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SCHEME OF PACKING BALES OF COTTON IN RAILROAD CARS

Abstract: *The article under discussion examines the scheme of packing bales of cotton into railroad cars. To maximize the use of carrying capacity and loading capacity of bales we studied the existing norms of their loading into railway carriages with carrying capacity of 62 tons and body volume of 120 m^3. In addition, for shipment of bales of cotton products we offered containers with carrying capacity of 3-5 tons in which bales are stacked according to the optimal schemes that we established.*

Key words: *fiber, railroad, bale, pressure, wagon, moisture, loading capacity, cotton, raw cotton, clogging, optimal, storage, transportation, loop, down, hooch, cushion uluk, hemp, kenaf.*

Language: *English*

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Introduction

The storage and transportation of dense fiber bales is much safer in terms of fire safety than loose fiber. Compressed fiber is less contaminated and clogged than loose fiber, and possible losses during storage and transportation are minimized [14, p.213].

It should be mentioned that the mechanization of all the works connected with transportation of bales, their stacking and loading into wagons or cars is much easier if the bales are of regular shape and a certain weight. All of the above clearly confirms the great economic importance of fiber cotton baling.

Calculations show that as a result of the undeniable advantages of cotton bale pressing, although this process requires considerable expenditures of money and packaging materials (tare cloth, wire or steel belt), it is certainly economically profitable.

Main part

There are two basic fundamentally different methods of pressing cotton fiber: compression path pressing in a prismatic box and pressing by winding the fiber canvas in a limited cylindrical volume.

At present, the first method, prismatic bale pressing, is the only one used in the cotton cleaning industry. As for the second method, it has not yet received a rational constructive solution and therefore has no practical application.

The main indicator of degree of compaction of fiber is its volume weight, often called density of pressing and is usually expressed in kg/m^3. The volumetric weight of fiber γ depends primarily on the specific pressure in (kg/cm^2) on the fiber. In order to be able to select by calculation the main parameters of the press, it is necessary to know this basic dependence γ =f L.

For cotton fiber, down, cushion uluk, as well as for hemp, kenaf, bast (flax), the relationship between pressing density and the specific pressure on the fiber is expressed in general terms of control:

$$\gamma = A \cdot \rho^{\alpha}, \qquad (1)$$

where A and α are constant values for the material.

For cotton fiber, the index of degree α can be taken without much error equal to 0.33, in which case equation (1) will take the form:

$$\gamma = A\sqrt[3]{\rho} \qquad (2)$$

The values of constant A, as studies have shown, for cotton fiber do not depend much on fiber properties, which are characterized by a cotton variety, and are 180.2.

A single formula can be accepted for cotton fiber of all selections and industrial varieties (with the exception of the lowest varieties) at 6.2% moisture content:

$$\gamma = 180{,}2\sqrt[3]{\rho} \qquad (3)$$

It should be kept in mind that this empirical formula is valid for the values of $\rho \leq 200$ кг/см^2, at which the research was conducted.

The influence of moisture content for the first grades of cotton fiber is accounted for by the following empirical formula derived by CNIIChProm:

$$\gamma = \frac{6800}{44-\omega}\sqrt[3]{\rho}, \qquad (4)$$

where ω is the moisture content of cotton fiber, (in%).

For belts used annealed steel wire diameter of 4 or 4.5 mm or steel band cross section of 0.7 x 20 mm or 1.0 x 15 mm. When tying wire belts on one end of the wire in advance prepare a loop through which the other end of the belt. Wire belts prepare loops through which to slip the other end of the belt. Wire belts are made on an automatic machine of domestic design. Strapping the bale with steel straps is made with buckles. One end of the band is pre-threaded in the buckle and wrapped to a length of 150-200 mm. The other end is inserted in the same way while strapping the bale. The use of steel tape makes tying the bale easier and faster. At the same time the bales have somewhat smaller humps than with wire belts. In order to avoid the contamination of fibres and prevent losses, bales are packed in tare cloth. For this purpose, a cotton cloth is used [1, p.5].

For mixed rail shipments, bales must be covered on all sides with tar cloth. For rail shipments only the bales may be partially covered with tarpaulin. Tare fabric for bale wrapping is specially cut to ensure economical use of the fabric. The most widely used hemp and jute fabrics are Art. 1029 in width of 106 cm, Art. 1030 in width of 155 cm, and the semi-carded fabric Art. 1031, 75 cm wide.

The woven fabric is cut according to the size of the bale into individual pieces: shawl, which is laid on top in the gap between the upper traverse of the press and the upper edge of the press chamber at the moment of turning the boxes of the press [2, p.8].

For belts used annealed steel wire diameter of 4 or 4.5 mm or steel band cross section of 0.7 x 20 mm or 1.0 x 15 mm.

When tying wire belts on one end of the wire in advance prepare a loop through which the other end of the belt. Wire belts prepare loops through which to slip the other end of the belt. Wire belts are made on an automatic machine of domestic design. Strapping the bale with steel straps is made with buckles. One end of the band is pre-threaded in the buckle and wrapped to a length of 150-200 mm. The other end is inserted in the same way while strapping the bale.

The use of steel tape makes tying the bale easier and faster. At the same time the bales have somewhat smaller humps than with wire belts.

In order to avoid the contamination of fibres and prevent losses, bales are packed in tare cloth. For this purpose, a cotton cloth is used. For mixed rail shipments, bales must be covered on all sides with tar cloth [4, p.42].

For rail shipments only the bales may be partially covered with tarpaulin. Tare fabric for bale wrapping is specially cut to ensure economical use of the fabric [11, p.46].

The most widely used hemp and jute fabrics are Art. 1029 in width of 106 cm, Art. 1030 in width of 155 cm, and the semi-carded fabric Art. Art. 1031, 75 cm wide.

The woven fabric is cut according to the size of the bale into individual pieces:

1) a shawl, which is laid on top in the gap between the upper traverse of the press and the upper edge of the press chamber at the moment of turning the boxes of the press;

2) a cushion that is placed on the running over plunger plate following the pushing of the finished bale out of the press chamber; this operation is combined with the lowering of the plunger

3) heads, which are applied to the ends of the finished bale pushed out of the press and sewn to the shawl and cushion.

Parts of the fabric on the bale are connected by twine (O'zDSt 5725:97) or threads (O'zDSt 3010:97).

In Table 1 the dimensions of cut fabric blanks for bale wrapping are given.

Good packing of bales with cloth prevents loss, contamination and deterioration of cotton fiber and ribbon during their transportation and storage.

Table 1 . Dimensions of bale cloth blanks for bale wrapping

Fabric blanking	**Number of workpieces that make up a kit per 1 bale**	**Dimensions in m**		
		length	width	area in м^2
From hemp-jute-kenaf fabric				
Shawl	1	1,81	1,15	2,081
Pillow	1	0,96	0,68	0,653
Heads	2	0,86	0,65	0,563x2= 1,126
Made of half-cardel fabric				
Shawl	1	1,81	1,125	2,036
Pillow	1	0,96	0,75	0,72
Heads (of hemp and burlap cloth...)	2	0,86	0,65	0,563x2= 1,126

Depending on press capacity and the weight of bales produced by the press, the number of strapping belts is set O'zDSt 3052:97 and varies for presses from 3000 to 5000 kN from 9 to 12 belts.

The reliability of the accepted number of strapping belts is checked using the following approximate formula:

$$K=\frac{P}{2\gamma},$$

where P is the total force on all belts in kn, determined by the graph;

γ-permissible load on the belt in N;

The coefficient allowing for the load distribution between the two belt ends.

The value of γ is determined by the formula :

$$\gamma=fR,$$

where f is the cross-sectional area of the wire or strip in mm^2

R– allowable stress in n /mm^2 (is taken as 200-250 n/mm^2)

Loading bales into rail cars.

In the cotton industry to adopt standards for the size of bales providing full use of the volume of wagons. It should be noted that the approximate stacking scheme of 183 bales at the wagon volume utilization factor of 0,918 developed by CNIIChProm for a 50 t railway wagon. Fig.3 shows the stacking diagram of 200 bales produced by a 550 t press. Bale size is 620 x 620x1000 mm, the volume utilization factor of the wagon is 0,895.

Gaps between adjacent taken in the range 19-28 m, and it is recommended between the side edges and between the ends to take at least 12 mm and between the hump not less than 20.

These schemes are not the only possible. Some plants (e.g., Tashlak) use bale stacking according to their schemes and achieve good results.

The coefficient of volume utilization of the car in the schemes of CNIIChProm reaches the following values as in Table 2.

Table 2. The coefficient of volume utilization of the car

Lifting force of the car (in t)	η_0	Number of bales
16,2—18	0, 909	79
20	0,910	92
50	0,918	183

When stacking bales weighing 250 kg (550 tons of press) - in Table 3.

$$\eta_0 = 0{,}895$$

The following are the accepted norms for loading wagons (in tons).

Table 3.

Power presses (in tons)	Lifting power of cars (in tons)			
	16,5	18	20	50
550	16,5	18,0	20,0	50,0
301–400	16,0	16,0	18,0	37,0
261–300	14,5	14,5	17,0	33,0

Knowing the value of the volume utilization coefficient η_0, you can determine η_0 −coefficient of wagon lifting power from the following ratio:

$$\eta_0 = \frac{\eta_0 V \gamma}{1000Q}, \qquad (5)$$

where useful volume of the wagon, m^2 ;

γ - density of the pressed bale, kg/m^3;

Q - lifting force of the wagon, tons.

For bales produced by 550 t press, the value of η_0 is equal to 1 for all types of cars, including 50 t. To ensure this, the density of the press in this press is assumed to be 650 kg/m^3 (at η_0=0.895).

Thus, at a pressing density of 650 kg/m^3 and bringing the volume coefficient of railway cars to 0,90-0,92 fully solves the problem of using the lifting power of cars.

Conclusions

1. Pressed cotton fiber is packed in bales according to O'zDSt 3152:97 with appropriate dimensions and weights depending on the capacity of the press, grade and type of fiber.

2. Bales of cotton fiber shall be packed on all sides in a textile cloth container protecting the fiber from contamination and loss during storage.

3. As a packaging material is recommended to use:

- Tar nonwoven fabric (O'zDSt 727:97).
- Cotton tissue packing cloth (O'zDSt 17-154:97).
- long-jute-kenaf fabric (O'zDSt 5530:97).

4. Used packaging fabrics are also acceptable, but sturdy and clean, free of oil stains and former markings.

5. Dimensions of normal standard bales should be the following, mm: length-970, width-595, height-735.

In separate cotton-cleaning factories for pressing lint and fibrous waste, low-power presses are used, in this case a deviation from the above dimensions is allowed.

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THE RELATIONSHIP BETWEEN DIGITAL PRODUCTION AND STANDARDIZATION FOR QUALITY MANAGEMENT OF PRIORITY AND PREFERRED PRODUCTS FOR CONSUMERS IN THE REGIONS OF THE SOUTHERN FEDERAL DISTRICT AND THE NORTH CAUCASUS FEDERAL DISTRICT

Abstract: *in the article, the authors argue that production management, including standardization, must be carefully prepared with maximum reliance on the reserves of the professional culture of specialists, but it is advisable to entrust the dynamics of management of launched production to technical programs and means. This will make everything more reliable. But technical management has its weak points. Among them: a high level of energy dependence, computer security is not absolute, the requirements for the personal abilities of specialists in conditions of personal and team responsibility are increased, at times up to exclusive ones. Problems in production, as a rule, are created by people, but it is in the absence of qualified specialists that the most serious problems arise. Technical standardized management is not a panacea. The authors formulated the rules for standardization.*

First: standardization should be carried out in three directions, linking them into a complex, - to define a product standard within the framework of its functional purpose, taking into account a broad understanding of the safety of use; regulate the production process and form a consumer attitude towards the product. The consumer is a full-fledged participant in standardization. Without proper consumer interest in the product, the product will not be in demand on the scale necessary for its sustainable production.

Second: the standardization of production is carried out on the basis of a conceptual understanding of its position in the system of specific historical conditions, since it is determined by the quality of the stage of economic development. No matter how it is perceived by the consciousness, one must put up with it.

Third: the product must be in demand not exclusively, but on a mass scale, otherwise production will cease to be massive and will waste its quality.

Key words: *production management, technical management, standardization, digital manufacturing, identified and production management, consumer, product, assortment, quality, economic development.*

Language: *English*

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Introduction

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The authors considered that the assortment of products of mass demand in the USSR was not great, but the quality of the consumer's goods satisfied and allowed the manufacturer to solve his problems. The departure from the production standards developed in the USSR made it possible to significantly expand the range of goods at the cost of quality loss. Increasingly, in stores and advertisements, there are Soviet brands that were not at all in the USSR, but were ordinary products. Apart from the fact that digital production is built on the basis of physical impact on the object and requires a standardized reality of quality. The history, known as the history of quality management, is essentially a history of standardization of production, the concretization of quality into a sample of production.

Man began to realize his rationality and its advantages much later than homo sapiens became. The understanding of rationality, apparently, occurred under the influence of the development of economic activity, and specifically, in that historical period, when the process of diversification of socially important labor began - producing labor significantly pressed gathering, from the number of hunters for products of purely natural origin, those who tamed domestic animals and controlled them, and farmers, the first to test the design potential of intelligence.

It is still extremely problematic to constructively obtain the desired result in the conditions of the domination of the natural order that took shape long before your appearance, and in the initial period of the history of human activity it was almost a hopeless task. Nevertheless, it was then that what can be defined as protoplanning or arch planning was born. The man turned on the reserves of his intelligence.

Reasonableness is the ability of a person, within the framework of systemic relations with the natural environment, to complete the animal (biological) form of submission to nature not only by the art of adaptation, but also by transformation.

Planning arose in the process of man's assimilation of those advantages that rationality provided him with. And here it is necessary to clearly contrast dialectically rationality and consciousness as the specific characteristics of modern man. Reasonableness is predominantly a biological feature, consciousness is its concretely - historical development in the conditions of the social form of human life, a kind of way of realizing the potential of rationality. In this connection, the systemic use of the concepts of "consciousness" and "rationality" is different. “Reasonableness” is a part of consciousness as a tool for constructing the latter. Reasonableness singled out a person from the totality of biological species, consciousness allowed him to develop into a modern person and build his own human, social structure of relations, thanks to the ability to foresee and plan, and, planning,

Planning is an attribute of an activity, one of its qualitative features. It is twice qualitative: both as a qualitative indicator of activity, and as a measure of measuring the level of perfection of activity. The art of planning reveals the active side of homo sapiens. To a certain extent, this is a sign of the highest state of activity. Attempts to oppose planning and creativity is something other than the desire to limit the universality of planning, to simplify the nature of human rationality. It is also wrong to oppose planning to the freedom of competition. Both creativity and competition are ways of manifesting activity, therefore, all of its attributes must be present in them. Another thing is that the general is realized through the particular and therefore in its reality is specific, concretized. S.V. Kovalevskaya ventured into an original solution to the problem of describing the rotation of a rigid body with a shifting center of gravity - aerobatics in mathematics, according to the Paris Academy of Sciences, available before it only to L. Euler and J. Lagrange, planned her actions both in detail and in time, meeting the deadline ... Even the ancestors of today's apologists of the struggle against the planned economy - the pioneers of the development of the wealth of North American lands - cowboys, who are considered to be free from everything, planned their actions within the limits of available knowledge.

In 2019, the global economy grew by three percent, the EU economy added about 2 percent, keeping up with its western neighbors and the Russian Federation. The indicators can be qualified as satisfactory, based on the conclusion of science that the basic indicator of social development in the conditions of the tension of the ecosystem caused by the exploited technologies in industrial and agricultural production is the sustainability of the growth, and not the absolute value.

Slowing down the growth in production is perhaps undesirable within the framework of the present, existing being, but it is necessary as a temporary measure. It is more important for modern mankind to gain time, for nature to receive hope that

the global nature of the environmental problem can be dealt with without a global cataclysm. Both nature and humanity have reserves. Now it is important not to increase the rate of development of production, but to have time in "reserve time" to develop sparing technologies and rebuild production on them, especially materially and energy-intensive, with open cycles. On how much humanity turns out to be really reasonable, its fate will also depend. It seems that homo sapiens is being tested for survivability again, with the difference that this time he forced nature to test itself for viability. Climate change is already calling into question the much-touted possibilities of technological progress to protect humans. Humanity as a whole does not yet feel this danger, but it already frightens the inhabitants of certain places, regions and continents; recently looking safe.

The analysis of the situation is directly related to the RF. We also have to move in a short time from the idea of the absoluteness of mass production and gigantomania in the centers of the sale of goods to the relativity of the subordination of the economy to the principle: "to satisfy the needs of the buyer here and immediately." The manufacturer must know his buyer "by sight", only then production costs will acquire a rational scale and everyone will be satisfied: nature, producer, consumer. The functions of trade will also change, it will become an industry providing direct communication between the consumer and the manufacturer. The market will be forced to invest in science in order to have a real picture of the state of the market, to know the trends of the current movement of interests, the purchasing power of the consumer, to be ready to promptly provide the routes of goods from “porch to porch”, solve logistic problems on the ground in real time. The "consumer society" will gradually return to the "society of production", and social consciousness will again closely associate consumption with participation in production. Fake labor - a product of the virtual part of "production", will be reduced, fake workers will be legalized and will start working for their own future.

By means of systems analysis, big science is called upon to determine the optimal rates of economic growth on the scale of national, regional, continental and global progress, and not a phantom "world government" acting in narrowly accumulative interests.

At the beginning of the third millennium, the most urgent question is: how to optimize the organization and management of production development in the priority of consumer interests and environmental safety.

The underestimation of the strategic scale of planning reveals the flaws arising from the understanding of rationality, and ultimately the defects of the intelligent capacity of those who are behind attacks on the universality of planning. In relation to planning, one can easily trace, firstly, the lack of panoramic thinking, and secondly, its ideological orientation towards the narrow format of utilitarianism as a perverse progmatism.

The ideological pluralism that has replaced communist ideology must be viewed critically. The right to work is not the same as guaranteed employment. With the right to work, you can remain unemployed and there is no legal point in complaining. Something similar is observed with ideological pluralism. The guaranteed right to adhere to the ideological concept that is closer to the values of your consciousness in the information society is blocked by the ownership of the official and most significant sources of information. The Internet with its “toys” is portrayed as a competitive means of ideological monopoly, but in reality it is not. Ideological pluralism is justly likened to a big river, for example, the Don. A big river is not born big, it becomes her as long as how small rivers and streams flow into it, the traces of which dissolve. Rostov - on the Don, by and large, not on the Don, but on the totality of the water sources united in the Don. That's just, all these sources will remain nameless in Rostov. To the question: what kind of river? The answer will be short: Don, and he will be on the map.

Pluralism, as a rule, is dominated by one thing, reflecting the alignment of forces provided by economic interests and financial resources. Now the mass media, programs of general and vocational education, popcultural practice induce the formation of a worldview in the direction of liberal values. At the same time, rarely does anyone say that modern liberalism is not at all the democratic one under whose banners the Europeans stormed the citadels of absolutism, and the bourgeoisie of the eighteenth and nineteenth centuries won the historical right to build social relations required by the specifics of the capitalist organization of production.

The founders of political economy as a science - A. Smith, D. Ricardo, D. Hume, J. Sismondi relied on the systemic importance of labor in any production system, were the first to realize the growing importance of the qualification component of labor in connection with the scientific and technical equipment of the industrial form of organization of labor activity , in which the rationality of human status is manifested. Capital, in order to reveal its potential, had to grow with the freedom of movement, and the freedom of movement of capital had a perspective only in the conditions of freedom of the subject of labor, his social independence, formalized in legislation and guaranteed by a new type of state. They were socially oriented liberals, the concept of "people" for them had a concrete historical meaning of the aggregate of people whose life was conditioned by the development of production. From science,

The revolutionary bourgeoisie emphasized the value of fairness in distribution - remuneration in any form should be tied to the quantity and quality of

labor, place in the management hierarchy of production. It is no coincidence that A. Smith drew attention to the fact that the correlation between the growth of labor productivity and remuneration is violated everywhere. In the spirit of the times, the Scottish scholar explained this by the moral downfall of property owners. J. Sismondi in his well-known work "New principles of political economy" (1819) argued in favor of regulating economic competition and the balance between supply and demand, initiated social reforms as patterns of production development. The classic of the 20th century J.M. Keynes was subsequently guided by his ideas.

