to the organization and development of the footwear cluster. This will lead to lower prices for components, energy costs, and transportation, allowing manufacturers to offer domestic consumers competitively priced

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footwear through a price niche. All of this combined will ensure the longevity of such a cluster and a stable position not only in domestic but, crucially, in international markets as well. All that is needed is the goodwill and commitment of all participants in implementing the proposed measures. Progress has been made; now, the strong will and commitment of stakeholders is required. The product range for developing a consumer niche is shown in Figure 10. Once again, the quality of domestic goods is the fundamental foundation for the success of modern domestic enterprises. This conclusion is valid, as quality is humanity's oldest value. It is precisely in the quality of Russian goods, services, and management that we are losing out in global competition. Have you ever seen complex products labeled "Made in Russia"? We haven't seen it either. We long held out hope for a global ISO system. Unfortunately, in Russia's conditions, it has descended into crisis. Sorry, dear colleagues from the world of quality certification, but it's time to publicly list what it has become, something that almost everyone acknowledges, namely:

- an immense number of documents that make it difficult to navigate;
- the senselessness of many of them (for example, ISO requires job descriptions, and everyone rushes to jot something down on the fly, and then forgets them without a trace);
- An entrepreneur once said, "We're ISO certified." And then he quickly added, "Don't get me wrong, we were certified by such-and-such a Norwegian company." Guess what he was talking about? Yes, selling certificates. Not everyone sells them, of course, but reputation doesn't happen by accident.

So what, you say, should we stop focusing on quality? No, we simply need to understand that ISO isn't the only way to achieve it. Let's agree on some terms. What is quality? Most people will answer, "Compliance with standards." Of course, where standards are possible, that's true. However, standards have tolerances. And the difference between the upper and lower limits of these tolerances can be significant. And there are also limits to standardization. Take customer contact, for example. Everyone knows that the quality of such contact is critical to business success, when prices, product range, and deadlines are balanced under the pressure of competition. A certain set of friendly words, a dress code, and so on can be considered a standard. However, we know very well what they mean. The current obsession with describing business processes is also gradually approaching the absurd. And in some places, it has already reached this point: at various companies, we now encounter rigid descriptions of interviews not only during hiring, but even standards for meetings and negotiations. Now a different approach is emerging: quality is meeting the needs of the client,

the user. The buyer is the one who evaluates. We just need to understand more precisely what exactly they value. If we hit the mark, that's the required quality, i.e., the degree of consumer satisfaction with the product's properties. But this approach is also limited and harks back to the last century. Back then, the formula was considered indisputable: the customer is always right. Nowadays, another imperative is far more accurate: the customer doesn't know our capabilities. Where are we heading? Understanding quality as conformity (to a standard, a need) is becoming outdated. Today, understanding it as a comparison with another product or with the same, but previous one is becoming much more comprehensive. Comparison posits the superiority of a product over a product, a service over a service, a specialist over a specialist, an organization over an organization. Comparison with a standard or a need, however, does not imply superiority. Only equality is possible. Standards and needs indicate a minimum. And who is satisfied with the minimum? Few. But superiority is of interest to everyone, because the law of increasing needs is inexorable.

In practice, this means switching the quality assessment system into levels. For example:

A. Sufficient quality, below which there is a defect, i.e. the minimum acceptable, the use of which will not cause damage.

B. Benchmark quality – based on the principle of conformity to a benchmark, i.e., the best available. A benchmark can emerge from a standard, but it can be any sample: something we have in our own company, our competitors, or at least somewhere else in a form we're familiar with.

B. Avant-garde quality is something achieved for the first time, surpassing standards, but can count on solvent demand and achieving profitability immediately or in the long term.

This is the vertical of quality. It may even allow for more degrees. And one more thing: it's time to abandon the idea that any quality can be measured. Everything can be assessed, but only a few of the things that matter to us can be measured.

Figure 3 presents a model of the integrated quality management process for products and services produced both in individual regions and in the footwear industry as a whole. The model represents a closed-loop control (regulation) system implementing the "by deviation" regulation principle. Product quality in the consumer market can be characterized by a multidimensional quality indicator, Q. Through the process of conformity assessment, testing, and product certification, a documented quality indicator, Qd, is generated. The required high quality indicator, Q0, is specified in technical documentation for the best global standards, technical regulations, national GOST standards, and international ISO standards.

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**Figure 3. Assortment for forming a consumer niche taking into account regional characteristics**

In the process of comparing these two values, carried out by the competition committee, the

deviation of the actual quality indicator from the specified one is determined:

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$$\Delta Q = Q_0 - Q_d \quad (1)$$

This deviation Q (mismatch in control systems) in our case is always non-negative ( $Q \geq 0$ ), since a correctly selected high preset level  $Q_0$  is always higher than or equal to the actual  $Q_d$ , which is extremely rare in practice. In this case, we have a system with a non-zero static error, which is most typical of static systems with their inherent stability and speed of response, the accuracy of which is determined primarily by the gain and power of the "proportional" controller. In our case, the controller function is performed by the "Measures to ensure the specified level of product and service quality" link, which models the enterprise's quality management system and the quality service in production, whose actions take into account the product quality assessment and the recommendations of the tender committee. As can be seen from Figure 4, the quality Q of the products manufactured and supplied to the market is formed during their production as a result of measures to improve production and enhance the quality of products and services, carried out by the quality service and quality management departments. These targeted actions, in turn, are determined by the results of product assessments during their sale. In the new economic environment, only production that actively and dynamically responds to emerging problems is considered progressive. The principle of "producing only what is needed, when needed, and in as much quantity as needed" requires footwear companies to adapt to the conditions of small-batch production with frequent changes in product range—

that is, to the conditions of multi-product, small-scale production. The efficiency of a footwear company, and to a large extent its ability to survive in the competitive environment, depends on the ability to quickly and cost-effectively adapt to footwear production in response to fluctuations in demand. The development and implementation of flexible manufacturing systems offers significant opportunities for this.

Technological and organizational flexibility in production systems determines the variability potential of enterprises, their ability to quickly and adequately respond to changing market conditions, and serves as a mechanism for optimizing the structure of the technological system to reduce footwear production costs. Thus, the development of flexible technological processes for the production of leather goods ensures high efficiency in the production of a wide range of footwear and will provoke a sharp increase in demand for footwear products from companies in the Southern and North Caucasian Federal Districts. Similar problems are characteristic of other sectors of the light industry. The problems are common, and their treatment may differ slightly, but the consciousness and desire to lead them out of this quagmire are possible only if "Rodina" lends a helping hand, and the light industry can once again thrive, because the core values of society still remain, namely:

- professional;
- national;
- universal.

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ICV (Poland) = 6.630  
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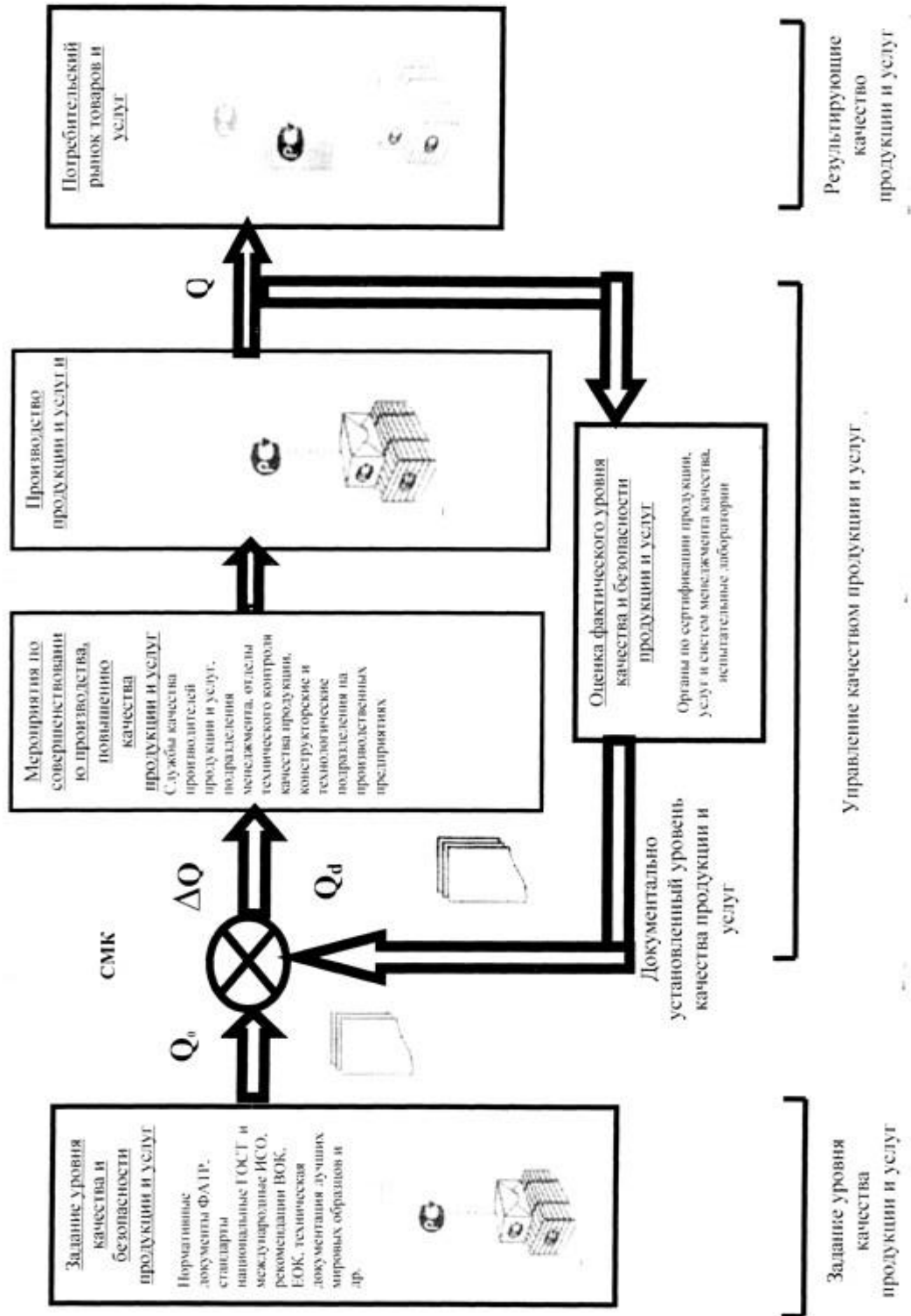