Among the outstanding achievements of the classics of political economics is precisely what scientists economists who are guarding the interests of the present heirs of revolutionaries - the bourgeoisie of the eighteenth and nineteenth centuries, strive to carefully disguise:

- the fundamental position in the production of that labor that can be specifically measured in the product produced;
- development of a theory of value in relation to such work;
- freedom of the producer as a necessary condition for the development of production;
- the decisive factor in the development of production is labor productivity, and the improvement of labor productivity is due to the division of labor, which also facilitates the introduction of scientific and technological achievements into production;
- the goals of the economic movement are only partly located within the development of production, the main goal is determined by the systemic position of production itself in the life of a person and society. Production is a tool for solving problems of social and personal development, therefore planning should be socially and culturally oriented.

It is curious that all the leading economists - theorists of the 18th - early 19th centuries were noted in the history of thought as philosophers. So far, no one has tried to explain this fact, apparently believing it to be insignificant. In vain. The combination of philosophy and economic science in research turned out to be a tradition in subsequent times - Proudhon, Dühring, Marx, Engels, Mill, Spencer, the list goes on. The essence of the explanation of this union lies in the specifics of the epistemological and methodological purpose of philosophy and science. Philosophy is more focused on the discovery and definition of development problems, science - on ways to resolve them. Hence the normative nature of scientific knowledge. A. Smith and his contemporaries saw first of all the problems of the economic movement, that is, they showed their philosophical talents, then took up their scientific comprehension.

The need for planning in the economy was initially discussed exclusively in the context of its optimization, because planning was provided for by the rational nature of the organization of production. Planning was a phenomenal expression of management, and management was an attribute of production. In the titles of numerous studies by D. Ricardo, which served as material for his heirs - worthy and dubious, there is no word "planning", but the content of the work is built as a superstructure over the planning process of the corresponding actions of the economic order. Especially the British economist D. Ricardo was interested in pre-planning - a set of calculation operations of thinking that preceded planning at the stage of defining objective actions - choosing the direction and nature of participation, and when assessing the results,

Neither S. Smith, nor D. Ricardo, nor Sismondi opposed the freedom of economic choice to planning, and planning was not considered as an action incompatible with economic freedom. They interpreted freedom within the framework of the political conditions of life, that is, in the spirit of the ideological positions of a class that is solving the historical task of changing the socio-political, economic and cultural structure of social relations. It should be noted that a certain advance was characteristic of the methodological foundations of scientific research. They contained some limitations, but it is not difficult to see that these defects were actively overcome when it came to scientific calculations.

Unlike most of their descendants - today's scientists economists, the classics of economic science sought to involve in economic analysis not so much mathematical methods and the narrow content of the concept, as the fundamental categories of economic science. Their talent was used to build a theoretical basis for a science-specific analysis. In essence, the progress of scientific economic knowledge in the twentieth century was a superstructure over this basis, and what turned out from above looks more like the Leaning Tower of Pisa.

Intensive discourse on the content of basic political and economic concepts in the 19th century is not difficult to explain, the birth of something new in theory requires methodological shifts. To understand what the mechanism of clock pendulums should be, Huygens had to independently replenish mathematical analysis in six directions. A. Smith, being a pioneer in economic theory, solved methodological problems and could not share the purchased labor with the expended one. Mistake A, Smith was corrected by D. Ricardo, explaining that his predecessor did not notice that the cost of goods should also take into account the costs of production and operation of equipment. At the same time, D. Ricardo himself did not consider the cost of producing raw materials.

Both Sismody, Smith, and Ricordo estimated value in terms of the relationship of mainly things. The historically conditioned relations of people

remained for them, as it were, on the sidelines. Hence the inconsistency in understanding the political essence of production relations, their class character. For them, production was the stage on which the production scenario unfolds as a partner relationship. Some had capital, others knew how to do things. Each is a part of a common cause. In such a combination, the political essence of the economy is reduced to the foundations of organization, planning of development and distribution, that is, it is simplified to the level of special knowledge, moral responsibility and decency of the participants.

How does the above have to do with the theory and practice of modern planning? Direct. The foregoing analysis serves as a basis for asserting that the effectiveness of the practical part of planning is directly dependent on the quality of theoretical understanding, reflecting the natural nature of the emergence and development goals of production. The quality of planning theory is due to the methodology of its political and economic equipment. Planning reveals the level of depth of knowledge of the economic process that requires management, and the degree of reasonableness of management actions. The latter needs a special explanation.

Reason, as a phenomenon, has a double interpretation. In the philosophy of the past and in the new century, "rationality" was understood and understood as an independent phenomenon that realizes the identity of thinking and being, for example, Hegel's expression was the absolute idea; or it is considered as a unique ability of the subject - the highest level of the ideal ability to reflect reality. The characteristic of such a level is determined by the adequacy of the reproduction by thinking of what is happening outside of it.

Reasonableness is a guarantee of the ability to get an ideal copy of objective reality. The task of thinking with intelligence is to transform an opportunity into an appropriate result. The process of cognition - the reflection of reality by thinking is natural, therefore it can and should be planned. Here the main condition for obtaining a product is to conform the actions according to the nature of the object. On the way to the truth there are many obstacles associated with the specifics of the planned action, and with the specifics of thinking itself. Thinking is capable of knowing the truth, but it is also characterized by movement in the wrong direction, which may be a delusion, and may be deliberate in order to fit into the result of fulfilling someone's interests, to be the result of moral dishonesty.

Most of the vices in the search for correct solutions to economic problems have fundamental grounds, they are associated with a one-sided understanding of the functions of economic research, in particular, the sequestration of the political essence of economic science. Planning as a tool is considered on a utilitarian scale that allows you to simplify the process, leaving outside of it everything that is not directly related to production.

The essence of the economic transformations in Russia in the 1990s and their continuation in the “zero years” of the 21st century was to remove responsibility for social development from the economy, which meant opposing the economy to social policy. Politics is the business of the state and its institutions, and the new owners should be engaged only in production. To what was traditionally considered non-economic, added no less than what was traditionally attributed to the economy. The new owners removed the entire addition to the "state", considering all this to be an accompaniment of production, in other words, its infrastructure. Therefore, an oligarchic semblance of capitalism has grown in our country: the seizure of the most economically profitable property with the help of the state, outright robbery through raider seizures,

Corruption is not an excess of official powers in one's own interests and not securing profitable economic projects for bribes, corruption is a fusion of business and government. Such a rich country as the Russian Federation could not become poor in ten years due to irrational economic policy, miscalculations in the organization of planning. Poverty did not come for economic reasons, it was the result of the usurpation of power by political clans that expressed the economic interests of those who illegally became the master of national wealth. According to clearly underestimated statistics, no less than 71 percent of resources are currently controlled by one million owners, and 140 million cannot rely on even the remaining 29 percent, because the economic "reforms" that began in the 1990s are continuing.

Economic violence was carried out under political and ideological cover. The Demreformers carried out a gigantic scam, masking their actions by the need to decisively fight the centralized planning model. Realizing that their own practice and theory were doomed to failure, the initiators of the collapse of the socialist image of the economic system were in a hurry to take advantage of the created people of the great country and scatter around the world in the hope of finding shelter from its enemies.

The "scholarship" of the reformers was so high that it did not tell them the most elementary - the idea of socialism has long since gone from a ghost in different parts of the world to a political program, including government parties. Socialism attracts by the fact that it concentratedly expresses the logic of social progress and the meaning of the systemic position of production. The specificity of socialism reflects the specificity of historical time and national history. In the socialist orientation and organization of production, the systemic principle of social life is crystallized - the dialectic of the individual and society.

Society is a form of the reality of human existence, but the very reality of human existence exists and develops only thanks to the three hypostases of personality. Social history begins with the personality, it is its main subject of advancement, and in it is the goal of social progress. Production is intended to be the economic base of social practice aimed at creating socio-cultural conditions for the comprehensiveness and harmony of the human person.

Economic policy, which determines the image and purpose of planning, can be different, but all this political and economic diversity ultimately decomposes into two series of actions. The first row is formed by those programs that express private interests and are focused on the social benefits of representatives of these groups. Typical examples of such economic plans are the political programs of Trump in the United States and Macron in France. These programs are real, but not historical. They concentrately reflect one side of production - the stimulation of its growth, but the other is not defined - the final goal of the systemic status of production. The systemic place of production in social progress is commuting. Let's repeat: production serves as a way of personal development.

Expressed in terms of Hegel's genius, economic planning is divided into “real” and “reasonable”, aimed at creating conditions for personal satisfaction with their development, and “situational”, that is, beneficial to those social groups that create this situation in their private, not historical interests. Such a reality is possible, but it lacks "rationality" that reveals the logic of social progress. Here you can get temporary and private satisfaction, for which all other generations will have to pay handsomely.

Real history will surely pave its own way of movement through this kind of economic "blockages". But the "tax" of historical logic on the illogicality of human economic activity is very high. When they say: “measure seven times, only then cut it off”, then, in comparison with the “tax” on the unreasonableness of economic policy, such a ratio seems modest. There are calculations showing that for each year of the "bazaar" - the criminal arbitrary practice of planning - the country can pay with eighteen years of recovery.

The "Lomasters" of the 1990s did not defeat the planned economic development on a national scale. They turned out to be more active than the “masters” of the 1980s, confirming the old truth: history requires an active attitude towards itself. Naturally, the difficult history of the Russian Empire and the USSR did not deserve the continuation described above. It was necessary to activate the economic status of Russia in a different way. Russia will have to spend a lot of effort and resources to restore its international prestige. Politicians love to write about how bad Americans and NATO members deceived the first Presidents of the USSR and the Russian Federation. Much less common are analytical materials showing how Gorbachev and his company and Yeltsin and his like-minded people deceived those in the world who looked with hope at the fate of socialism in the USSR and, not without reason, counted on an alliance with the new Russia.

It would be interesting to go step by step mentally along the road map of the reformers of the 1990s, if only in order to enlighten their heirs, who are not appeasing, two decades later, the current political liberals. To trace how they were looking for a replacement for the previous practice of economic planning, completely ignoring not only national identity, which could somehow be explained, but also the concreteness of the historical process. In search of a possible model, domestic engineers - economists sorted out states from all continents. And, nevertheless, it is still not clear what should be after the end of the "transition period". What economic order we have to prepare for. The arrow is capable of transferring us to capitalism, however, here we are a century and a half late, and to socialism, which we seem to have renounced.

Despite the differences in particulars, the reformers of the economy remain within the general framework - to clear the planning of economic construction from social aspects. If on the banners of the revolutionary bourgeoisie was written liberte, which gave the name to the liberals and demanded that the state provide civil liberties in full, then the liberals of the new generation want freedom by removing the state from actively participating in the development of production through planning and control. They are trying to decentralize the management of the economy, remove social responsibility from economic activity, forcing only the state to be socially responsible, in every possible way hindering those actions of the state that lead to an increase in the social burden on economic profit. In essence, liberal reformers economists strive for special freedom and privilege of their status within the state. Any objectively reflective analyst will see a clear historical illogism: the founding liberals, who laid the foundation of liberal ideology, clearly outlined the main value of liberalism - equal freedom for all, as a necessary condition of social responsibility, and their successors in the 21st century are eager to be free so as not to bear responsibility for social progress. By and large, this is nothing more than a 180-degree turn towards the model of social inequality. Social equality is built not only by the state as political subjects, but also by all other subjects of society. They are even more than the state, are obliged by their social status to be responsible for the exercise of constitutional freedoms. The redundancy in the liberal interpretation of the foundations of social relations is easy to forgive A. Smith, who is convinced of the system-forming status of morality, but after it became clear that morality has a historical form and is formed under the

active influence of the economic basis, it is not a unitary formation - several varieties of morality, it is immoral to separate the economy from direct participation in socio-cultural improvement, positioning its progress as self-movement, to plan to cleanse it of the sociocultural burden. The idea of "infrastructure" is possible and expedient acquisition of science, but not in the case of the economic movement. Human intelligence has its own special history, however, it is absurd to understand it in isolation from biological evolution and the sociobiological continuation of natural history. Before human rationality appeared as the special ingenuity of liberal economists infected with the idea of reformism, it itself was a derivative product of labor activity, that is, the formation of economic reality.

The actual history of the mind is naturally built into the history of the development of what was eventually called economics by a historical process, therefore, socio-cultural progress, revealing the potential of human intelligence, must immanently belong to the economic movement. The concept of "superstructure" does not characterize some kind of artificial constructive addition to the main structure, it helps to understand the architecture of a monolithic structure. No matter how you depict the first floor and call the second the first, you will not be able to get rid of their structural unity - the second will be considered above the first and the second will be, thanks to the first: there will be no first, there will be no second. But the first without the second is quite independently real. Labor history has a natural beginning in the life of animals. Namely, in the animal world, nature "worked out" the model of human reality and "realized" that without achieving a socio-cultural effect in such practice - psychological progress; transformation of smart thinking into conceptual through the development of abstract ability; the formation of the importance of a holistic perception of the world on the basis of imagination and the strengthening of the social value of responsible behavior - that is, the formation of rationality, labor will not be able to realize its potential. The history of labor, which has grown into the history of production, which has become the object of special scientific analysis, which provided the subject of economic science, is the history of a single interdependent process, consisting of labor activity and its socio-cultural support. The only problem is to what extent the socio-cultural factor is economic? Trying to be smarter than everyone liberal economists found themselves above both science and the achievements of a philosophical understanding of the reality of human existence. In the interests of business, they decided to reconstruct the logical structure of the system of social life, which has developed historically. To simplify the basic part of the social structure - to separate economic activity from socio-cultural, regardless of the objectivity of relations, or the pattern of development. To this end, the reformers came up with a new scheme - to close the socio-cultural sphere to the state. disregarding either the objectivity of ties or the pattern of development. To this end, the reformers came up with a new scheme - to close the socio-cultural sphere to the state. disregarding either the objectivity of ties or the pattern of development. To this end, the reformers came up with a new scheme - to close the socio-cultural sphere to the state.

The state does have such a function, but it is not the only responsible social subject. Reasonableness and sociality are immanent signs of everything that constitutes social life. An attempt to free oneself from "super-economic" burdens, referring to the need to rationalize and optimize the structure of relations - to replace the immediacy of relations with mediation; economic policy - we taxes the state, it fulfills socio-cultural responsibility for us - a typically selfish move. The goal here is obvious, and, unfortunately, it is not to make production more perfect, but to pay less for the right to produce, leaving a larger margin for itself. One example to illustrate: early libraries, cultural institutions, in many places the schools of Siberia appeared only with the construction of the railway and with the help of the railway. Railway builders and railway managers did not consider such activities to be an infrastructural load, on the contrary, for them it was the messiah of a new mode of transport. Compare what Russia received from the reform of railway management in the 1990s - 2000s: in the 1990s alone, the length of railways in the Russian Federation was reduced from 87,200 km to 86,000. The reformers did not build anything, they closed the traffic along rocky roads, sections connecting settlements formed at the sites of large-scale forest and peat mining, with the main passage; stopped the maintenance of the socio-cultural arrangement of residents, including railroad workers. Railway builders and railway managers did not consider such activities to be an infrastructural load, on the contrary, for them it was the messiah of a new mode of transport. Compare what Russia received from the reform of railway management in the 1990s - 2000s: in the 1990s alone, the length of railways in the Russian Federation was reduced from 87,200 km to 86,000. The reformers did not build anything, they closed the traffic along rocky roads, sections connecting settlements formed at the sites of large-scale forest and peat mining, with the main passage; stopped the maintenance of the socio-cultural arrangement of residents, including railroad workers. Railway builders and railway managers did not consider such activities to be an infrastructural load, on the contrary, for them it was the messiah of a new mode of transport. Compare what Russia received from the reform of railway management in the 1990s - 2000s: in the 1990s alone, the length of railways in the Russian Federation was reduced from 87,200 km to 86,000. The reformers did not build anything, they closed the traffic along rocky roads, sections

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Thousands of settlements, millions of people have lost a stable way out of their places to regional and regional socio-cultural benefits. Planning unfolded exclusively in the direction of the transition to full cost accounting, which meant one thing - "optimization of the economy" by reducing costs, primarily "non-production", which included the socio-cultural complex. In words - in speeches and publications - the leaders called for mobilizing reserves to create sufficient conditions for the development of "human capital" as the main resource for production progress, in reality it turned out to be quite different. The bureaucratic apparatus did not deprive itself of the advantages of sociocultural support. Full cost accounting in the Russian Federation during the period of complete transition to a new economy was presented in the planned context as extremely simple: not so much to increase labor productivity by means of scientific and technical equipment of production and the creation of socio-cultural conditions for the growth of human capital, but to “optimize” costs. Before the reforms of the 1990s, there was a long queue "for the driver", the reform reduced it and led to a shortage. There are many places, especially in Siberia, Transbaikalia and the Far East, where the railway service would be depopulated altogether if people had other jobs. Railways are our main national mode of transport. Russia, the USSR grew with railways, built them actively and equipped them socio-culturally, thinking about people. A socially and culturally equipped people is a value in the state number 1, even Catherine the Great complained: I would be glad to build an enlightened society, but we do not have an enlightened people yet. Railroad construction has been planned since the 1840s; Nicholas I personally appeared as a domestic Hamlet - he was solving the problem: "to be or not to be" railways. The court dissuaded the emperor, convincing him that revolutionary evil spirits would roll from Europe along the railways, and in general our climate makes railway construction unprofitable. Scientists and entrepreneurs, cultural figures actively advocated the country's railway future. The destinies of the economy and culture even then merged in economic policy, revealing the dialectic of interdependence in the planning of economic and socio-cultural interests. The reforms in Russia in the 1990s were economic in motivation and purpose, but in essence they were political reforms. 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The result of the reforms turned out to be proportional to the new approaches in planning and management: the economy cannot recover in thirty years. The exception is the extractive industries, which have increased production, developing mainly previously discovered deposits. In agriculture, more grain is being produced, grain is an export product. They launched construction, but none of the chronic problems of the population has been resolved. The picture is consistent with the above analysis. Only export-oriented production moves on a regular basis. It is either owned by the oligarchs or under their real control. They are ready to provide the whole world with gas, but their population cannot wait, especially aside from the main pipeline. Gas and gasoline prices hurt those who are classified by advertising as the owners of energy resources. Statement: “Gazprom is a national treasure” more and more Russians are annoyed. Optimization in planning destroyed the system of organizing health care and education; forest fires have become regular disasters, and floods have been added to them, significantly different from the usual and known for a long time. The authorities are trying to blame them on the "natural disorder" caused by climate change, but very few people already believe in such an explanation. The population migrates from the Far East, Eastern Siberia, Western Siberia is next, and some 50 years ago people were actively traveling to these places to build, raise science and culture. BAM was built by the whole world, finances were limited, but they found money for social and cultural life, albeit of a modest scale. education; forest fires have become regular disasters, and floods have been added to them, significantly different from the usual and known for a long time. The authorities are trying to blame them on the "natural disorder" caused by climate change, but very few people already believe in such an explanation. The population migrates from the Far East, Eastern Siberia, Western Siberia is next, and some 50 years ago people were actively traveling to these places to build, raise science and culture. BAM was built by the whole world, finances were limited, but they found money for social and cultural life, albeit of a modest scale. The population migrates from the Far East, Eastern Siberia, Western Siberia is next, and some 50 years ago people were actively traveling to these places to build, raise science and culture. BAM was built by the whole world, finances were limited, but they found money for social and cultural life, albeit of a modest scale. The population migrates from the Far East, Eastern Siberia, Western Siberia is next, and some 50 years ago people were actively traveling to these places to build, raise science and culture. BAM was built by the whole world, finances were limited, but they found money for social and cultural life, albeit of a modest scale.

Those who developed the plans, based on real experience, understood the impossibility of implementing projects without what serves the development of the individual, satisfies his cultural needs, and warms the soul. After all, people went to large construction sites from places where they were inhabited and equipped. To the question: what's the matter? The answer is as easy as shelling pears. At the described time of rise, with all the punctures and costs, the goal was universal - the well-being of the Fatherland. Of course, even at that time the benefits were not shared equally - there were both rich and poor, the main thing was that the goal seemed to be the same and the opportunity to make a career was equally set. They built and produced not for the pleasure of the "golden parachutes", they promoted the country and themselves together with it.

The liberal ideology of planning, clearly dominates in modern economic policy, reflects the objective state of society, which found itself in a difficult situation of development, when the previous understanding of the political and socio-economic perspective, either could not overcome the emerging crisis, or realized its creative potential, required a change ... In both versions, it was not without the participation of opposition forces, claiming the right to resolve social contradictions.

The growth of globalization has also affected the implementation of political and economic changes in domestic reality. Their foreign comrades-in-arms helped our "missionaries" to direct public consciousness on the path of liberal ideology, but the essence of what happened in the 1990s was not determined from the outside. A foreign policy conspiracy undeniably took place. This is evidenced by the collapse of prices for energy carriers of clearly artificial origin, and the numerous promises of assistance that turned out to be false, and the demonstration of sympathy for the changes and the willingness to share the accumulated ideological experience. In the late 1980s and the beginning of the new decade, the world was still two polar ones. In general, we have never considered our competitors enemies. For us, they were opponents. And suddenly the enemy appeared as a friend, ready to help in every way.

The metamorphosis in relation was supposed to make one think: for what such grace? The answer lay on the surface. New relations were offered for changing the political and economic course, the beginning of which was to be a radical methodological break. Gorbachev's "new political thinking" found objectification in "perestroika", which blurred the contours of social development guidelines. We went out of our way, instead of repairing it again, as it was in much more difficult conditions. Suffice it to recall the NEP: socialist industrialization; higher education reforms that have made it one of the best in the world; creation of optimal conditions for the development of science, mobilization of scientific and technical resources, which made it possible to prevent the third world war; the initiative to use nuclear energy for peaceful purposes; space exploration program and much more. It was necessary not to "patch holes" in what had become obsolete, but on the old methodological and socially oriented platform, to develop new options for socialist construction.

Capitalism, we repeat, by the twentieth century completed its "classical" history and was forced to rebuild, forcibly abandoning what once helped it to rapidly increase its advantages: the colonial system collapsed as a result of a long struggle for independence; wars aimed at redistributing property became a dangerous business - they could return like a boomerang; had to agree with the idea of peaceful coexistence; it was necessary to strengthen the social direction in economic policy; the question of the maximum load on the natural habitat arose sharply. There have already been different stages in the history of capitalism: primary accumulation of capital; revolutionary activity; monopolization of capital; concentration and domination of financial capital.

In nature, a biogenetic law operates, according to which representatives of a more perfect species in the process of their uterine formation in an accelerated mode repeat the main stages of biological evolution. Thus, nature binds the course of evolution, ensuring continuity and strengthening the strength of evolution. Something similar can be conditionally distinguished in social history. At the turn of the 20th and 21st centuries, it is quite possible to try to become a capitalist, but it is highly doubtful to become capitalism, to fit into the system of capitalism that has been forming for centuries as a socio-economic entity. The line-up was formed, and the locomotives, designed to be the driving force, were at the limit of their capabilities. New "cars" threatened to slow down,

The capitalist perspective of the Russian Federation enjoyed only domestic liberals, who were blinded and deafened by their hatred of communist ideals. They, and twenty years later, it seems that capitalism, not communism, is the bright future of mankind. The metaphysical nature of liberal thinking is manifested in the desire to strengthen the position of linearity of thinking in ideology, to stop historical development at the level of the bourgeois organization of social relations, to wrest the capitalist spiral from the spiral of social progress and to declare that at this stage the nature of the development of society has radically changed - the historical spiral straightened out and became forever straight-line movement. One could agree and accept their understanding as an option if liberal reflection had an internal systemic form,

A liberal approach to planning economic activities, which pulls the solution of economic problems out of the systemic nature of social relations, opposing economics to sociocultural improvement, leaves no reason for a compromise with the adherents of the liberal course.

A critical analysis of the liberal planning methodology provides sufficient material for a number of fundamental conclusions.

First of all, it should be noted the desire of the liberals of the XXI century to methodological simplification of knowledge and social construction, including planning, economic development. By actively involving the mathematical apparatus in economic science, universally turning to IT technologies, economists do not activate their own methodological resources of economic science. In comparison with the fact that A. Smith, D. Ricardo, K. Marx, J. Mil, G. Spencer contributed to the methodology of economic knowledge and transformation, the methodological acquisitions of the twentieth century look more like a deep depression of philosophical and scientific reflection. A small part of modern researchers continues to look for ways to advance in the direction of dialectical and systems approaches, realizing the limited capabilities of the mathematical apparatus. Mathematics for economic research is an auxiliary part of the methodological equipment of the search for solutions to the development problems identified by research

experience. It is not even able to formulate a problem, its capabilities help to quantitatively assess the state of movement of economic processes. Mathematical modeling is effective in terms of developing possible prospects for spontaneous and constructed processes, but it has never been "political mathematics" in contrast to political economy.

It is necessary to heed the warning of K. Yaskers about the fundamental difference between the desire for simplicity of scientific thinking and simplification as a search for a way out of a complex scientific situation, sequestering its content. Simplicity is the path to true understanding, and simplification is movement away from it under the guise of scientific likeness. A direct confirmation of this conclusion is the recognition in economic research and projects of the "admissibility of speculation."

Speculative thinking is a well-known phenomenon that arises in philosophical reflection or in the course of scientific discourse. Its epistemological nature is well studied - outside the systematic assessment of individual aspects of the subject of thinking and, as a consequence, the absolutization of the meaning of these aspects. Mental speculation falsely reflects objective reality, therefore it is permissible to qualify it as a cost in the production of the required knowledge. It is extremely rare that speculation was the product of the artificial induction of the cognitive process in the wrong direction of movement. The "scientific admissibility of speculation" (by liberal economists) has a completely different epistemological mechanism of education, which indicates that there is nothing related to the postulates that distinguish the scientific way of knowing from the unscientific in their thinking.

It is always necessary to clearly differentiate philosophical reflection, scientific thinking and unscientific ways of knowing the world. The problematic nature of philosophical knowledge is logically compatible with the subjective costs of thinking. The falsifiability of philosophically identified problems is limited, since philosophical knowledge is conditionally standardized.

Scientific knowledge, on the other hand, must be subject to either strict verification or equally severe falsification. It does not reproduce in consciousness its attitude to the object (object), it is, in terms of content, a 100% objectified process. Even the choice of the coordinate system, reference point, etc. by the subject of thinking is regulated at all stages of cognition. When scientific knowledge is "enriched" by the "admissibility of speculation", then such an addition testifies to one thing - the desire to modernize the post-non-classical stage of the history of science by the fact that it has nothing to do with the current time or scientific history at all. Admitting speculation not as a cost, but as a scientific phenomenon in the knowledge of the economic movement, innovator economists want to squeeze a subjective action into the chain of objective reflection of the developing reality, sliding in perspective into solipsism. Scientific knowledge is objective, the characterization of the scientific nature of knowledge begins with objectivity, if economic thinking strives to be scientific, it must filter knowledge on the basis of objectivity. "The admissibility of speculation" is tantamount to its legalization in scientific knowledge. This is nonsense for legal sciences, logic, ethics, aesthetics, cultural studies, a negative phenomenon for historical science, political science, sociology. As a fact of objective reality, speculation undoubtedly exists, therefore, scientific - economic, political science, psychological, legal interest in it is justified, however, one thing is the attention of science to the fact, and quite another is the desire to substantiate the regularity of the systemic belonging of speculation to economic science as a necessary condition its development. Scientific knowledge is objective, the characterization of the scientific nature of knowledge begins with objectivity, if economic thinking strives to be scientific, it must filter knowledge on the basis of objectivity. "The admissibility of speculation" is tantamount to its legalization in scientific knowledge. This is nonsense for legal sciences, logic, ethics, aesthetics, cultural studies, a negative phenomenon for historical science, political science, sociology. As a fact of objective reality, speculation undoubtedly exists, therefore, scientific - economic, political science, psychological, legal interest in it is justified, however, one thing is the attention of science to the fact, and quite another is the desire to substantiate the regularity of the systemic belonging of speculation to economic science as a necessary condition its development. Scientific knowledge is objective, the characterization of the scientific nature of knowledge begins with objectivity, if economic thinking strives to be scientific, it must filter knowledge on the basis of objectivity. "The admissibility of speculation" is tantamount to its legalization in scientific knowledge. This is nonsense for legal sciences, logic, ethics, aesthetics, cultural studies, a negative phenomenon for historical science, political science, sociology. As a fact of objective reality, speculation undoubtedly exists, therefore, scientific - economic, political science, psychological, legal interest in it is justified, however, one thing is the attention of science to the fact, and quite another is the desire to substantiate the regularity of the systemic belonging of speculation to economic science as a necessary condition its development. the characteristic of the scientific nature of knowledge begins with objectivity, if economic thinking strives to be scientific, it must filter knowledge on the basis of objectivity. "The admissibility of speculation" is tantamount to its legalization in scientific knowledge. This is nonsense for legal sciences, logic, ethics, aesthetics, cultural studies, a negative phenomenon for historical science, political science, sociology. As a fact of objective reality, speculation undoubtedly

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"Speculation", by definition (omitting its philosophical interpretation as "contemplation, speculation") is "calculation, intent based on something, the use of something in selfish interests." Therefore, law enforcement agencies should deal with speculation; it would be nice for them to pay attention to speculative manipulations, those who are looking for justification for speculative actions in the economic and political sciences. Political liberals, for example, hardly hide their desire to bring terrorists to the actions of those who are called the political opposition, then terrorism would be easily done away with. So the United States and its partners officially recognized the Taliban as an opposition political movement, that is, they legalized Al Qaeda and ISIS, organizations banned in the Russian Federation, next in line. Economic speculators are no less dangerous in the context of social progress than terrorist advocates. It's just that the effects of their negative impact on economic and socio-cultural development are not so psychologically resonant, moreover, they have grown into the existing corruption scheme and look like their own for many.

The advancement of economics, as follows from the above, is not accidental. It is primitive, manipulative, controlled, it is not held by the "anchors" of the requirements for objectivity and essential reflection of reality by scientific knowledge. Scientific knowledge reveals facts in order to understand the regularity of their existence, and economics scientifically describes the structure of facts.

The second main conclusion is no less obvious: on the platform of methodological simplification of scientific analysis, curtailment of the systemic approach and rejection of the dialectical way of thinking in favor of methodological anarchism and borrowing, liberal economic theory systematically lowers the epistemological and sociological status of the concept of "planning". The task here is this: it is necessary to simplify the concept to such a content that its scope of use opens up the possibility of a purely digital solution of all problems according to the program for optimizing the economic component. Planning should be a technically feasible activity, free from social policy.

The main obstacle on the way is the growing demand of social progress for the efficiency of economic construction. If we convert specifically - the historical content of the modern stage of social development into a purely economic process, that is, remove socio-cultural construction, "pushing" it to the

state, then economic planning will be completely free and will move forward, driven by the prospect of maximizing profits and the absolutization of competition.

Liberals hide the growing contradiction of economics to everyone else. The day is not far off when mathematics will present its accounts to liberal economists. Economists, mercilessly exploiting mathematics, do not give the expected results either in the development of production management or in mathematics itself, and in fact they devalue the value of mathematical analysis with their extremely low productivity. Political strategists, who spoke in favor of the digital economy, have promised another "life buoy" to economics, replacing the concept of "economy" with the concept of "production". Production will become digital. The economy emerged, formed, and will continue to develop as a basic social instrument of social progress, which, in turn, has been and will remain the main factor in the development of people. The economy must have a human face. All its other characteristics are derived from its humanitarian vector. But only in the liberal - economic dimension, economic planning is consistently moving away from the satisfaction of personal development needs. It would not be so, it would not make sense to "teach speculation." They persistently try to present speculation as a necessary link in scientific thinking, and this is done in the interests of the minority that controls the distribution, and does not produce a real product. Within the framework of artificially constructed relations in the superstructure over production, speculation has been legally flourishing for a long time, but it is unnatural within the framework of the regularity of the formed system of production itself, where everyone, regardless of their position, is a participant and has the right to count on their legal share in the product produced. The order of distribution is determined mainly by property, and only then by the shares of participation in the production of goods. The gap between two realities - labor and property, the direct creator of a real product and its real owner - formed in connection with the regularity of the development of production and social superstructure, opens up a real opportunity to supplement objectively natural reality, a conditionally existing reality, virtual or speculative. It is she who is considered as the path of movement towards property. the direct creator of a real product and its real owner opens up a real opportunity to supplement objectively natural reality, a conditionally existing reality, virtual or speculative. It is she who is considered as the path of movement towards property. the direct creator of a real product and its real owner opens up a real opportunity to supplement objectively natural reality, a conditionally existing reality, virtual or speculative. It is she who is considered as the path of movement towards property.

Speculation is a roadmap to capital that can be sufficient to start a real business. And in this version, speculation has real meaning, it can be a conditional fact of scientific research. But under the dominance of financial, in essence, speculative capital, speculation has become a stably autonomous variety of activity, divorced from the production of a real product. Market speculation is an excessive form of intermediary activity. It has already become an obstacle to the development of production. And so the costs of the social movement began to concentrate in it. By and large, speculation has matured, blossomed and outgrew the limits of law-enforced reality.

It is a typical phenomenon of that form of reality that inhibits progress, having squandered the rationality of its action, is subject to denial. However, everything will remain the same, because speculation has a reliable "roof" protecting it from political control, financial capital on a transnational scale.

So, historical logic requires that the planning of economic activity be carried out in a systemic form of expression, create optimal conditions for sociocultural development and be steadily focused on the humanitarian result. Economic planning is conditioned by the solution of socio-cultural problems, therefore, the models of economic planning should be complicated, not simplified. Economic analysis of the situation, prior to planning, should be based on special scientific research, be conceptual. Deepening the epistemological and methodological equipment of economic reflection presupposes the active use of the requirements of dialectical thinking - the comprehensiveness of the involvement of historical dialectics and a sufficient completeness of the analysis of the relevance of the involvement of historical dialectics, as well as the advantages of a systematic approach. Domestic specialists should bear in mind that foreign researchers also criticize liberal innovations, opposing them with an objective analysis of production development trends. We have something to be interested in. Let us take, for illustration, the reasoning of the authoritative American specialist J. Galbraith. In his famous book "New Industrial Society", he critically traced the history of the modern industrial system of the 20th century, which subordinated the formation of social relations and the human personality itself. As a result, J. Galbraith came to the conclusion about the need for radical changes in it, but not those that liberals advertise. We have something to be interested in. Let us take, for illustration, the reasoning of the authoritative American specialist J. Galbraith. In his famous book "New Industrial Society", he critically traced the history of the modern industrial system of the 20th century, which subordinated the formation of social relations and the human personality itself. As a result, J. Galbraith came to the conclusion about the need for radical changes in it, but not those that liberals advertise. We have something to be interested

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J. Galbraith compared the development of industrial systems according to two significantly different scenarios, planned, which liberals - economists identify with socialist governance, and market, regulated through competition. Liberals always cite the latter as an example, as the ideal embodiment of economic freedom. Based on the experience of the economic history of two-thirds of the twentieth century, which absorbed both the rise and the "great depression", peacetime and wartime, the American scientist showed that economic progress does not contradict the planned activities of the state. Thanks to the analysis of economic processes in the format of social and personal changes. J. Galbraith convincingly demonstrated the limitations of the liberal concept of economic freedom.

Galbraith's conclusions are relevant for a correct understanding of what was happening at the end of the 20th century and in the early decades of the 21st in Russian society, on the one hand, and for an adequate assessment of the futility in the scientific and practical aspects of the ideas of Russian liberals who turned into conservatives. The industrial system is dangerous by the high level of its organization, it is increasingly turning into a gigantic mechanism, acting according to its own order, functionally tightening the personality, subordinating it to the freedom of its organization. The industrial order, so important and beneficial for the development of production, becomes a trap for the progress of the individual, leads to the one-sided development of the individual - the formation of a technical man. The “specialist” displaces the personality from the goals of social development. Economists need a specialist sharpened for the technology and organization of production, the personal development of liberals - economists seems transcendental for the purposes of production. Production requires not a person for its development, but a specialist who knows and knows how to work. They build the functions of culture and education for the training of a specialist. There is no need to go far for arguments, there is no need to plunge into the history of the United States, you just need to turn towards the modernization of domestic special education - secondary and higher, ousting from the programs everything that contributes to personal development in order to emphasize the process of training a specialist in the direction. The personal model of education has given way to a competence-based one. Production requires not a person for its development, but a specialist who knows and knows how to work. They build the functions of culture and education for the training of a specialist. There is no need to go far for arguments, there is no need to plunge into the history of the United States, you just need to turn towards the modernization of domestic special education - secondary and higher, ousting from the programs everything that contributes to personal development in order to emphasize the process of training a specialist in the direction. The personal model of education has given way to a competence-based one. you just need to turn towards the modernization of domestic special education - secondary and higher, which is pushing out of the programs everything that contributes to the development of the individual in order to focus the process on training a specialist in the direction. The personal model of education has given way to a competence-based one. you just need to turn towards the modernization of domestic special education - secondary and higher, which is pushing out of the programs everything that contributes to the development of the individual in order to focus the process on training a specialist in the direction. The personal model of education has given way to a competence-based one.

The USA survived this reform back in the 1960s and, according to J. Galbraith, became disillusioned with the idea of coaching education for training in a specialty. Both in the field of foreign and domestic economic policy, wrote G. Galbraith, everything that is considered - and not without reason - as an automatically accepted or taken on faith position of people now called the "establishment" is being questioned. These mindsets need political guidance ... This process of reassessment of tasks has arisen because the idea of liberal reform is no longer quoted. In the past, liberals have acted like economic liberals; reform meant economic reform. The task of this reform has invariably been repeated in hundreds of programs, speeches and manifestos. Production must grow; income must grow; income distribution should be improved; unemployment must be reduced. This was what the program of liberal reformism boiled down to for decades. Even the ten biblical commandments are less known and, of course, are much less implemented than these requirements ...

The role of a liberal reformer does not require effort, it is not associated with any violent disputes, scandalous strife, no one has to be persuaded and persuaded. All that is required is to stand still and bow when the Gross National Product increases again. At the end of his book, J. Galbraith concludes: “The progress we are talking about today (recall that the book was published in 1967) will be much more difficult to measure than the progress that is associated with the percentage of growth in the gross national product or with unemployment rate. This is due to the fact that the tasks, which the industrial system sets for itself are so narrow that they lend themselves to accurate statistical measurement. But life is hard. The definition of the prosperity of society should be a subject of discussion. " We would like to complete the study of the methodology for planning the development of production by listing the monographs of J. Galbraith: "American Capitalism" (1952), "The Great Crash" (1955), "The Society of Plenty" (1958), "The Time of Liberalism" (1960 .), "New Industrial Society" (1967). It seemed that the author had found a name for modern society, perhaps it was so, but when J. Galbraith revealed the essence of the "new industrial society", he realized that this society, despite its novelty, was outdated. What the future society should be like, the scientist did not know, so he accurately defined the emerging society as a "society of prosperity",

J. Galbraith corrected the status of economic science with the dynamics of welfare in society. As wealth rises, the role of economic research changes. When people are malnourished, poorly dressed, do not have decent housing and die of illness, the priorities are those that improve their material conditions of life, it is necessary to look for economic ways to increase income - "people are most diligently looking for ways to save their souls with a full stomach." With a high level of income, problems other than physiological ones arise, and society is obliged to help its citizens in solving them. The advantages of a comprehensive analysis of changes are significant, J. Galbraith argued. “Also great - and growing over time - are the benefits of an analysis of change that goes beyond economics. This is because

J. Galbraith generally adhered to the "general line" of the modern interpretation of the subject and functions of economic science in the West. He distinguished scientific economic research from political problems, beliefs that their solution goes beyond the competence of economic science, are the prerogative of the authorities themselves. We will not judge how fair his position is. Let us only recall: there was a post-war period of obvious successes in capitalist construction, economic science was not relevant to an expanded interpretation of the subject of its research, to be a political economy, to explain economic inconsistencies by political relations; secondly, we note that J. Galbraith felt very uncomfortable, realizing that limiting, like liberals, economic analysis by a simple study of the dynamics of the economic characteristics of production, he drove himself into a dead end. To understand the system requires a systematic approach.