Рисунок 4. Модель комплексного процесса управления качеством продукции и услуг в регионе

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GIF (Australia)	= 0.564	ESJI (KZ)	= 8.100	IBI (India)	= 4.260
JIF	= 1.500	SJIF (Morocco)	= 6.004	OAJI (USA)	= 0.350

The characteristic features of the modern global economy are unstable production and unstable demand. Traditionally, the former is believed to be determined by the latter. This formed the cornerstone of the economic theory that replaced classical political economy. According to dominant economic ideas of the 20th century, the demand for goods is the driving force behind development, meaning that the market, not production, drives the economy. Karl Marx's famous formula—one of the pillars of classical political economy—C–M–C is now understood locally, as it appears in its final form: the sale of goods depends on the amount of money circulating in the market, in other words, the real purchasing power of consumers. The revenue received by the seller, in turn, determines the quantity and quality of new goods—the prospects for production. The market should strive to be self-sufficient. To function properly, it requires maximum freedom. The idea of the founder of classical political economy, A. Smith, about the need for freedom of activity for the producer of goods in the newest, non-classical economic theory was transformed into the position on the freedom of the market in accordance with the shift of ideological priorities from production to distribution.

A. Smith was undoubtedly right in his fight for the freedom of the producer, but market freedom is far from identical to the freedom of those who create real wealth for humanity. Under conditions of complete freedom, the spontaneous movement of the market, even at the regional level, is doomed to instability. Unlike producers, who have the opportunity to enter into genuine cooperative relationships and regulate production by assortment, quantity, price range, and other parameters, sellers, most of whom are resellers, middlemen, and speculators, are not fundamentally bound by the interests of production. They have long since become professional sellers, middlemen. They don't care what they sell, as long as they make good, quick money. The future of a particular production facility is of no concern to them. The flaw in the market we deal with in Russia is this: instead of providing normal opportunities for buyer-producer interaction (through the product and demonstration of its production culture), our market "divorces" the main market participants, absolutizing the role of the intermediary, who is generally disinterested in the fate of the producer. It seems that the market exists so that buyers don't have to worry about the interests and actual culture of a particular producer; being a businessman is quite sufficient, and, incidentally, essentially bears little responsibility.

"Freedom of the producer" and "freedom to organize commercial activity" (the formal legal, financial, and narrowly organizational instruments of control over the latter are irrelevant to our problem; they have no significant impact on achieving sustainable production, stabilizing financial flows, or mutual satisfaction between producer and consumer)

are fundamentally different freedoms. The state should not view the market solely as a source of tax revenue, a prerequisite for a healthy lifestyle, and safe consumption. The market is a link in the normal development of regional and national production. It is precisely this market function that should be the first line of all state economic policy documents. Economic activity itself must be structured as a policy aimed at consistently protecting the interests of producers, not so much from foreign competitors as from fellow countrymen and officials of all sorts who have adapted to the practice, who have legitimized themselves with the help of officials, criminal organizations that have traded in their crimson jackets and gold chains for couturier suits and pectoral crosses, and who don't hide in "raspberries" because no one is going to look for them—they are well known, occupying their "legitimate" niche in the structure of administrative-financial mechanisms. Our laws allow them to earn more legally than they would through mugging. The imagination of the restless Comrade Bender was limited to four hundred ways to circumvent criminal code articles. It's unlikely anyone would even attempt to count how many such methods exist today. The saddest thing is that today there's no need for the extraordinary creative abilities of Ostap Ibrahimovic, which is why there are far more scammers than producers. Ilf and Petrov's antihero realized the futility of being a millionaire in his own country, fled to Romania, and lost a million at the border. For today's millionaires, the episode with the border crossing and the robbery of Lieutenant Schmidt's enterprising "son" is the funniest part of the novel.