Economic globalization is a policy that uses the objective trend of integration of national economies. This is clearly illustrated by the example of the WTO. The WTO, on the one hand, stimulates the planned form of managing the economic movement, on the other, it strictly regulates the possibilities of planning the development of the economy on a national scale, subordinating national interests to global goals, the justification of which, from a scientific point of view, looks insufficient and politically biased. Meanwhile, having entered the WTO, the country is forced to accept the conditions of this largely political game.

National economic development projects are more and more loaded and adjusted not in the national interests, which we have to put up with as the costs of globalization. At the same time, it should be borne in mind that there is no alternative to integration. Homo sapiens exists as a universal species. The earth is his common home, development is a common interest, synthesizing biological evolution and social and cultural arrangement.

When planning, it is necessary to proceed from the dialectical requirement for the comprehensiveness of an objective analysis of reality, once and the need to act together in common interests, two. States have something to share, but history cannot be tested for strength, mankind has no other history and will not have another history. Dialectics has opened up to us a range of opposition, both practical and theoretical. The struggle is reasonable exclusively within the boundaries of unity, therefore, the contradictions should be filtered through the need to obtain a general result corresponding to the laws of motion of the human reality of being.

Scientific knowledge comes with a cost. Scientists' understanding of what is happening does not always take the form of true knowledge; delusion is a natural movement of any knowledge, here it is important to have a critical attitude. A scientist must not believe, he must doubt. J. Galbright is an honest scientist, aware of the limitations of his scientific potential, he logically addresses the discussion, in scientific disputes he sees a way out of deadlocks and dubious judgments.

K. Marx was careful about the mistakes of those who served science, believing that not politicians, but scientists are called upon to determine the path of economic development. Politicians should create the political conditions for resolving economic problems, following the recommendations of scientists. J. Galbright is absolutely right when he talks about the complication of social development and the need, in this connection, to consider economic knowledge and planning in a new, broad sociocultural format. An

American scientist with a similar methodological attitude did not come to the court of domestic reformers - liberals at the end of the last century, when the time of economic reforms was compressed, then there was already a train of vices of their actions. Soros turned out to be the idol of our liberals - a typical financial and political speculator. Speculators without ideas have found a speculator with ideas.

Main part

The history of the market took shape as an interconnection of two movements. One of them led to the spread of the market, the other - its development. Both acted in a common direction - they gave stability to the market, ensuring the progress of production through the stability of the market. The growth of the market was a consequence of the division of labor and an increase in its productivity, which led to a decrease in production costs, prices and opened the availability of goods to consumers. The development of the market proceeded at the expense of the quality of goods and in the end found its continuation in the policy of managing the quality of production through the improvement of organization and standardization. After saving capitalism, economics abandoned its political function, reduced the methodological and ontological base, trying to get out by activating the mathematical apparatus, fundamental concepts, pillars for scientific knowledge, were in the economic archive. The modern history of economics began in the minds of famous philosophical thinkers. Classical political economy was developed not so much by economists as by philosophers: Sismondi, Smith, Ricardo, Hume, Marx, Mill. They adhered to various philosophical concepts, but were unanimous in understanding that the birth of science, the quality of scientific knowledge, first of all, owed to the methodology - general scientific and specific to each science due to its ontological originality. The rejection of the political component in economic theory is explained by the need to achieve true freedom in knowledge, the independence of scientific thinking. The truth is that through political analysis and only in this way, it is possible to impart a systemic-historical character to economic analysis. History shows that social progress was carried out on an economic basis, thanks to a natural change in the modes of production. When the time came for the bourgeois way to replace the feudal, constantly operating market, to replace seasonal fairs, making them their private form, freedom fighters began to glorify democracy together, to prove the historical legitimacy of the arrival of a new economic, social and political order. Now the natural process of changing the economic order has been quietly silenced. On the contrary, attempts are being made to turn the historicism of development back into the past, presenting the recognition of its truth as limited in time, valid only until the period of formation of capitalism. The reserves of capitalism are quite sufficient to overcome the time limits. With the aim of perpetuating capitalism, it was divided on a private basis - the industrial form of production. History even under capitalism enters into a post-industrial formation, which will remain forever, and all other manipulations with its definitions will not go beyond the post-industrial stage of history, whatever you call it, a technotronic society, information society, general prosperity, digital. We specially focused on the analysis of bourgeois philosophical thought, designed to identify the history of the future with the history of bourgeois society, in order to reveal the nature of the substitution of the methodology of economic analysis by statistical - probabilistic calculations, economic science by financial analysis, and to show what this substitution leads to. Private scientific methodology is the most important component of scientific knowledge and creativity, but its meaning is revealed in a more general context developed by epistemology. Scientific and scientific-technical creativity is subordinated to the system of philosophical knowledge and design. It is the concretization of the ascent of knowledge from the abstract to the concrete, the process of filling the movement of thought with content that reflects the objective feature of scientific and engineering thinking. It is this kind of thinking that is associated with the concept of quality. The development of production, the improvement of the market, the organization of distribution and utilization - all this is subordinated to the solution of the quality problem.

Entering the world market in 1970-80 and striving to win a worthy place there for the next ascent, Japanese scientists and engineers relied on the total - systemic - value of quality. They considered quality precisely as a system of the most essential properties of production, requiring the mobilization of the national potential of spirituality: education, upbringing, citizenship, concentration of scientific and engineering thought. Quality has become a symbol of Japan's return to the community of world powers. The Japanese did not look for symbols among historical figures, monuments, nature, creative achievements, they were not tormented by the search for a national idea. They locked their future on quality and won, squeezing the most technologically complex sectors of the market from the Americans in one - one and a half decades - automotive, electronic and, in part, textile. The Japanese managers understood quality in two projections: firstly, as the quality of production of goods, and secondly, as a high-quality organization of their sale, including functional support of durable goods. In Japan, in pursuit of competitors, the end of the 2000s was associated with a national movement for the quality of everything created in the country. Having correctly understood that quality is a technical problem in the last place, therefore, it is necessary to start with the philosophy of quality,

proceeding progressively to the scientific development of the concept of quality, then to its technical expression and, further, to the quality of consumption and disposal of high-quality goods, Japanese specialists won the competition against the world giants. Standardization and technical regulation in Japan was determined not instead of and not next to quality, and after quality as products of the development of the doctrine of the quality of production and the importance of a high-quality economy for improving the structure of national consumption and achieving the authority of Japanese manufacturers in the world. “Quality”, like “quantity”, “measure”, are universal philosophical categories for characterizing the objective world, its cognition by science and transformation in the practice of industrial, scientific, technical and social creativity. All other concepts used are derived from the understanding of the above categories, which was developed in philosophy. It is incorrect neither to identify them with the original concepts, nor to represent them equivalent to them. They are the product of their concretization; therefore, all derived concepts must satisfy certain requirements. There are two main ones: be developed in the context of philosophical teaching and be private-subject-specific - in relation to basic concepts. Derived from philosophical categories, special concepts such as “standard”, “regulations”, “technical measure”, “technical task”, etc., are expedient as a necessary simplification of universal concepts, “binding” to practical specifics. Their most important importance for the organization of industrial policy should not be in doubt. In terms of solving problems that arise directly in production, they are the most effective tools. "Binding" to practical specifics. Their most important importance for the organization of industrial policy should not be in doubt. In terms of solving problems that arise directly in production, they are the most effective tools. "Binding" to practical specifics. Their most important importance for the organization of industrial policy should not be in doubt. In terms of solving problems that arise directly in production, they are the most effective tools.

This, in particular, is taught by the domestic experience - successful and not very good - of import substitution. However, you should always remember the requirement of a systematic approach: particular problems are successfully solved in the light of the general context. One should not rely on the general as on God, and one should not replace the general with private experience. Biblical texts look indicative. They are written mainly not as an edification and indication of the only solution, but as information for thought in a certain direction. The standard should be a quality standard. In the East, there is a popular saying: “As long as you hide donkey ears, they will still come out”. Its meaning perfectly characterizes the science of economics. All efforts to separate economic theory from politics and replace political economy with "pure" economic theory are designed for the simple-minded man in the street, happy with his achievements and confident in his future. Academic economists, acting out of conviction or according to political trends, are concerned about one thing - there are fewer and fewer satisfied with their recommendations over time, and the mass of critical attitude grows.

There is nothing non-political in economic theory, there is only something indirectly related to politics and openly serving politics. Even the very course of economic thought is built in a political trend. Take, for example, such an urgent and seemingly completely neutral problem as quality management. Everyone is interested in its optimal solution, with one invariant amendment - everyone pulls the "blanket over himself", hoping to get the maximum. Therefore, in the foreseeable future, the problem will remain, and its relevance will only increase with the availability of quality products. All the real forces involved in production are concentrated as a commodity; it has been and will be a "bone of contention", just like the new "civilization of quality" promised by economists. The most impressive thing about this is that it is unfair to blame the political regulators for the current situation, unless, of course, they act with an obvious steady shift in someone's direction, that is, unprofessional. The purpose of production is a product that makes a profit. Scientists and politicians teach that without profit, production cannot be sustainable, developing reproduction. And indeed it is. Only those who teach and govern, with varying degrees of skill, mask the quantitative certainty of quality. As a rule, qualitative certainty is obtained in values of a given range of quantities. And here the measure is already starting to work. Knowledge of proportion, a sense of proportion is the most important condition for effective management. Within the measure, there is also a certain freedom of variation, that is, the possibility of a certain expenditure of interests depending on the financial contribution. Technical regulation, OST, GOSTs, ISO and all other systems born of the desire to take control over the quality of goods, already by their diversity, raise questions to themselves. The effect is calculated on the effect of the name, it is intended to evoke respect, especially when the name contains the authority of the industry, the state, international organizations of specialists concerned with the interests of consumers. The history of the improvement of methods of control over the quality of production is analyzed and advertised.

Unfortunately, behind a well-designed façade of quality control policy lies somewhat different content, driven by the priority of political interests. When, during the more frequent crises of various etiologies and stagnations accompanying the exit from crises,

the rich invariably become richer and the poor poorer, the middle class, which is the social support, shrinks, doubts about the sincerity of economic promises and distrust of plans aimed at changing the situation are involuntarily born. in the economy for the better. Talking about the class nature of economic policy is considered bad form - not modern. Recent history is the era of social partnership, globalization, requiring mutual understanding. The world is tired of wars, revolutions, violence. Humanity deserves a way of life corresponding to its reasonable status and that social reference point, which have formed historically. One should not underestimate the psychological need for a better life and the hope to be a part of it, not sometime, but in the real future. The psychological attitude is capable of reducing the criticality of the mental reaction, blocking the analytical approach. How much objective information is there in promotional items? The question is clearly rhetorical. A business will be successful if the interests of the success of the business are under the fifth margin. This was the case at the dawn of capitalism and will remain so until the position of business in society and its reflection in the public mind changes. K. Marx put forward and substantiated the idea of the basic status of the economy in social progress. Then there was everything, as always: K. Marx left not his brains, but only an idea, a thought in a more or less systematic presentation. He would have had time to add as many more to the four volumes of Capital, all the same, nothing has essentially changed. Each person has their own thinking head. The recognition of Karl Marx as right in the analysis of capitalism and the understanding of capitalism, as was the case with Karl Marx himself, are two very big differences. The most serious delusion, which was noted by the ideological and closest friend F. Engels, to whom the world owes the deciphering of the drafts and texts of Capital, and the preparation of them for publication, lies in the so-called "economic materialism." It looks oversimplified in the absolutization of the importance of the economic factor in social development. Society does not build its structure freely, guided by needs and in accordance with an abstract meaning. Real social creativity is conditioned by economic opportunities, from which it follows that the reality of social reforms is concretely - historical in nature.

However, we are not talking about a rigid and one version of the program of social transformation. There is a historical backlash in development and the possibility of realizing one of the social dominants - the social orientation of sustainable development (1) and a stake on economic development, coupled with a focus on maximizing profits, allegedly necessary to backlog the acceleration in subsequent social progress. K. Marx wrote about the economic basis, not the economic foundation. The economic base, in contrast to the economic base, is mobile and its mobility can be used. The question is: in whose interests? For 99.9 percent of the time of its existence, mankind did not think about any socially significant systems for controlling the quality of goods. There were no goods themselves, production and consumption were combined within the boundaries of a common subject. I ate, dressed, shod what he did. Quality control had an ideal form, closed on the manufacturer, who had the maximum scale of the family. During this time, decisive events in the fate of man took place: the ascent to the top of homo sapiens; proof of viability in the process of natural selection; creation of a cultural environment and cultural self-development; gaining the stability of social progress. Human history can be compared to weaving. It has the same two combined types of movement - warp and weft. Basis - construction, weft - resistance to forward movement. Only by knowing the history of mankind as a complex and contradictory process, a single person can become an optimist. Our misfortune, like donkey ears, got out in the 1990s and, in part, in the following decades. Its essence is that we snatch separate periods from history and begin to judge everything by them. It is not given to anyone to judge history; it is reasonable to draw historical lessons from history, and then in the form of "information for thought." The progress in agricultural production was due to knowledge and the improvement of technical means. The success of the application of technology in the processing of agricultural products, which increases the need for construction, transport, and the development of a culture of everyday life, stimulated handicraft activities. Someone could work perfectly on their own, like H. Huygens, who designed the pendulum clock, thanks to the fact that he was both a great mechanic and an outstanding mathematician. During the Renaissance, there were many lone craftsmen and they moved the technical side of production progress, relying on scientific knowledge. However, they could not move production, they needed those who, with intelligence and industrial ingenuity, turned unique things into series. The objective regularity of the development of production split the creator and the craftsman, raising the question of guaranteeing the quality of the reproduction of products.

There is a version of Huygens' conversation with the king of France, to whom he presented the designed watch. The king asked the learned mechanic: "How long will he enjoy the gift and how accurately the clock will show the time?" H. Huygens replied: "This watch will serve your successors." What kind of public quality control could be judged if a professional reputation was at stake? The mark of a master meant at the level of being a master or not being. The quality was identical to the work, and the craftsmen put all the best they could into the product. The problem of product quality and the need to control the quality of products in the interests of consumers began to appear at the end of the late Middle Ages, closer to the XII-

XIII centuries. The number of craftsmen increased, and along with the increase in the mass of marketable products, the difference between the craftsmen also became actual. A person is unique in everything - in feelings, skill, needs, interests, attitude to mentality. Differences between people are reflected in the activity and its products. In addition, the increase in production, in connection with the formation of a stable market with transnational, trans-regional elements, implied the importance of product comparison. The development of general mandatory requirements for manufacturers was required.

In turn, manufacturers have realized the benefits of joint action. In the most economically developed countries of Western Europe - Italy, France, England, Germany in the XII century there were associations of artisans by profession - workshops. Workshops mainly operated where there was a demand for their products - in cities, some of which had state status. It was convenient for everyone. Some had the opportunity to adopt experience, bring their work to perfection, others received control over the activities of organizations producing goods, and still others - certain guarantees that they will purchase quality goods. The workshops quickly multiplied and strengthened their position, both in the market and in society. In most European cities, there were workshops for blacksmiths, armourers, weavers, cloth-makers, bakers, and carpenters. Later, they were joined by the guild organizations of brewers, winemakers, and leather goods manufacturers. Each workshop was obliged to have a charter agreed with the city authorities, an emblem, a seal, a cash register. The statutes prescribed the working conditions of craftsmen, apprentices, requirements for the quality of raw materials, production technology, conditions for the purchase of raw materials, organization of product sales and even the conditions for apprenticeship. In fact, it is precisely from the organization of workshops that the time of public control of the quality of production of public goods can be counted. The transformation of seasonal fairs into stable markets has driven demand upward, and demand has driven the rise and diversification of supply. The increase in the number of manufacturers required increased control over the quality of goods. Local authorities have taken control of a number of key parameters of the shop floor, after the local authorities, the state also joined. Before the GOSTs, history had not matured, but the OST history, one might say, began with the charters of workshops. Technical regulation started precisely with the organization of shop floor production, and at that time it was really effective, since it coincided with the main interests of all market participants, including self-government bodies.

The shop order was the best guarantor of quality, so then self-control could be counted on. The workers watched each other and each of them started with himself, realizing the high cost of violating the work schedule defined by the Charter. Of course, the knowledge of the Late Middle Ages, the Renaissance and the New Age, which replaced the Renaissance, is difficult to compare with the achievements of the XX and XXI centuries. In those epochs, the birth of modern scientific knowledge began, scientific knowledge was intertwined with religious dogmas, myths, everyday knowledge of "common sense". The statutory canons of workshops reflected the originality of the time, the prevailing world outlook, they were, as we now believe, imperfect. At the same time, they were not pressed by the specificity of capitalism in the developed period, which was imprisoned on a margin at any cost. There was a sincere desire of the manufacturer in them, regulator to ensure the legal rights of the consumer to a quality product at its real price. The consumer was protected from the arbitrariness of the manufacturer to the best of his ability - cognitive, technological, hygienic, aesthetic. And in this regard, objectivity dominated in relations on the market. Apparently even then there were separate attempts to deceive, but they only confirmed the assessment of the ability to control quality by defining technical and technological regulations. The history of standardization has been a continuation of the policy of regulating the shop floor. Apparently even then there were separate attempts to deceive, but they only confirmed the assessment of the ability to control quality by defining technical and technological regulations. The history of standardization has been a continuation of the policy of regulating the shop floor. Apparently even then there were separate attempts to deceive, but they only confirmed the assessment of the ability to control quality by defining technical and technological regulations. The history of standardization has been a continuation of the policy of regulating the shop floor.

The initial technical regulation was quite consistent with the level of development of economic institutions. Workshops were united in associations not in order to unify production and produce the same product. Product standardization was carried out with an eye to product quality. The production was still based on "company secrets", "know-how", developed in the depths of family stories, carefully guarded technological recipes. In Western Europe, the guild organization of production activities has long sunk into oblivion, and popular products of mass demand, in particular, beer, wine, tobacco, certain types of shoes, clothing, some fruits, vegetable products retain the stamp of those guild times. Consumers prefer them, regardless of the market expanse and offers. A market masquerade could surprise us Russians at the end of the 20th century, when consumer goods poured into the country from the West and from the East; they carried everything that was not in demand on the ground. Who then remembered about quality and quality control tools, and if they did, then fast reformers would knock out his memory along with

brains. During the period of "shock therapy" it is proportionate to think not about quality, but about how to survive with the hope that later life will be better. Indigenous Europeans are poorly responsive to a variety of goods, most of them conservatives, brought up by traditional family predilections. There is a healthy beginning in conservatism; conservatives do not risk the temptations of innovation. They believe in experience and experience justifies their choice due to the time-tested quality of the product. Naturally, it is not cheap to be a conservative, but European conservatives are also not from the poorer part of society. In this argument, we are more interested not in the moral aspect of the matter, but in the organizational one, in particular, the question of the possibilities and limits of standards in the regulation of production. Experts who are thinking and aware of the measure of their own responsibility for what they have invented understand that standardization, no matter how perfect it is, will remain conditional, expressing the objective and subjective circumstances of the action - a concrete historical reality. Standardization is a systemic phenomenon itself and at the same time it is an integral part of the overall political and economic system. It necessarily has a systemic conditioning, both internal and external. It is naive to think that standardization is designed in the interests of all equally. First, everyone who has sufficient financial resources for freedom of choice, does not need standardization for most of the required goods. They are in direct contact with trusted manufacturers. Secondly, standards have long been determined not by manufacturers, which does not mean objectivity, as they want to convince us of this. The most democratic government and the most impartial organizations commissioned to draft standards are not as objective as they might seem. Politics will lose its effectiveness if it refuses to participate in such a case without its own interest. Politics are driven by the economy and serve the economy. In standards systems, the objectivity of accounting bases is determined by minimum values. Otherwise, production will drop and a crisis will set in, or prices on the market will so much exceed the purchasing realities, due to the increase in producers' costs, that the market will freeze.

The reason is just the opposite - the low level of effective demand of the mass buyer. By and large, there is nothing to choose from with their wallet. The set of the mass buyer does not require an assortment yet. In time, turn to standard sets of goods, produced to minimum standards, so that it is cheaper. Sanpin is a wonderful thing, but they are due not only to the danger of excess for health. Time of action, socio-cultural, economic, political factors are present in them. Let the one who does not believe it monitor the sanpins, compare and see the results. The high values of subjectivity in the definition of standards can be judged by the standardization of time. Standard Time is the official local time for a country or region. A region can be part of a country and, conversely, a number of countries can form a common region. There is one invariant feature in the definition of standard time: it must be the same for all points on the same meridian. Local mean solar time depends on longitude; grows to the East with each degree for 4 minutes. The Earth is conventionally divided into 24 standard time zones, each of which is equal to ≈15 ° longitude. It is here that the administrative initiative of local authorities manifests itself. The boundaries of the zones are determined by them and in many cases deviates significantly from the normative 15 °, which should not be qualified as arbitrariness. Reported costs are associated with administrative divisions, production activities. Time in different (adjacent) zones differ by 1 hour, minutes and seconds do not change. Standardization is associated with limitations, therefore, the personal and public perception of standards is superimposed on the worldview background,

The worldview prevailing in historical time serves in different ways. It can be "black earth", fertile soil - stick a branch and do not hesitate - it will take root, but the worldview can also slow down when, rolled out under the liberals' absolutization of freedoms, forms a militant attitude towards any kind of restrictions. The easiest way to translate standards into practice was in the Middle Ages. Mythology and religion are reflected in various kinds of prohibitions and taboos. The medieval consciousness was calm about the limitations, with an understanding of the need. In the statutory standards of handicraft workshops, restrictions were introduced not so much to simplify technology, to make production more technologically advanced, but to preserve the developed concept of production, to preserve it and facilitate continuity in the development of production.

The regulator tried more to ensure that no innovations were introduced into production that could, under various pretexts, worsen the result. This became especially relevant with the growth of production and the division of labor. The increase in labor productivity often threatened the quality of the goods. The negative scenario in the development of production was restrained by the traditions of workshop activities. The history of the workshop underlined its social and economic position. Zëch - "association, company". At the beginning of the workshop, class associations were represented, emphasizing the special position in society of persons belonging to the workshop. The development of the Middle Ages found expression in a change in the social status of the workshop. The workshop was historically concretized and already appeared as a union of artisans of a general specialty. We have a widespread simplified concept of workshops. In fact, due to its social origin, guild craftsmen were, as a rule, culturally formed individuals with related knowledge

and skills. The conditions of the shop organization required a high level of creativity.

It was not easy to become a member of a guild association. For example, painters entered the workshop of doctors and pharmacists as junior members, since they used paints that were prepared as medicines in pharmacies. Sculptors worked in a common workshop with masons, masons with carpenters. Under the terms of the Charter, which standardized relations, a master could be a member of only one workshop, but most of the craftsmen strove to master different crafts. The owner of a large Florentine workshop L. Ghiberti, who carried out orders for bronze casting, chasing and jewelry work, was a sculptor, jeweler, foundry worker, draftsman and painter. Outstanding representatives of the Italian Renaissance studied in his bottega (workshop): Donatello, Michelozzo, Uccello, Filarete, Finichuerra. To obtain the title of master, apprentices had to complete their own work at the end of the training period according to the approved model. The very fact that the title of the work for the title of master was "masterpiece" can be judged on the qualifications of the performer. On the one hand, it was very difficult to standardize shop floor production, since it was about high performing skills and traditions, established on the basis of respect for the work that you serve. On the other hand, it was easy, because the standards were produced by the shop workers, there could be no random people in the shop, - the organization did not allow. In the depths of the standardization of workshop production, two tendencies have developed: first, - deepening, tightening the requirements for the organization of production and the quality of goods; the second, expanding the requirements, which ultimately led to the change of the shop organization of production to large-scale production of marketable products. The workshops were replaced by manufactories. The main reasons for the decline of the workshop organization of production and the change of workshops to manufactories should be sought in politics and economics. In the 16th and 17th centuries, centripetal processes intensified in Europe, main states took shape in their modern form, and wealth was concentrated. Along with capital, the needs of those in power grew. Colonies provided huge incomes, and they also received unique materials for construction and decoration. Luxury has become a symbol of power. The workshops guaranteed the highest quality and, in turn, did not require much effort and money to control the quality of work. However, in the conditions of the new scale of the quantity of goods, the desire to have everything as quickly as possible, the workshops were clearly losing. The time has come for modernization in the organization of economic activity. Manufacturing, from a technical and technological point of view, did not differ significantly from the workshops, but the quantity is associated with a change in quality - this is the law of development. Quantity by itself, of course, does not transform into quality; it creates by increasing or decreasing conditions in which the existing quality loses its quality status. Additional measures are required to maintain the quality characteristics of the product. The size of the workshops, despite the variety of work performed, remained limited. And only on this scale did they satisfy the demand. However, such a clear increase in demand, as it happened at the very beginning of the New Time, the workshops could no longer provide. At the same time, at the end of the 16th - beginning of the 17th centuries, the technical prerequisites for the Industrial Revolution were not yet formed. The most painful issue was the energy source of production work. In fact, they did not know how to use the energy of the sun, the strength of the wind and water was not reliable. It was impossible to order the wind, the water, especially in Central and Northern Europe, froze. The interest of science and technology in the energy of steam, which was outlined long before modern times, has not yet promised the required results.

The manufactory was required to provide the required volume of assortment as soon as possible without technical and technological re-equipment. It is not surprising that the formation of manufactories not only took place on the basis of workshop production, but also with the preservation of basically the same working conditions. Perhaps someone understood the auxiliary role of the manufacture, its historical futility, only such an understanding of the real history itself did little to help. When a society does not have a principled recipe for solving a problem, it always looks for reserves in what it already has, trying to hold out in motion until the time in which the desired solution is found. Manufactories appeared as new dimensions of old workshops. The workshop has ceased to be quantitative - by performers, technical and technological equipment, the quantity of products produced - to the necessary manufacturing institutions, the inherent internal mechanisms for organizing high-quality activities have lost their strength. The shops have exhausted their quality reserves, focused on the limited demand for the goods. Manufactories, of course, for a certain time maintained quality due to the achievements of guild practices, but the increase in the production of goods inevitably reduced the quality of the product. The solution to the problem came: to divide the quality into ranks. It was a kind of knight's move. Privileged customers could count on high quality, while others got worse quality products. And here the need for an external regulator to intervene in the affairs of manufactories was actualized. The time has come for the standardization of the new order. the inherent internal mechanisms of organizing high-quality activities have lost their strength. The shops have exhausted their quality reserves, focused on the

limited demand for the goods. Manufactories, of course, for a certain time maintained quality due to the achievements of guild practices, but the increase in the production of goods inevitably reduced the quality of the product. The solution to the problem came: to divide the quality into ranks. It was a kind of knight's move. Privileged customers could count on high quality, while others got worse quality products. And here the need for an external regulator to intervene in the affairs of manufactories was actualized. The time has come for the standardization of the new order. the inherent internal mechanisms of organizing high-quality activities have lost their strength. The shops have exhausted their quality reserves, focused on the limited demand for the goods. Manufactories, of course, for a certain time maintained quality due to the achievements of guild practices, but the increase in the production of goods inevitably reduced the quality of the product. The solution to the problem came: to divide the quality into ranks. It was a kind of knight's move. Privileged customers could count on high quality, while others got worse quality products. And here the need for an external regulator to intervene in the affairs of manufactories was actualized. The time has come for the standardization of the new order. for a certain time, they maintained quality due to the achievements of shop practices, but the increase in the production of goods inevitably reduced the quality of the product. The solution to the problem came: to divide the quality into ranks. It was a kind of knight's move. Privileged customers could count on high quality, while others got worse quality products. And here the need for an external regulator to intervene in the affairs of manufactories was actualized. The time has come for the standardization of the new order. for a certain time, they maintained quality due to the achievements of shop practices, but the increase in the production of goods inevitably reduced the quality of the product. The solution to the problem has come: to divide the quality into ranks. It was a kind of knight's move. Privileged customers could count on high quality, while others got worse quality products. And here the need for an external regulator to intervene in the affairs of manufactories was actualized. The time has come for the standardization of the new order. And here the need for an external regulator to intervene in the affairs of manufactories was actualized. The time has come for the standardization of the new order. And here the need for an external regulator to intervene in the affairs of manufactories was actualized. The time has come for the standardization of the new order.

The standardization function has evolved. Public standardization duplicated the main internal one, written in the shop charters. The manufactory form of production has outgrown the potential for self-regulation and has caused the need for intervention in quality control from outside production, no longer formally, but in fact. The workshops regulated production cycles, established production rules, work schedule, distributed orders, controlling the quality of products. Manufactures, in terms of production volume, could no longer rely on the internal system of organization. Large manufactories originated in the South of Europe, first in Italy, then in France. They arose on the initiative of the ducal courts, were located in the same places, in the neighborhood. Basically, manufactories produced expensive items: tapestries, furniture, utensils, jewelry. The products of the manufactories were predominantly akin to works of art. An illustration of the above can be the first European furniture manufactories in Wola Viscount (1658) and in Paris (1662), serving the needs of the Bourbons. At the turn of the 17th-18th centuries, tapestry, bronze casting and phasis manufactories were added to them. In 1710, a manufactory was built in Meissen, producing the famous Meissen porcelain. The absence of machines and conveyors at manufactories made the quantity and quality of products dependent on the quality and quantity of manual labor. With regard to quality, it was not a big deal to bring together skilled workshop foremen in one place. It was more difficult with the quantity. There were not enough such masters, and orders had to be fulfilled. The order of workshop training of foremen was violated. As a result, it was necessary to increase the control function on the part of public institutions, taking into account the highest state status of customers of products. The quality had to match their position. The workshops and manufactories had a common essence, but they were distinguished by the scale of its expression in the phenomenon.

Masters of their craft worked both in workshops and in manufactories; labor was mostly manual, mechanisms provided manual labor; the performer knew the fate of his product and it hardly upset him. The products of workshops and manufactories adorned the best buildings and their interiors, causing a constant public admiration. The time of the manifestation of alienation in the work of the performer's personality had not yet come, although the process of alienation itself was proceeding with the growth of production. For the essence of alienation to become obvious, it was necessary to implement the division of labor within production at the microeconomic level. Manual labor became obsolete under technical pressure. Along with this, the attitude of the master to work also changed. "Mastery", like any concept, evolves. In the workshop, the master created a masterpiece, a unique work and understood that in it he objectified his feelings, thoughts and skills. In manufactories, the attitude of the master and the product changed. They retained creativity, but with the expansion of the scale of manufactories, it turned out to be dependent on the number of products. Quantity crushed quality, reduced interest in creativity. Creativity turned out to be subordinate to production plans. The responsibility of the artist, the

creator, receded from the previous dominant positions. The initial idea of standardization was formed at the time of the latent form of manifestation of the phenomenon of alienation in labor of the creative abilities of the performer of works. The art of the master still remained, according to sensations, free, and the continuity of creative work removed the contradictions of production. The master alienated the product, but among the sensations accompanying alienation there was no sense of social injustice. The product was created for consumption by others, for which the master received a reward, part of which was the opportunity to continue to unleash their creativity, working in a workshop or in a manufactory. The standards were intended not to unify the product, its parts, production conditions, technological structure.

Their goal was to preserve the achieved creative results. In the standards of the period of the shop and manufacturing organization of production, the interests of producers, consumers and regulators coincided, which resulted in their efficiency and low maintenance costs. Authoritative reference publications omit the presented part of the history of standardization, apparently believing that it has nothing to do with standardization. One can agree with such an interpretation only on condition of a return to the Aristotelian approach to concepts. After Hegel substantiated the historicism of concepts, such a retreat looks like a very unfortunate step into the past. In art theory, "standard" is identified with "stereotype" - a form that repeats itself without changes, regardless of conditions (English standard - "accepted", "approved"). "Stereotype", writes V. Vlasov, - artificial education, so it differs both from the archetype and from creative thinking. By limiting creative participation in production, the Charters of workshops and manufactories did not encroach on creativity as a creative force. The regulation protected that the quality of the products was consistent with the model. The problem of samples - standards was solved organically. In those areas where improvement of already recognized quality products was required, the development of new standards was allowed.

The organizers were forced to spin in the literal sense of the word in search of a rational solution to the contradiction between conservatism in production and the need to move on. The brewers had more conservatism, while the craftsmen who made shoes, harnesses, and saddles - less. No matter how slowly life flowed in the Middle Ages, there was a movement and along with it changes took place. New materials have appeared, tastes have changed. All significant changes in public attitudes and attitudes had to be monitored and reflected in the products of production. The fact that until the 18th century the content of the concepts "standard" and "standardization" was invested with a slightly different plan was not a sufficient reason to make a revision aimed at denying the corresponding policy. Standardization is rooted in the Medieval period, by the time when the history of the traveling artels of craftsmen ended. The artels acquired a stationary appearance, enlarged and eventually transformed into workshops. The workshops have strengthened the position of the creative component of the production of products for the commodity market and thus made it necessary to control creativity so that the pursuit of something new would not damage the traditions of high-quality production. Genius and control are incompatible, but workshops, like manufacturing, were forms of relatively mass production, for which the stability of the assortment and the quality of the goods are especially important. Workshops and manufactories were part of public life, and in this status, control over their activities was required. Control, taking into account the specifics of shop and manufacturing production. Skill doesn't really need guardianship. Popular wisdom says: "to teach a master, only harm the work", but in the production of approved samples, a strict order is required, to which the standard approach was subordinated. Received a certificate, please act as prescribed. Standardization was more like regulation, but from that it was not something that does not fit into the understanding of the essence of standardization. We have a classic demonstration, on the one hand, of the connection between essence and phenomenon, and on the other, a lack of understanding of the historicity of the phenomena of social development. “... Nowhere: neither in heaven, nor on earth, nor in the spiritual world, nor in the natural world is there that abstract “ or or ” that is affirmed by reason, Hegel explained. Everything that exists somewhere is something concrete and, therefore, something different and opposite in itself. The finiteness of things lies in the fact that their immediate existence does not correspond to the fact that they are in themselves. The thinking of homo sapiens is of two kinds - rational and rational. The division was introduced by Hegel in his characteristic linguistic manner. F. Engels translated Hegel's thoughts and expressed them in a linguistic form understandable for non-philosophers who prefer to choose and use thinking in a simpler and more practical way, referring to "common sense", which serves as a navigator in knowledge. “Sound human reason, wrote Engels, a very respectable companion within the four walls of his household, is going through the most amazing adventures, as soon as he dares to go out into the wide field of research. Metaphysical - (common sense) way of understanding, although it is legitimate and even necessary in certain areas, more or less extensive, depending on the nature of the subject, sooner or later reaches the limit each time beyond which it becomes one-sided,

To make our reflection clear, we refer to another authoritative source - the Britannica encyclopedia: Standardization, in industry, the development and

application of standards that make it possible to produce a large number of interchangeable parts. Standardization can focus on design and construction standards such as material properties, their compliance and permissible deviations, requirements for the implementation of drawings or on product standards that describe in detail the properties of the items produced and are embodied in formulas, descriptions, images or models ".. We turned to Britannice, because its materials are actively used by other information publications. The article in Britannice summarizes the understanding of standardization in modern times Britannica is modernized when reprinted.

Without much mental effort, you can isolate the main considerations: about the essence and purpose of standardization. We have already written about the essence of standardization, that is, about its social significance. Standards and control over their observance are the most important conditions for the socialization of production. Production exists as a way to meet social needs. The function of the state, no matter how popular the liberal economists who advocate the absolute freedom of producers from political control, have always been to stimulate production, to act not only in their own interests. The class nature of power does not mean that it openly and directly defends the interests of the ruling class in the economy. Democracy is a historically polished mechanism of political activity of the state, which creates the impression of its neutrality. Politics is the art of lobbying for specific economic interests. Standardization is one of the technologies of such a policy. The British are the founders of modern European democracy. They have long mastered the technologies of political participation in public life. In presenting standardization from a purely production side, the British specialists are clearly disingenuous. All that can be learned by reading the article from Britannici, however, there is no guile. It is behind the text, it was simply not included, either, considering it superfluous, or inappropriate. "Standard" is the basic concept of standardization, a concept not so much of a technical and technological order as of a political economy. Having abandoned political economy, replacing political economy with macro and microeconomics, sliding down to economics, one should try to recall the history of economics and its philosophical roots as seldom as possible. A. Smith, D. Hume, J.-C. Sismondi, K. Marx, K-A. Saint - Simon, G. Spencer, J. St. Mill, economic theory was developed in a broad socio - political and historical context. Before becoming a technical and technological concept, the concept of "standard" was intended to regulate a certain level of product quality. And then technical characteristics were present in it, but they were of secondary importance. Without historical analysis, it is futile to understand the essence of basic categories. The tools for managing economic phenomena, depending on their scale and subject specificity, can be within the economic - production competence, or have a socioeconomic scale of action. The second option requires analyzing them already within the boundaries of social development, as a factor of social progress. Standardization belongs from the beginning to the second type of management. Moreover, it was in the initial time that its social purpose was especially noticeable and manifested itself both in class and in general. The standards for brewing beer, making wines, household items, clothing, and footwear were designed for public consumption and served as a kind of protection for the interests of broad strata of the population. Furniture production, jewelry, was mainly addressed to the upper class. In both cases, we see the participation of the state and municipal authorities in protecting the interests of consumers by forcing producers to do their job efficiently. The standard was taken as the criterion of quality. However,

Let us recall that even in manufactories, production has not yet reached the level of mass action. The essence of standardization was determined from the very beginning of its history - to develop a mechanism for neutralizing the opposing interests of the producer and the consumer. Spontaneously, there was a search for tools to repay the growing process of alienation of the individual in labor. Hegel is right in arguing that essence is abstract and manifests itself in experience not by itself, but through phenomena conditioned by the concrete historical environment. During the period of its inception, standardization was directly focused on the qualitative definiteness of the result of labor - a product. In the absence of an intra-production division of labor, the greatest efficiency was achieved in the final expression of the process. Standardization partly regulated the production process itself, but centripetal forces were in preference - a guarantee of the quality of the result was needed. The qualitative aspect in measuring production efficiency was relegated to the background and was left to the mercy of the manufacturer himself. The inspector regulated the quality of the result through the quality of the products. The historical and economic situation was also consistent with the interpretation of production efficiency.

There was no such concept yet, it was just maturing. Efficiency became relevant much later, when production reached the lines of mass production of goods. The competition in the quality of products has been replaced by competition in the costs of producing a product. Manufactories have not increased the quantity of the production good enough to bring production costs to the fore. As for the technology competition, it was hardly significant. Differences in technology naturally took place, but within the boundaries of the general manual form of production, where advantages could be obtained due to better skills and better organization, saving time,

perhaps somewhere through a successful logistics alignment. Manufactories temporarily solved the problem of meeting the increased demand for products, but production has not yet matured to measure by efficiency.