Historical parallels are relative, yet instructive. Repeating history is pointless; it's wise to learn from history, to learn from historical experience, primarily national experience, without disdaining the past practices of other nations. The experience of Peter the Great is more relevant than ever in the 21st century. Peter the Great earned the title "Great" after resolving an equally complex situation that had developed in the country by the end of the 17th century. For Europeans of that era, Russia's western borders were the line where civilization ended and barbarism began. Two thousand years earlier, the Greeks and Romans viewed their borders to the north, west, and east in much the same way. Almost everything declined: education, science, industry, agriculture, construction. The arguments of church leaders, who insisted that Russia was destined to be the "Third Rome," meant little to anyone. Moreover, becoming the "Third Rome," inheriting the faded glory of Byzantium, didn't seem a particularly enticing prospect. Byzantium had become an ordinary stronghold of Orthodoxy and, under the influence of the Church, was selective in its embrace of the scientific and philosophical achievements of Antiquity. Byzantine culture blended the ideas of Aristotle, medieval patristics, and scholasticism. The understanding of science that developed in Western

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Europe in the 16th and 17th centuries was resolutely rejected by the Byzantine heirs. A focus on Byzantium was reasonable in the 8th-10th centuries. The adoption of Christianity and an alliance with a powerful patron facilitated the integration of the Slavs and the formation of Rus' as a unified state. At that time, such an alliance was progressive in all aspects of cultural development. Peter the Great accepted Rus' in a state of extreme backwardness; Europe was rapidly advancing, leaving Rus' to its Asian destiny. The greatness of Peter I, unlike that of his contemporary politicians and spiritual leaders, was manifested not in greater suffering and prayer, but in his ability to understand the intricacies of reality, to identify and personally control the key links in the socioeconomic chain of events—past and present. He correctly assessed the situation, focusing his efforts on the country's economic revival, essentially setting about building a new economy. Economic development revealed to him a deficit in education and training, as well as a general cultural component. Peter I launched a cultural "revolution." Radical cultural innovations did not please the church. Here, too, Peter I demonstrated character. He did not persuade anyone or adapt to anyone. The Tsar assumed the rank of patriarch. Politics cannot be effective if it merely adapts to the peculiarities of the economy and culture. Politics must be the locomotive in everything, acting ahead, guiding. For politics, it is fatal to accompany socioeconomic movement. Western ideologists are disingenuous when they portray the state as an intermediary between production and consumption. They argue that the task of politics is to ensure social justice in the distribution of national wealth, and that the state should not interfere with economic activity—it is self-sufficient. The fallacy of such lobbying concepts becomes obvious during crises. As soon as a recession begins, production declines, debts mount, and liquidity shortages develop, producers, especially financial intermediaries, immediately turn to the state for aid and are the first to receive it. Peter the Great governed the country through decrees. He usually composed the text of these decrees himself, always explaining the precise purpose of the decree, how it should be implemented, and the consequences for those who fail to comply. A.S. Pushkin, who studied Peter the Great's archive, noted that decrees were often not fully thought out, the result of impromptu

decisions. The great poet and thinker is right in his own way, with the caveat that Pushkin was not a great ruler. Peter the Great was forced to be swiftly and cruelly responsible. He was responsible for the fate of the Fatherland. Anyone who has taken on such a fate cannot constantly look back at the current laws and be afraid of not complying with their letter.

### Conclusion

Historical routes aren't created by God, nor are they planned a priori; they must be forged through the exploration of new historical spaces. A professional traveler doesn't hide behind the laws of nature when exploring the unknown. Politicians, too, must take an innovative approach, improving the established order of things. Laws aren't absolute; they reflect reality generalized in legal terms. Politics, on the other hand, is the art of managing a historically specific, time-varying reality. Situational, problem-solving thinking is essential here. Recognizing that building new industry and stimulating agricultural production without free access to maritime transport was impossible, the first Russian emperor resorted to extreme measures. Today, thanks to Peter the Great, such a necessity no longer exists, which alleviates the burden of politicians without diminishing the level of responsibility and innovation in their actions.

It's easiest to attribute the crisis in Russia's traditional industries to instability and the economic transition process. The transition period, clearly prolonged due to unclear policies, will eventually end. As for instability, politicians will be disappointed. In all likelihood, capitalism has left the cyclical nature of crises, discovered and explained by Karl Marx, behind us. Contemporary crises testify not so much to the peculiar dynamics of industrialized countries as to the crisis of the bourgeois mode of production itself and the weakness of the social superstructure to control mounting negative trends. The separation of finance from real production, the absolutization of the freedom of financial capital, and the concentration of financial flows are leading development to a dead end, leading to anarchy provoked by stock market speculation. Instability is becoming a persistent, general characteristic, and it's time to discuss the nature of instability, which, like everything else, is changeable, and to hope that instability will not become rampant.

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