Since in most cases the goods were made to order, competition was latent. The need for standardization, potentially inherent in the development of production, was revealed gradually, in proportion to the state of production. Its abstract form was loaded with concrete content. The process of becoming standardization was similar to the work of a tailor, who first took a measure in the absence of any material signs of a future product, who made the first fitting of something not very clear to the customer, and only towards the end showed the product that embodied the concreteness of the image. This is how the process of ascent of the original purpose of standardization to its specificity, which is fixed by modern scientific and information sources, went on. The functions of standardization have changed, its content has also evolved as a tool for managing economic activities. Standardization as one of the basic methods of economic policy has drifted from the quality of the finished product to the production of a product that ensures its quality. The wind in the sails of standardization was blowing from the side of another important concept of political economy - production efficiency. While efficiency was determined by customer satisfaction with quality and cost, it was quality that was governed by standardization. The standardization included the regulation of the parameters of the technology of its production. Samples of goods, agreed by the associations of manufacturers with regulators, ruled the ball. The situation was quite balanced, but its stability was determined by the technological specifics of manufacturing. Progress allows for stagnation within certain limits. As in the mountains there are vast plateaus, so in the history of production - areas of active professional activity have places of calm in motion. They are natural, as they correspond to the social state as a whole. The Middle Ages was not a sleepy kingdom, as it is portrayed in school textbooks, it simply reproduced itself uniformly, without leaps. At this time, humanity was gaining the energy of action, creating approaches to obtaining critical values of the energy of the impulse in various fields of activity. The specificity consisted in the fact that in the social life of Europe and not only, religion prevailed, and in the political life - absolute monarchies, carefully protecting the movement from any restructuring. The public consciousness was dominated by the reassurance of what had been achieved,

No amount of faith could become an impenetrable obstacle to social progress. When this happened, however, changes took place in the religion itself. Christianity entered the Middle Ages with one faith, but it came out unfolding like a fan. The originality of the Middle Ages affected the subsequent development of history. New time (XVII-XIX) could not come immediately after the Middle Ages. It took a transitional historical stage - "Renaissance". It was necessary to clear up the socio-cultural, political conditions for the free and independent movement of scientific knowledge, the methodology of scientific knowledge, education, and technical progress. In the 17th-18th centuries, the development of scientific knowledge was out of the control of the church. The completion of the formation of science as an independent field of culture is attributed to this time. Associations of scientists, scientific governing bodies are emerging in Europe. Scientific knowledge on a new scale is included in technical creativity. The engineer becomes the "scientist builder". Technological progress is replacing manual labor. Manufacturing is being replaced by the factory - a new way of organizing production and labor. Production is becoming mass-produced, therefore more affordable. Accessibility requires a different quality. The quality of mass goods comes to the fore. It should be and be inexpensive. The place of the named consumer is replaced by the X consumer, which can be anyone. Previous quality control capabilities are being replaced by new challenges. In Russia, the saying was widespread: "Cheap and cheerful." Young people are unlikely to understand its essence, so let's explain: a product should not be expensive in order to be in demand, but not every product will be in demand, but only one with signs of a quality product. In recent times, the saying has been given a modern form of expression: "A quality product at a reasonable price." The change in the nature of production forced a change in the philosophy of standardization. The standardization of the quality of products based on the result has been replaced by the standardization of the production of a quality product. The "synthetic idea" of sample control went away, an "analytical idea" came up: to decompose the entire production and the product itself into components - units, parts, operations to the last screw, seam, nut, forced movement and take everything under control. Minimize differences and maximize versatility. A similar thing for the masters of workshops and manufactories could not have dreamed even in the worst nightmares. Craftsmanship is closed on originality, it is unique. Even the master himself cannot fully decipher the process of making his product. Creativity only begins with a common set of tools, actions, order, but it is revealed precisely in the fact that it is impossible to construct a "constructor" from a set. Reason operates according to logic, therefore there is a possibility and a need for rationalization activities. The rationalizer does not invent, his thought is sharpened to bring the invention to the perfection hidden in it. Reason and only reason makes leaps from the known to the unknown. The

creative power of man is concentrated in it. Hence the name of the species - "sapiens". Manufacturing and manufacturing both combine creativity with rationality, but they do it in different ways. The workshops were the first to create. The master was the creator, the apprentice and the apprentices provided the conditions for the master's inspiration to manifest. At the factory, the master organizer of work on the production of an approved sample is, in fact, the head of the operation for assembling the product, or, if it is especially complex, of its individual parts. Creativity and production are divorced so that there is no temptation to deviate from a scheduled and controlled order. And in this order, one does not need to look for unreasonableness, on the contrary, only by following a rationally divorced and fixed order, it is possible to maintain the rate of production when it is massive. The power of mass character lies in the availability of goods to a wide range of consumers. And no state will deviate from the philosophy of satisfying mass needs. Quality here is a payment for the mass character, which all participants in the process are forced to pay. The history of mass production shows how they looked for a solution to the problem of quality and quantity. This story is not a series of events and actions, it is, first of all, the logic of resolving contradictions inscribed in the historical process, the history of economic policy, which should be perceived as the highest school of economics. By mentally going through the historical experience, one can avoid both romanticism and liberal illusions in the management of economic activity. The beginning of the studied history confirmed the natural character of the development of economic progress. The story began where production was more mature, the importance of science and technical creativity was more in demand, and the political situation was more democratic in England. In this connection, we again call for help Britannicy: "Industrial Revolution" (industrial revolution), the process of transition from an agricultural economy to an industrial based on machine production, which began in England in the 18th century. Technological changes included the use of iron and steel, new energy resources, the invention of new machines that increase production (including the Jenny spinning machine), the development of the factory system, important inventions in the field of transport and communications (incl. steam engine and telegraph) ... The Industrial Revolution mainly took place in England from 1760 to 1830, then spread to Belgium and France. Other countries temporarily lagged behind, but when Germany, the United States and Japan built powerful industrial bases, they surpassed England's initial successes. The countries of Eastern Europe lagged behind in development until the beginning of the 20th century ... The characteristics of the industrial revolution, apparently, were prepared taking into account the mass consumer of information services, they are perceived, from a professional point of view, critically. There is no essential assessment of economic development, the beginning looks somewhat strange - the transformation of England from an agrarian country into an industrial one. England relied on its own agrarian foundation for a long time, in which the transition to industrial foundations took place not without complications, as well as in industrial production, it is enough to recall the well-known protest movement of the "Ludites". At the same time, the historical path of the industrial revolution in Europe and beyond is traced. We are interested in just what the author did not finish, counting on professional logic and ingenuity. The industrial revolution led to the massive scale of production and the need to divide labor into the depth of technical progress. Mastery gave way to performing discipline, and the master's internal motivation gave way to external motivation.

The mode of production has changed, starting with the source of strength and internal motivation in achieving the quality of the goods and ending with the priority in the new mode of production of the technical division of labor. The organization of production has steadily emerged as a leader in economic theory and practice of managing economic activities. The art of the master was replaced by the art of the dispatcher, the importance of technological discipline, the ability to count and calculate, to take risks in order to win, increased. The period of economic history that followed the Industrial Revolution is usually divided into two stages. The first was the mass production of the classic model. We call it classic to emphasize the originality of the stage of maturity.

Maturity as a stage of development, regardless of what exactly has reached it, is distinguished by the transparency of the essence. The essence emerges from the shadow of the phenomena that hide it, it is revealed almost as it really is. All the most perfect, the best is presented at the stage of maturity. At the same time, the disadvantages and development costs look more contrasting. At the zenith of the classics of mass production, his philosophy was formulated quite clearly and tempting for the consumer: the buyer must save time as much as possible on the purchase, the store is not the best place for a person responsible for his life, in order for this to be so, it is necessary to concentrate the maximum assortment in one place. Who was the philosopher who helped economists define the essence of shopping, we do not know, his anonymity is carefully guarded, but by the philosopher X, the personality turned out to be not modern. The trade mission was presented methodologically flawed, outside the systematic approach. The temptation turned out to be like a spoon. Economics can be separated from politics, but even supporters of simplifying it to economics, still proceed from the fact that we are talking about saving, not waste. The implementation of the philosophy of

the availability of goods in one place implies gigantic costs that are unreasonable, neither economically, nor humanitarian, nor ecologically. It was impossible to write off them, and they laid their entire weight on the cost of goods, significantly raising the price and undermining the possibility of mass market access. The foundations of the philosophy of mass production were laid towards the end of the 19th century by famous specialists in the field of management: F. Taylor, A. Fayol, A. Sloan, G. Ford Jr. They also own the initial experience in the development of the theory of production management, in particular, the idea of the system-forming value of quality management through the process of standardization. In the 19th and first half of the 20th centuries, the issues of humanizing the economy, protecting the natural conditions of social progress were not included in the first line of relevance, therefore, as a rule, they were ignored when production problems were solved. The situation changed dramatically closer to the end of the second millennium. Economic planning and design has become dependent on higher-level relationships. Solve the question of how to live on? protection of the natural conditions of social progress was not included in the first line of relevance, therefore, they were usually ignored when solving production problems. The situation changed dramatically closer to the end of the second millennium. Economic planning and design has become dependent on higher-level relationships. Solve the question of how to live on? protection of the natural conditions of social progress was not included in the first line of relevance, therefore, they were usually ignored when solving production problems. The situation changed dramatically closer to the end of the second millennium. Economic planning and design has become dependent on higher-level relationships. Solve the question of how to live on?

Without an answer to the question: will there be life? It is illogical. Management professionals have pondered the historical rationale of serving consumers in the here and now. B.S. Aleshin, L.N. Alexandrovskaya, V.I. Kruglov, A.M. Sholem and many others have contrasted mass production with a type of production called "lean production" - lean production. Having decided that it will not be so widespread, since the emphasis on market research will help relieve the unlawful burden on production, and will make production targeted. It is not clear only why they came to the conclusion that it will cease to be massive. Mass character initially became not a brand, it merged with the essence of production. Production will no longer be able to be otherwise in the foreseeable future. Naturally, handicraft, individual, - the heirs of workshops and manufactories, however, unlike their ancestors, they are not limited in technology to hand tools, actively using scientific and technical products. "Lean production" is a really good trend for a more adequate form of continuing mass production. In its previous form, mass production looks clearly outdated in the 21st century. Among the global problems: "energy saving", "resource saving", "care for the state of the natural environment", "global warming", "protection against the destruction of the ozone layer", an economic philosophical strategy is being developed to the contrary. What kind of humanism is this? The very participation of science and philosophy in the development of mass production, which, as has already been noted more than once, was of paramount importance in the cause of social progress, has made it possible to create hundreds of millions of jobs,

But we should not forget that science and philosophy are initially perfect in comparison with the existing knowledge - mythological, everyday. Their strength is not in what they have already done, but in what they can do if they are not interfered with. Even Pythagoras explained that he is not a sage and not omnipotent, his goal is to understand how wisdom works. At the origins of economic science were prominent representatives of philosophical thought, capable of understanding the essence of the matter and forecasting development within the framework of historical concreteness. They understood in detail the present, determined the nature of the forthcoming movement, developed a scientific methodology, philosophical foundations of scientific knowledge as a private search within the framework of the universal. Science and philosophy are deprived of the ability to guess and seek the truth in the scriptures. Their lot is to analyze what has grown. In the 19th and 20th centuries, a lot has grown, but even more are just beginning to grow. These sprouts were not able to adequately assess. The natural environment seemed like an endless storeroom for thinking. Dialectics could not be completed in time with a systematic approach. "Zean production" is not an alternative to mass production, but only its next stage of improvement. The essence in the case of a successful transition will remain the same, the costs related to unnecessary will be reduced. Understanding the true nature of a "lean, sparing" economy is important for developing a real economic policy. The effectiveness of economic policy is primarily determined by the correct assessment of the quality of existing production. It would seem, why actualize the obvious dependence, when everything should be clear to everyone without it. Let us explain: evidence is a dangerous state of consciousness.

Even the mirror shows its character in reflection, what then should the thinking consciousness in reflection do? Physical reflection is devoid of intent, and reflection in consciousness is a way of comprehension, therefore, along with the object of reflection, the state of consciousness - experience, interest - actively participates in reflection. An example is the categorical refusal of bourgeois economic thought in the 20th century from the

political essence and even from the bourgeois orientation. At the dawn of capitalism, the term "bourgeois" was an honorable one. It reflected the revolutionary restructuring of the economy, social relations, the transition to democratic freedoms. Everything was clear - the time of the feudal social structure had developed its historical resource and was obliged, according to social progress, to give way to capitalism - a more perfect social structure.

The concept of "bourgeois" has historically entered the definition of the most effective "Great French bourgeois revolution." Then why in the XXI century domestic liberals bashfully hide the term "bourgeois" in relation to the definition of the state of the economy and its reflection in economic science? The reference to the objectivity of scientific knowledge is inappropriate, since it is not science that is determined, but its object. Scientific knowledge and scientific methodology in this context strictly retain their objectivity. Science is applied to a historically specific object and gives it scientific understanding. Nobody anywhere officially announced the end of bourgeois history. If something like this happened, then it was necessary to open a new chapter of social progress, which they tried to do in 1917.The attempt was defined as historical arbitrariness, unlawful violence against the history of capitalism, which demanded the totalitarian nature of the social structure, violation of individual rights, freedom of expression, etc. In a word, capitalism survived and did not go anywhere. But try in the democratic media, modern scientific journals to find the term "bourgeois" in relation to the economy. What's the matter, what prevents the phenomenon from being named adequately? - Historical logic. History is a naturally developing process of changing phases (steps, formations, civilizations, eras, etc.). Capitalism replaced the feudal structure of society, the basis of which was the agrarian and handicraft type of management, built on manual labor, a non-stationary commodity market, and shop and manufacturing organization of production. Management went through standardization focused on the certification of the end product, not the manufacturing process. No matter how perfect capitalism is, its perfection is historically regulated. Sooner or later, contradictions will "eat up" his perfection and he will give way. What will follow him? So far, this is a mystery to science, but it is absolutely obvious that the bourgeoisie and those it contains, it is vitally important to re-qualify the historical status of capitalism from concrete historical to extrahistorical, that is, universal. To remove the problem of the future society, to transfer it to the technical level of regulation, including through standardization. Lean production is a knight's move. It is designed to show the humanitarian and environmental reserves of the bourgeois economy and draw attention to the need for a new development paradigm within the existing economic platform - the bourgeois mode of production. We cannot share the satisfaction with the transition to "lean production" by a number of authors of the late XX - early XXI centuries, when research was carried out with various grants, including the Soros Foundation, and the products of science were presented in a technical spectrum, supposedly free from ideological influence. There can be no freedom from politics in political economy. Dependence was in the period of socialist history, it continues after. Self-determination of the state of the domestic economy as a convenient transitional move. From what we are leaving it became clear since 1991. Try to find out where we are headed, but we are going exactly there - into the bourgeois mode of production, how can you not commute it with technological industrialization, the digital economy. when research was carried out for various grants, including the Soros Foundation, and the products of science were presented in a technical spectrum free of supposedly ideological influence. 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And we will eventually be there, in connection with which it is necessary to clearly understand that

all technical solutions are of a political nature, just in some it sticks out like a donkey's ears, and somewhere it is hidden behind mediation. The bourgeois economy was born as an alternative to handicraft, manufactory production, which is not capable of being massive, but technologically very high quality. The quantitative leap was supposed to be reflected in quality, which forced us to take a course in management to ensure an acceptable quality of goods. The only vector is possible here - the creation of standard conditions for obtaining a high-quality product on a massive scale. The heterogeneity of mass demand led to a wide range of product quality, which was reflected even in the scale of national and transnational planning. In Western European countries, goods are labeled for consumers from the Eastern part of the continent and especially for Russia. Quality, and together with quality and standards, are largely determined by the political map. Standardization as a technique is really necessary and reasonable as an instrument of economic policy, but only outside of a systemic understanding.

In a systemic view, it has political ears, which, like a donkey, no matter how much you hide, will come out. Let's go back to the Lean paradigm. At first glance at the RP, writes B.S. Alyoshin and his colleagues, it may seem that the whole point is in the widespread introduction of the so-called "just in time" system, in which products are produced only when they are needed for the next stage of the production process, and only in the amount required for this. However, a closer examination shows that the matter is not limited to the organization of production according to this system. It is necessary to rethink the logic and technology of production, which inevitably leads to a change in mentality or, as it is often said now, to a change in the culture of the organization. As a first approximation, one gets the impression that the metamorphosis of standardization is inevitable in the context of the development of lean production. As long as RP exists only as a project, one can indulge in reflection, the subject of which should be the main thing in any business, regardless of its scale and significance - the quality of the process and the product. If we argue strictly logically, then the concept of "quality" is a specific philosophical category. In philosophy, it is second in order, following the concept of being, reveals the essence of being. In all outside philosophical discourses, the quality is modified, acquires a concrete objective, very often sensually concrete definiteness. Economics and production practice are no exception. The difference can be felt by comparing the understanding of quality in philosophy and beyond, focusing on a human explanation of what quality is. Quality, according to the famous German philosopher, is “that, losing what, the object ceases to be itself”. The philosopher has the right to define quality in this way, because he takes the object in its abstract form. In an abstract form, an object exists conditionally, therefore, an object also ceases to exist conditionally, taken in the system of philosophical abstractions. A commodity ceases to be a commodity only for a philosophizing specialist when it is devoid of consumer value. But who is going to organize the production of what no one needs. This can only be in an insane asylum, and not in a real-life production. The definition of the quality of philosophical phenomena admits of a human formulation. The cause has one quality, the effect has another. Losing its quality, the consequence, can cause new changes. It does not disappear, but only transforms according to the natural order of movement. The chance, which has deprived the quality, turns into a necessity; possibility in reality or impossibility. The product assumes, as a necessity, the absence of the need of the manufacturer himself in it, - is manufactured for sale on the market; and as an addition (if you are preparing it for sale) it should contain what someone really needs, he came to the market for this. A product really ceases to be a product when it does not contain what is needed by someone other than the manufacturer. Only such a “commodity” is not a standard of commodity production. In production designed for the market, the philosophical concept of quality is substantively concretized within the framework of the reality of the product and looks like a standard. This explains the fact that the entire history of quality management in the XX and XXI centuries was developed in the form of standardization of mass production. The modern history of production management focuses on the management of the quality of production of goods and is carried out through the improvement of standardization. This should be guided in assessing the economic efficiency of management. And one should start, in general, by clarifying the concept of economic efficiency. The reason is that there is a growing tendency to isolate economic efficiency from the systemic functioning of the economic block of social life. The modern history of production management focuses on the management of the quality of production of goods and is carried out through the improvement of standardization. This should be guided in assessing the economic efficiency of management. And one should start, in general, by clarifying the concept of economic efficiency. The reason is that there is a growing tendency to isolate economic efficiency from the systemic functioning of the economic block of social life. The modern history of production management focuses on the management of the quality of production of goods and is carried out through the improvement of standardization. This should be guided in assessing the economic efficiency of management. And one should start, in general, by clarifying the concept of economic efficiency. The reason is that there is a growing tendency to isolate economic efficiency from

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Scientists economists sequestered the methodology of cognition and management to mathematical software, trying to implement the idea of O. Comte, which had failed in the 19th century, to make each science a philosophy at the same time. One of the attempts of this kind K. Marx called "the poverty of philosophy", for which it is not the bourgeoisie who is destined to pay off, and not those who serve it, pay consumers in a certain way. Therefore, the dynamics of the increment looks stable: the rich become richer in times of crisis, the rest float along the real waves of economic movement. Just as those who are in a balloon in distress are trying to throw off the ballast in order to reach the right place, so the current theorists of the economic movement seek to unfasten from the economy everything, as they believe, is not economic, crediting activities to infrastructure. aimed directly at the development of human capital, and at the same time declare that it is human capital that is the main source and reserve of economic growth. It is surprising how specialists, fascinated by the term "humanization of production", read statistics. “Education is becoming the norm,” the authors of the textbook “Philosophical and Social Aspects of Quality” enthusiastically state. The average expenses of American companies on training are about 1.4% of the payroll (!?) ". the authors of the textbook "Philosophical and Social Aspects of Quality" enthusiastically state. The average expenses of American companies on training are about 1.4% of the payroll (!?) ". the authors of the textbook "Philosophical and Social Aspects of Quality" enthusiastically state. The average expenses of American companies on training are about 1.4% of the payroll (!?) ".

When this one and a half percent was an indicator of special attention to something. There is just a division of profit on the basis of the residual. So, let's highlight the essence of our thesis: from the very first steps of its history, standardization was aimed at defining and stabilizing quality. First, the product itself, since there were no special chances to influence the technology and organization of production, but with the transition to mass production, when the value of the organization of production increased significantly as a result of activities, the direction shifted to the manufacturing process.

Production standardization came to the fore. It was believed that if the organization of production meets the requirements of the developed standard, then the result will be of high quality. Switching the arrow to standardization of production from the outside seems to be a justified action. In fact, where does not the quality of the product come from, when there are only high-quality actions around. Naive people are convinced that it is enough to combine high-quality alcohol with high-quality water, and you get high-quality vodka. Chemists have a different opinion. They argue that in order to obtain a high-quality alcohol-containing drink, it is also necessary to observe the order of combining water with alcohol in order to properly start the reaction. The workshop and, to some extent, manufacturing production were subordinated to the quality of the goods. Manual labor was unproductive, but within the skill limits it was highly mobile. Hence, one hundred percent participation of creativity in the product. The quality of the product completely subordinated the technology and organization of production to itself. It makes no sense to fantasize on the topic: Would Stradivari or Amati go to change the sample if they experienced difficulties with manufacturing?

They would not deviate a step from the idea of its material objectification, they would look for a solution in production and would find it. Mass production of any type - careless and prudent - has a completely different character. If a product recommended for mass production cannot be manufactured without a serious restructuring of production, it requires serious expenses, then it is easier to involve innovators in order to "improve" the product in the interests of production. The Soviet experience can be cited as an illustration. Consumers knew that premieres would be perfect, but the further they go, the worse it gets. German automakers are one of the most qualified, however, they also went to falsify engine performance, confessed and were approximately fined. Similar cases have been repeatedly noted in the practice of Japanese manufacturers. Unfortunately, the situation in the Russian Federation is even worse. The main reason is rampant corruption. It is necessary to understand the dual function of standardization. She has combined technological effectiveness with politicism. Its significance for improving production is objective - this is the only main way to move the economy forward, but at the same time it is also the main means of objectifying economic policy, therefore, the objectivity of standardization has been and will be oriented by political interests.

Standardization can be controlled (and should be!), Therefore, it can also be manipulated. Having come to power, US President Donald Trump took measures to withdraw the country from the Paris agreements on environmental policy, in spite of the complication of relations with European partners, especially sensitive to the effects of environmental changes - the mainland is small, the population density and production are large. Trump is a man of business and business politics for him is the essence of politics. Everything else should be subordinate. Trump undertook to restructure the economic movement of his country, and he will build standards based on purely American interests, without straining infrastructural processes, to which Trump refers to the state of the natural environment. Its political essence

is manifested through the technical form of standardization. And the last argument in favor of the dialectical perception of standardization - the President of the Russian Federation declared the creation of digital production to be the central economic task. Since the time of the Pythagoreans, numbers have been a symbol of extreme abstraction, behind the number, objectivity is lost, it is replaced by number, but not chaotically, but quite definitely. A figure taken separately is pointless. A certain combination of numbers is a different matter, it, with the help of a certain code, recreates an object in its most accurate expression, which opens up almost unlimited possibilities of identification and control. From management, thanks to the transfer of actions into a sphere independent of the subjective factor, the emotional - motivational component of the subjective activity, the costs of the professional readiness of a specialist is withdrawn. As the saying goes: nothing personal, only in the interests of the cause. Badly, when the role of the individual is underestimated, it is even worse when the fate of the common cause depends on the individual. Production management, including standardization, must be carefully prepared with maximum reliance on the reserves of the professional culture of specialists, but it is advisable to entrust the dynamics of management of launched production to technical programs and means. This will make everything more reliable. In June 2018, the Russian icebreaker fleet was replenished with the most modern diesel vessel of the Arctic class for escorting caravans along the Northern Sea Route on an annual basis. Height - from a five-story building, main engine power 45000 hp. with. it is necessary to carefully prepare with maximum reliance on the reserves of the professional culture of specialists, but it is advisable to entrust the dynamics of management of launched production to technical programs and means. This will make everything more reliable. In June 2018, the Russian icebreaker fleet was replenished with the most modern diesel vessel of the Arctic class for escorting caravans along the Northern Sea Route on an annual basis. Height - from a five-story building, main engine power 45000 hp. with. it is necessary to carefully prepare with maximum reliance on the reserves of the professional culture of specialists, but it is advisable to entrust the dynamics of management of launched production to technical programs and means. This will make everything more reliable. In June 2018, the Russian icebreaker fleet was replenished with the most modern diesel vessel of the Arctic class for escorting caravans along the Northern Sea Route on an annual basis. Height - from a five-story building, main engine power 45000 hp. with. main engine power 45000 hp with. main engine power 45000 hp with.

The ship is operated by 19 people, which may be more convincing in favor of the benefits of technical management of production. But technical management has its weak points. Among them: a high level of energy dependence, computer security is not absolute, the requirements for the personal abilities of specialists in conditions of personal and team responsibility are increased, at times up to exclusive ones. Problems in production, as a rule, are created by people, but it is in the absence of qualified specialists that the most serious problems arise. Technical standardized management is not a panacea. Let's try to formulate the rules for standardization. In our opinion, there are two main ones. First: standardization should be carried out in three directions, linking them into a complex, - define a product standard within its functional purpose, taking into account a broad understanding of the safety of use; regulate the production process and form a consumer attitude towards the product. The consumer is a full-fledged participant in standardization. Without proper consumer interest in the product, the product will not be in demand on the scale necessary for its sustainable production. Second: the standardization of production is carried out on the basis of a conceptual understanding of its position in the system of specific historical conditions, since it is determined by the quality of the stage of economic development. No matter how it is perceived by the consciousness, one must put up with it. The product must be in demand not exclusively, but on a mass scale, otherwise the production will cease to be massive and will waste its quality. The consumer is a full-fledged participant in standardization. Without proper consumer interest in the product, the product will not be in demand on the scale necessary for its sustainable production. Second: the standardization of production is carried out on the basis of a conceptual understanding of its position in the system of specific historical conditions, since it is determined by the quality of the stage of economic development. No matter how it is perceived by the consciousness, one must put up with it. The product must be in demand not exclusively, but on a mass scale, otherwise the production will cease to be massive and will waste its quality. The consumer is a full-fledged participant in standardization. Without proper consumer interest in the product, the product will not be in demand on the scale necessary for its sustainable production. Second: the standardization of production is carried out on the basis of a conceptual understanding of its position in the system of specific historical conditions, since it is determined by the quality of the stage of economic development. No matter how it is perceived by the consciousness, one must put up with it. The product must be in demand not exclusively, but on a mass scale, otherwise the production will cease to be massive and will waste its quality. standardization of production is carried out on the basis of a conceptual understanding of its position in the system of specific historical conditions, since it is determined by the quality of the stage of economic development. No matter how it is perceived by the

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The assortment of products of mass demand in the USSR was not great, but the quality of the consumer's goods satisfied and allowed the manufacturer to solve his problems. The departure from the production standards developed in the USSR made it possible to significantly expand the range of goods at the cost of quality loss. Increasingly, in stores and advertisements, there are Soviet brands that were not at all in the USSR, but were ordinary products. Concepts are expressed only in words, you cannot translate them into numbers, unlike products. Once again, let's pay attention to the fact that the concepts of “quality” and “standard” are related as general and particular in the description of the phenomenon. In reality, quality can be controlled only with the help of words, and a word, by definition, generalizes the reflected phenomenon and removes it sensually - objective concreteness, complicating practical impact, reducing efficiency.

Determining the quality of an object, we just limit it and concretize control, setting a vector and goals for the control. For management to take on a practical form, it is necessary to have not an image of an object, but its objective expression. What is needed here is an objective or sensory, digitalized sample that is adequate to it, which, after technical processing, takes the form of a program of practical action. Digital production is built on the basis of physical impact on an object and requires a standardized reality of quality. The history, known as the history of quality management, is essentially a history of standardization of production, the concretization of quality into a sample of production. The first experience of control intervention in the production process in order to give it stability and a certain increment can be found in the activities of the shops, individual industries, schools of craftsmen. Most of the famous sculptors of the Renaissance tried to work in teams of stonecutters, directly in the places where the material was mined. They were looking in the quarries for the texture needed to create the image. It was then that the joke appeared: it is easy to make a masterpiece - you need to remove all unnecessary, unnecessary, but first you need to find the basis. In the workshops, in the interests of quality, the craftsmen carefully checked the products, observed the work of the apprentices during the manufacturing process, actively introduced the students to the secrets of production, selecting the most capable of them. Despite the fact that each product was individual, made by a master, it underwent internal control, which was also external from the city shop organizations. Subsequently, such work will be defined as the rejection phase. Most of the famous sculptors of the Renaissance tried to work in teams of stonecutters, directly in the places where the material was mined. They were looking in the quarries for the texture needed to create the image. It was then that the joke appeared: it is easy to make a masterpiece - you need to remove all unnecessary, unnecessary, but first you need to find the basis. In the workshops, in the interests of quality, the craftsmen carefully checked the products, observed the work of the apprentices during the manufacturing process, actively introduced the students to the secrets of production, selecting the most capable of them. Despite the fact that each product was individual, made by a master, it underwent internal control, which was also external from the city shop organizations. Subsequently, such work will be defined as the rejection phase. Most of the famous sculptors of the Renaissance tried to work in teams of stonecutters, directly in the places where the material was mined. They were looking in the quarries for the texture needed to create the image. It was then that the joke appeared: it is easy to make a masterpiece - you need to remove all unnecessary, unnecessary, but first you need to find the basis. In the workshops, in the interests of quality, the craftsmen carefully checked the products, observed the work of the apprentices during the manufacturing process, actively introduced the students to the secrets of production, selecting the most capable of them. Despite the fact that each product was individual, made by a master, it underwent internal control, which was also external from the city shop organizations. Subsequently, such work will be defined as the rejection phase. They were looking in the quarries for the texture needed to create the image. It was then that the joke appeared: it is easy to make a masterpiece - you need to remove all unnecessary, unnecessary, but first you need to find the basis. In the workshops, in the interests of quality, the craftsmen carefully checked the products, observed the work of the apprentices during the manufacturing process, actively introduced the students to the secrets of production, selecting the most capable of them. Despite the fact that each product was individual, made by a master, it underwent internal control, which was also external from the city shop organizations. Subsequently, such work will be defined as the rejection phase. They were looking in the quarries for the texture needed to create the image. It was then that the joke appeared: it is easy to make a masterpiece - you need to remove all unnecessary, unnecessary, but first you need to find the basis. In the workshops, in

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In terms of content, it was much richer, synthetic, more like “sampling” than “culling”. Creativity moved the masters, the masters studied not less than the students. They were looking for paint, primer, base, ideal images and ... they were wrong. Creativity spares no one - neither the greats nor the beginners. Everyone, and especially the masters, had to work with the stick method. The concept of "marriage" is not as simple as it seems from the outside. The marriage is not always in plain sight, the masters were taken out by its hidden forms, which manifested themselves over time. Culling was not an act, as in mass production, but a technology. Today it is difficult for us to look beyond the achieved horizon in the development of mass production. It is only clear that its "prudent" form is still more a direction of development than a phase.

However, the logic of progress, built on continuity, does not exclude a return to some part characteristic of the shop organization. Mass character should not be a brake on creativity. Over time, it will surely reveal its diversity under the common “roof” of multiple results. Therefore, it is necessary to carefully study the production process, which has been improved in the workshop form. Modern culling as an act of standardization dates back to the last quarter of the 19th century. The experience of S. Colt's factories is recognized as the beginning, it is believed that the idea of "standard quality" was born there. If we evaluate in the system of our version "quality - standard", then this was a subconscious embodiment of Hegel's conclusion about the dialectic of the ascent of cognition from the abstract concept of quality to the concrete concept of the "standard" of product quality. At Colt, the assembly went without preliminary fitting of parts. Specially trained inspectors performed pre-calibration and rejected unconditioned, thereby speeding up the main part of the production process. The experience of S. Colt at the beginning of the next century was developed in the automobile production of G. Ford and G. Leland ("Cadillac"). G. Ford, introducing conveyor assembly, removed the control of components from the conveyor, logically considering that such work should be done earlier. As a result, the “input control” of conformity to standard calibers was replaced by “output control” at the adjacent production, which cleared the main production of defects and made it qualitatively cleaner. Further, the process of standardization went through the improvement of what had been achieved; theorists F. Taylor, A. Fayol., M. Weber joined it. In alliance with managers, they identified the basic principles of a scientific approach to organizing mass production: a systematic approach to management; personnel management; delegation of responsibility; scientific rationing of labor. The developed production management system went down in history as the Ford-Taylor production system. Having indisputable advantages, the Ford - Taylor system also contained serious defects, which for a long time "dormant" in its potential. The development of production in the new socio-political conditions, the intensification of social democratic interests, inevitably pushed the Ford-Taylor system into a dead end. This was also facilitated by technological progress, the process of transforming scientific knowledge into a direct productive force. The desire by all means to implement the principle of not allowing defective products to reach the consumer could not help but lead production into a technological structural crisis. This was also driven by the lack of a clear understanding of quality and standard in management theory. They were changed instead of being considered in development. The most noticeable and sensitive was the identification of quality and standard in the production of consumer goods, where the concept of product quality reflects the dualistic nature of the product. A product intended for subjective, more precisely, subjective use by a person or a social group must be objectively qualitative - physically and subjectively - to provide satisfaction with its physical quality to the consumer. It is naive to believe that only by advertising the physical perfection of the product, you can call the consumer's disposition to him. Such a consumer should be subjectively none. Interest in the physical quality of a product can be formed by demonstrating its capabilities, but in order for interest to form into a need to buy it, this is not enough. The product should captivate the feelings of the buyer, and this is an irrational process, deeply intimate in nature, expressing the individuality of the consumer. Especially if the consumer is attached to a significant

assortment, picky and fastidious. The quality of consumer goods is not reducible to a system of physical parameters, but in their quality it exists as a kind of core. And just as an atom is not limited to the presence of a nucleus, so the quality of such goods is not limited by a system of physical characteristics. Against, the standard is a purely physical phenomenon and requires a clear description in physical units. One should go to the concept of "quality of a product" through the market, and the "standard of a product" should be defined in terms of scientific and technical creativity. Subconsciously, we came to the differentiation of the concepts of "quality" and "standard" by the end of the first quarter of the 20th century, when they felt the insidiousness of the absolutization of control over the standard conformity of products. In high-tech, complex production, the share of controllers exceeded one third of those employed at the enterprise, which significantly increased the load on the cost of goods. The price has increased, but the quality has not improved according to the price increase. The buyer had to pay for the previous level of guarantees. Quality began to slow down production efficiency. In fact, the tension was between standardization and efficiency. It was necessary to think about how to improve the physical model of the standard - about new materials, original constructive and technological solutions. The standard is a technical image of the quality of the product. And just as the quality of a product, described by words, depends on knowledge and the ability to use them, the standard is determined by the possibilities of technical modeling of the concept of quality. The understanding of quality is evolving, and the technical model of the quality standard is also changing. Thinking has its own language and technical creativity has its own language, designed to serve as a translator from a scientific language into a technical one that is understandable for production. At the same time, the translator must have a good sense of the organizational and technological capabilities of production, so as not to absolutize the meaning of the idealized model. The image of a model is significant when it fits into the image of production, otherwise, the above situation will arise. Good intentions will lead the organization of production to a hellish state. When the desire for the totality of the organization of quality control came into conflict with the total goal of increasing production efficiency and it became clear that the conflict could not be resolved in the same way, V. Schukhert, who worked in the technical control department of the American company Western Electric, proposed to shift the focus of management quality for the organization of the dynamics of the production process. V. Schukhert's innovation consisted in the fact that he looked at production and the quality of production as a movement and in this context understood the main thing in the quality of movement: firstly, the achievement of stability, and secondly, the inevitability of deviation from the direction of movement. He translated the peculiarities of movement into solving the problem of obtaining a qualitative result and received two conclusions: the desired quality can be obtained only under conditions of stable movement of production, therefore, it is necessary to stabilize production in certain qualitative parameters, and quality is a generalizing characteristic of the process, which really represents variations. Variations need to be framed. Quality Schedule The task of achieving high-quality production took on a technical form and meaning to Schukhert: it is impossible to avoid variations in the parameters of the obtained quality of products, one must strive to reduce variations. The quality criterion is the stability of production in a static sense, that is, the convergence of variations with the central line. One of the most important factors in solving the problem V. Schukhert called the restructuring of personal interaction - cooperation, team organization. Schukhert was the first to approach the interpretation of the standard in terms of mass production, presenting the quality of production and goods as a statistical form that presupposes a certain fluctuation, which is called tolerance. Schukhert did not introduce the concept of a statistical model of the standard, but it was necessarily formed on the basis of his innovative ideas. B.S. Aleshin et al. Compared Taylor's and Schukhert's quality management systems in tables that clearly demonstrate how far the management thought has progressed. Comparison of systems Taylor system Schuhert system assuming a certain fluctuation, which is called the tolerance. Schukhert did not introduce the concept of a statistical model of the standard, but it was necessarily formed on the basis of his innovative ideas. B.S. Aleshin et al. Compared Taylor's and Schukhert's quality management systems in tables that clearly demonstrate how far the management thought has progressed. Comparison of systems Taylor system Schuhert system assuming a certain fluctuation, which is called the tolerance. Schukhert did not introduce the concept of a statistical model of the standard, but it was necessarily formed on the basis of his innovative ideas. B.S. Aleshin et al. Compared Taylor's and Schukhert's quality management systems in tables that clearly demonstrate how far the management thought has progressed. Comparison of systems Taylor system Schuhert system• Establishing quality requirements for products • Manufacturing of products • Inspection of products • Administrative impact on the contractor (fines, dismissal) • Process quality planning • Execution of work (process) • Process performance monitoring, use and analysis of control charts •Elimination of special reasons Each element is performed by different people, with a conflict of interest. Each element is performed by a team that has a common goal of reducing variation. Comparison of Taylor's and Schukhert's systems W. Schukhert tried to give quality management a human face. He

emphasized the importance of internal, including personal, motivation. But he did not strive to radically change the position of the worker in production. The alienation of the individual remained fundamentally the same, so the motivation was supported mainly by the financial assessment of the activity. Researchers of Schukhert's experience clearly overestimated its content, introducing into the characterization such a reaction of workers as "the joy of getting results"; “Pleasure from teamwork, recognition of merit by colleagues and management”; "A sense of their importance", etc. It was more adequate to say that Schukhert's method forced managers to learn what is called humanitarian knowledge. The restructuring of the quality management organization has become more significant. The quality control departments have been replaced by a quality audit service focused on checking the validity of the quality assurance system by sampling small individual samples from the total batch of products. The next step in improving the standardization of production was the concept of "quality management" by E. Deming. It was formed and optimized for almost half a century, from 1950 to 1992. Drawing on Schuhert's ideas, Deming formulated three basic "progmatic axioms": The restructuring of the quality management organization has become more significant. The quality control departments have been replaced by a quality audit service focused on checking the validity of the quality assurance system by sampling small individual samples from the total batch of products. The next step in improving the standardization of production was the concept of "quality management" by E. Deming. It was formed and optimized for almost half a century, from 1950 to 1992. Drawing on Schuhert's ideas, Deming formulated three basic "progmatic axioms": The restructuring of the quality management organization has become more significant. The quality control departments have been replaced by a quality audit service focused on checking the validity of the quality assurance system by sampling small individual samples from the total batch of products. The next step in improving the standardization of production was the concept of "quality management" by E. Deming. It was formed and optimized for almost half a century, from 1950 to 1992. Drawing on Schuhert's ideas, Deming formulated three basic "progmatic axioms": The next step in improving the standardization of production was the concept of "quality management" by E. Deming. It was formed and optimized for almost half a century, from 1950 to 1992. Drawing on Schuhert's ideas, Deming formulated three basic "progmatic axioms": The next step in improving the standardization of production was the concept of "quality management" by E. Deming. It was formed and optimized for almost half a century, from 1950 to 1992. Drawing on Schuhert's ideas, Deming formulated three basic "progmatic axioms":

- Any production activity is reduced to a standard type of technical process and contains reserves for improvement that must be identified and implemented;
- Production has two standard forms of existence: stable and unstable, therefore the solution of specific (current) problems is ineffective, it is necessary to direct the vector of management activities towards fundamental changes;
- The main responsibility for the failure in the development of production should be assumed by the top management. E. Deming's doctrine is well known, it has received wide practical application. We would like to draw attention not so much to the structural sections that make up the content of the concept, but to emphasize the question: to what does Deming owe his resounding success, what contributed to the effectiveness of the application of the provisions developed by him in the real economy? The years of creativity E. Deming fell on two critical events in the world economy. First of all, a project designed for the omnipotence of technical progress turned out to be a myth. History repeated itself with science in the Age of Enlightenment, when it seemed that humanity had found a full-fledged replacement for religion in the person of science. Science is universal knowledge, it will solve all problems. You just need to turn the consciousness of the masses to face science,

Deming understood and warned before anyone else: the view that mechanization, automation and computerization will make a breakthrough in the sustainability of production quality belongs to the sphere of difficulties in solving the problem of quality management efficiency, as well as the attitude to obtain positive results in the shortest possible time. Deming offered his philosophy as a "Valuable Reaction." "Chain reaction" (according to E. Deming) Comparing the philosophy of management of Schukhert and Deming, to see how dependent the economy and economic theory are on the trends of social development. Schukhert reflected in his concept the socio-political and cultural mood that developed after the crisis caused by the First World War. Europe and the United States and Canada had a hard time coming to their senses, for the war of annihilation called into question the dignity of democracy. At the same time, a certain part of thinking humanity tried to rethink the situation and save the image of democratic reforms, believing in the power of the creative principle of homo sapiens. Economists of the first half of the XX century felt the decisive role in the development of production of the human factor, questioned the stake of Taylor, Ford, Fayol on the technical factor. Before the concretization of the human factor in human capital was still half a century, however, as in nature, in society, cataclysms do more harm than good. Revolutions are indeed the locomotives in history, with the allowance for the fact that it is not the time

factor that forms the core of the revolution. Revolutions, whether in industry, technology, science, culture, or social order, are, first of all, a process of changing the old quality to a new one. Revolution is identical with the quality of transformation, it makes ideals the standards of practical life. The factor of the time of revolutionary transformations is secondary and is conditioned by the concreteness of historical reality. But one thing is invariant in history - the decisive power of man as the primary historical factor. History is a process of human creativity, though not always successful. All the same, and then there is no one to correct, except for the person. The merit of Schukhert and Deming was that they resisted the platform of classical political economy, did not succumb to numerous "temptations" - technical, statistical and others. Their logic was distinguished by confidence in the historical power of the subjectivity of man as a person. Having weighed the technique and creativity of the individual on the "scales" of history, they confirmed that the growth of capital is carried out by man. Technique both existentially and functionally depends on a person. And here, time worked on Deming's side. The time has come for a renaissance in Japan. The war destroyed the country's economy, but did not undermine the samurai spirit. Nature taught the Japanese to keep the blows of fate. The national will was ready to return the country to its former greatness in the Pacific region, the inhabitants of the state of the "rising sun" well understood that the path of revival lies through the industrialization of destroyed production potential. They just didn't know how to implement it. At the very end of the 1940s, leading Japanese specialists united in the Japanese Union of Scientists and Engineers - JUSE. A group arose within the Union aimed at studying the industrial experience of the United States. She established the dependence of progress in quality management with an increase in labor productivity. We tried to understand the mechanism of the established connection. The informal leader of this group was K. Ishikawa is the future initiator of the "Japanese miracle". JUSE invited E. Deming in 1950 to get better acquainted with the technology of American industrial development, but, unlike the Russian reformers of the 1990s, the Japanese were well prepared themselves. They did not expect a miracle from the Americans, but "information for thought." Ishikawa concentrated his thoughts in three conclusions:

•all experimental engineering work must be statistically adequately defined. In order to improve the level of knowledge of statistical methods of analysis, at the initiative of JUSE, the industry department of the University of Tokyo introduced a compulsory course "How to use experimental data";

• dependence on imports of raw materials and food can be overcome solely through the growth and expansion of the range of exports and there should be a clear focus of the industry on the production of high-quality products, so as not to squander resources;

• it is necessary to reorient the consciousness of specialists and in society as a whole to the management of high-quality high-tech products.

Japan had no alternative to this path, since financial reserves do not allow planning a total modernization of production. E. Deming was invited to go to the goal not in the American way, but in the Japanese way, moving not from big finances, but from the national mentality, in which the culture of work occupied the most important place. Domestic demreformers failed amicably because they knew what to get rid of, but did not know how to do it in a civilized way and, most importantly, what to replace, based on the Russian specifics of reality. The Japanese, on the other hand, decided in advance what they would do. They only needed specifics - a "road map" of movement, so they called E. Deming as a navigator or pilot. I. Deming coped brilliantly. Deming was paid for lectures by the Japanese, our "foremen" - Sores. The Japanese saved national prestige ours - chopped down national historical roots and stole wherever they could. Not surprisingly, 30 years later (by the early 1980s) the Japanese produced 40% of the world's color televisions, 75% transistor receivers, and 95% VCRs. Thirty years later, the Russian Federation still cannot restore the destroyed potential. The ideas of Deming, Ishikawa, Juran were realized, confirming the importance of counter courses in the movement of national interests and innovative, creative, creative thinking of non-committed, honest specialists. The "Japanese miracle" is a product of the interaction of scientific thought, a critical analysis of the production experience of advanced economies and the characteristics of Japanese national identity. Ishikawa, Deming and Juran met happily at the same place and time,

Only the Japanese team, having lost the 2018 World Cup match in the last seconds, cleaned everything in their locker room and left a note in Russian with the only word: "Thank you." Of course, this fact has no direct relation to the topic of our research, but it is indicative as a characteristic touch to the national character. B.S. Aleshin with colleagues. We are more interested in the lessons of the movement of Japanese specialists towards the goal. There are enough of them not to pass by, but this is a feature of our fans to steer the economy along American routes after Gaidar and his students. They really do not like it when something does not want to move in the rut of liberal economic theory that excommunicates the state from production.• quality is time, years of consistent, hard work, coupled with the need to collect and analyze creative approaches; •quality is a product of interaction with the consumer, built on partnerships of mutual respect. In this case, the consumer is understood extremely broadly, including all participants in the production;• the

totality of participation in achieving quality results; • systematically adjusted audit control; • a key role in obtaining the sustainability of the quality of the activities of foremen and foremen, their continuous retraining in various forms, including special programs of national and regional television; • special attention to the mobilization of the physical, moral and creative abilities of workers; • promotion of quality and its key importance for the development of production; •and, finally, what infuriates the liberals - managers - the need for a consistent state economic policy, especially in the production of export products; compulsory state certification of products for other countries.

Attempts to sell non-certified goods outside the state are equivalent to smuggling. State support for exports, assistance in promoting goods to the world market. As the final touch in the Japanese quality management program, it is advisable to consider the idea of dividing problems into sudden and chronic, proposed by J. Juran. It is not realistic to foresee all possible problems in planning and therefore it is not necessary. It is enough to have mobilization reserves to ensure the stability of the movement. The goal should be chronic problems that have become part of the organization - in fact, disruption-to-production. Chronic problems are most often latent in nature; they are, as it were, adapted by production. It is no secret that there is no waste-free technology, therefore, tolerances are a natural state of quality management. Orders, decisions, appeals, slogans are powerless here. Since chronic problems have become part of the organization of production, then they must be overcome within the framework of the existing order. Juran presented the process of solving chronic problems as a kind of "road map" of movement with four nodal stations. Stations are the stages of a solution; certain actions are performed on them in a sequence set by the organization of movement. Juran called the components of the problem at the stages "main phases". Y. Juran's scheme is still relevant as “information for thought”. We present it Stage of solving the problem Components of the problem (phases) Development of the main provisions of the project 1. Compilation of a list of problems and identification of priorities. 2. Determination of the composition, responsibility and authority of the working groups. Diagnostics 3. Analysis of symptoms 4. Formulation of versions 5. Verification of versions 6. Revealing the reasons Search for a solution 7. Search for optimal solutions 8. Development of necessary measures 9. Overcoming resistance 10. Implementation of solutions Maintaining the results achieved 11. Checking the effectiveness of implementation results. Regular comparison of the achieved results with the planned ones. Problem solving phases (according to J. Juran)

In the 1970s, Japan's expansion into the markets of the world reached such a scale that for the United States, the "Japanese miracle" appeared as a "Japanese threat." The successes of Japan in the production of high-quality and relatively (with the Americans and Western Europeans) inexpensive products in the assortment of high technologies forced again to actively engage in the theory of quality management. The time has come for the author of the program "Zero Defects" F. Crosby. Building on Deming's experience, Crosby developed his Fourteen Points. The development of Crosby's ideas was the program of A. Feigenbaum. As a result, Total Quality Control (TQC) was formed, from which all subsequent quality standardization systems grew. Was it possible in the end to build a unified basic model of quality management based on the standardization of organizational and managerial actions? Yes, a comprehensive program has been developed and tested by international practice. As for its systematic assessment, here we would refrain from a positive conclusion. There is still no clarity in the interpretation of the concepts of "quality" and "standard". The methodological reserve of the approach to improving standardization that developed in the second half of the 20th century - the beginning of the 21st century has apparently been exhausted. It is this factor that can explain the absence of breakthrough ideas after the works of A. Feigenbaum, who generalized the practical application of the important findings of his predecessors - innovators. International standards ISO 9000-2015, domestic GOST 10 57189-2016 / ISO / TS 9002-2015 are a linear continuation, that is, in fact, the rationalization of what has been achieved. It is necessary, in accordance with the new requirements that have formed at the stage of post-non-classical development of science, to refine the methodological foundations of the theory of quality and standardization.

Conclusion

First of all, it is important to separate the concepts of "quality" and "standard" so that, having clarified the hierarchy of their relations, combine them in a new approach to solving the problem of quality management. For clarity, we repeat: “quality” is a philosophical category, its use in a non-philosophical context - scientific, scientific-practical, practical - is a logically legitimate phenomenon with the clarification that it will not bring direct pragmatic benefits. It is necessary to descend from the height of philosophical generalization to the level of practical action, transform the concept of quality, filling it with specific content that reflects the specifics of objective activity, in our case, the production of marketable products in conditions of mass production. A philosophical concept is revealed in the verbal form of definition. Here the word has a special meaning. Words should be few and many, exactly as many, so that they convey the essence of quality. The essence of quality is not what is indicated in the guidelines, not a list of

essential features, but their systemic coexistence. The quality of the goods reproduces - indirectly through the peculiarity of the physical substrate - the essence of the market, as a structural design of two subjects - the producer of the goods and the consumer of the goods (sellers make up the infrastructure and do not count). A commodity is only what someone needs, except for the manufacturer, therefore, along with the physical component, consumer interest is present as a commodity as a phenomenon superstructured above the physical basis. It is impossible to manage a philosophical category; it is used to develop a route of practical action, as a navigator of movement from an idea to a substantive (organizational) result. Product quality, after a balanced definition, it must be converted into the form that corresponds to the production process, expressed in symbols of technical production management, - turned into a standard. Further, the history of standardization begins. The concept of "quality" is revealed in dialectics and is governed by dialectics. The concept of "standard" implies management at the production level. It is described physically, chemically, biologically, ecologically, hygienically and, ultimately, mathematically. At the level of the standard, a model is formed - physical and mathematical, and the system approach prevails. The systems approach is the future of standardization management. Let us illustrate this with the example of a product produced by light industry enterprises. The range of products is so varied and significant that the possibility of skeptical perception of our example is close to zero and there is sufficient reason to neglect it. Let's start with quality as the highest form of abstraction in product definition. Quality is that, the absence of which makes the object objectless from the point of view of its existence. Those who are in the places of sale of light industry products, at exhibition demonstrations, have a feeling that the vector of creativity is the same - to create something different, different. The fan has limits, and creativity has no limits. The feeling is false, the limit is hidden in diversity, as Thales said: "everything is in one." We must always remember this and keep the quality in creativity in the form of a collecting reference point. Shoes, socks, stockings, tights do not look alike in appearance, but they are all of a common quality - they serve as clothes for the legs and hands, that is, they are clothing in the broadest sense of their quality. The head, individual parts of the head, face, body have their own clothes. There are different levels of clothing - internal, external. Light industry protects a person and ennobles his appearance. It so happened that human evolution, having deprived him of a significant part of natural remedies, forced him to solve the problem artificially. Manufacturers in search of a new one are obliged to be guided by the requirements of the typical product quality, due to the quality of the item. Clothing should help preserve natural forces (health), protect against the effects of harmful factors for health, be, if possible, light, elastic, not constrain movement in their natural expression, breathe with the skin, minimize physical disabilities and be widely available. Further, the second level of the concept of product quality is formed, which ensures its consumer appearance. This "quality" already has a subjective basis, it represents the spiritual development of the consumer, his personal status. The subjective side of the quality of the product complements the objective quality of the substrate; it informs him of something without which the product would lose its consumer value. Combined in a general way, the objective and subjective aspects of the quality of the goods, represent the objective concreteness of quality. In this capacity, the philosophical interpretation of quality is combined with economic and technical understanding. Quality, loaded with commodity specifics, is transformed into a production standard that presupposes a technical and mathematical expression in the form of a quality model. The circle of movement of quality from the abstract to the concrete expression has been covered by exactly half.

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FEATURES OF THE THEORETICAL PREREQUISITES FOR THE FORMATION OF THE PRIORITY AND THE PRESENCE OF PREFERENCES AMONG CONSUMERS IN THE REGIONS OF THE SOUTHERN FEDERAL DISTRICT AND THE NORTH CAUCASUS FEDERAL DISTRICT

Abstract: *in the article the authors consider analysis of the results of a survey of respondents on the impact of the criterion "Attractiveness of goods", confirming the importance of the rehabilitation of this criterion in marketing activities to create sustainable demand not only for light industry products, but also for all consumer goods. Thus, the criterion of product attractiveness has a right to life and is more significant for both the manufacturer and the buyers to ensure sustainable demand for products manufactured in the regions of the Southern Federal District and the North Caucasus Federal District, and this is the most important and demanded wish in the search for its consumer.*

Key words: *quality, import substitution, demand, competitiveness, market, profit, demand, buyer, manufacturer, financial stability, sustainable TPP, attractiveness, assortment, assortment policy, demand, sales. paradigm, economic policy, economic analysis, team, success.*

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Introduction

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Reanimating the concept of "Product attractiveness", we seem to return the domestic consumer to the market, although the market is waiting for a buyer with a high paying capacity. But today there are only 7% of such consumers in Russia,

and they are not frequent visitors to those markets where the mass consumer makes purchases. The mass consumer differs from the solvent consumer in that he is extremely economical and it is difficult to "shake" him for purchase. This is where the main criterion for making a decision to purchase by a mass consumer will be the concept of "Product attractiveness", which requires a certain type of product that can charm him, and the presentation of this very product. And no less important factor is "cultural packaging", that is, the very criteria laid down in the "Product attractiveness" status.

Agreeing that today manufacturers do not produce what they can, but mainly what is especially profitable, because needs in the market are not determined by buyers. The markets are ruled by the seller in all persons and as the organizer - the owner of the market. And, of course, the owner of the market, in turn, is well aware of the importance of cooperation with the manufacturer for his well-being. Such a vicious circle provokes a situation that the concept of "quality" has become a bargaining chip, dependent on the understanding and taste of the seller, who, unfortunately, does not have such criteria, he simply does not own them. In this regard, the status "Product Attractiveness" is a litmus test for the consumer, if the manufacturer again turns to him through an alliance with the designer, making artsy products, that is, original, ultra-fashionable and modern,

Main part

In modern conditions of market relations, a competitive environment and direct interaction of Russian and foreign manufacturers, solving the problem of combining state and market mechanisms for managing competitiveness is becoming a strategic resource for the economy of the regions of the Southern Federal District and the North Caucasus Federal District. In the world economy, the place of price competitiveness was taken by the competitiveness of quality levels, which will increase its relevance with Russia's entry into the WTO. The increase in the quality factor of the results of the production of domestic footwear in the strategy of competition in world markets is a long-term trend.

The task of increasing competitiveness is especially urgent for shoe enterprises, which, due to external factors (increased competition due to globalization, the global financial crisis) and internal (ineffective management), have lost their competitive positions in the domestic and foreign markets. In response to negative processes in the external environment, the processes of regionalization and the creation of various network structures are intensified, one of which is the union of commodity producers and the state.

The basis for the formation of criteria for assessing the competitiveness of enterprises in the regions of the Southern Federal District and the North Caucasus Federal District is the content of the concept of "competitiveness of an enterprise", which is understood as its advantages over other enterprises in ensuring the economic development of the region, as well as in the innovative and investment potential of international cooperation. The content of the concept is transformed into a general model for determining the competitiveness of an enterprise (formula 1).

$$Kpk = f(Zreg; Pinw; Pinnov), (1)$$

where *Kpk*- assessment of the competitiveness of the enterprise; Zreg - a criterion for assessing the importance of an enterprise for the economic development of a region; Pinv is a criterion for assessing the investment potential of an enterprise; Pinnov is a criterion for assessing the innovative potential of an enterprise. Thus, on the basis of these criteria of competitiveness, we have proposed a system of indicators for assessing the value of any enterprise for the development of the regions of the Southern Federal District and the North Caucasus Federal District, which is presented in Table 1.

Table 1. Indicators for assessing the importance of the enterprise for the development of the regions of the Southern Federal District and the North Caucasus Federal District

Directions for assessing the value of the enterprise for regional economies	Indicators for assessing the importance of the enterprise for the development of regions
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 foreign trade balance	The volume of export of products by the enterprise
4. The contribution of the enterprise to the economy of the regions of the Southern Federal District and the North Caucasus Federal District	The share of the enterprise in the structure of production of the regions of the Southern Federal District and the North Caucasus Federal District

Assessment of the innovation and investment potential of the enterprise. The innovative potential is determined by the number of branches included in the enterprise. The greater the number of branches, the higher the level of competition, and competition is an incentive for innovation. In addition, the more innovatively active branches within an enterprise, the higher the innovative potential of the enterprise itself.

Investment potential characterized by the number of levels of product processing in the value chain. The level of processing is the number of types of products that are created at the enterprise along the production chain, determined on the basis of the OKONKh code in accordance with the Classifier of the branches of the national economy. The higher the degree of processing of the product, the more investment is required in such an enterprise.

But in this case, it is necessary to find a solution that would allow the manufacturer to have a tool for assessing the effectiveness of the developed innovative technological processes. Such a solution is possible if we use the efficiency coefficient for such an assessment, the value of which is considered as the value of the concordance coefficient for assessing the results of a priori ranking (W), which changes (Kef) from 0 to 1. If its value tends to one, then this means that the manufacturer managed to find the most optimal solution to the innovative technological process, but if its value tends to zero, then an analysis of the reasons for such an unsatisfactory result and a search for errors that provoked such a result, and ways to eliminate the mistakes are required.

The authors managed to develop software, with the help of which such a search will be justified and effective and will allow finding the best solution. At the same time, as criteria for a reasonable choice of the optimal power when forming

the algorithm justifiably selected exactly those criteria that provide the greatest

impact on the cost of finished products, namely:

- percentage of workload of workers,%;
- labor productivity of one worker, a couple;
- losses on wages per unit of production, rubles;
- unit reduced costs per 100 pairs of shoes, rubles;
- shoe production, 1 m2;
- the cost of equipment per unit of flow assignment (C)
- total price (Stotal);
- financial strength margin (Zfp);
- break-even point (TB.y);
- unit profit (Ex);
- product profitability (R);
- expensesfor 1 rub. marketable products (31p etc.);
- conditional variables costs (Zusl. per.units);
- conditionally permanent costs (Zusl. settlement units).

From the above criteria, in our opinion, the manufacturer can give preference to those that, from his point of view, would guarantee him the production of competitive and demanded products, namely:

- labor productivity of 1 worker is the most important labor indicator. All the main indicators of production efficiency and all labor indicators, to one degree or another, depend on the level and dynamics of labor productivity: production, the number of employees, wage expenditure, the level of wages, etc., to increase labor productivity, the introduction of a new techniques and technologies, extensive mechanization of labor-intensive work, automation of production processes, advanced training of workers and employees, especially when introducing innovative technological processes based on universal and multifunctional equipment;

– unit reduced costs - an indicator of the 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 efficiency of capital investments;

– the financial strength margin (Zfp) shows how many percent the company can reduce the volume of sales without incurring losses;

– the break-even point allows (Tb.y) to determine the minimum required volumesales of products, in which the enterprise covers its costs and operates at break-even, without giving profit, but also does not suffer losses, that is, this is the minimum size of product output, at which the equality of sales income and production costs is achieved;

– profit (loss) from the sale of products (Pr) is determined as the difference between the proceeds from the sale of products in the current prices of VAT and excise taxes and the costs of its production and sale;

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

– conditionally fixed costs (total fixed costs of production of a unit of production) (Zusl.pos.units), which vary in proportion or almost proportionally to the change in the volume of production (1st - costs of raw materials and materials; 2st - costs of auxiliary materials; 3st - costs of fuel and energy for technological needs; 4st - the cost of additional and basic wages of production workers with insurance contributions to extra-budgetary funds);

– conditionally variable costs (total variable costs of production of a unit of production) (Zusl.trans. maintenance and operation of equipment; 7st - costs for general production needs; 8st - costs of general operating expenses, they, together with conditionally fixed costs, constitute the production cost; 9 st - costs of commercial expenses. and the conditionally fixed costs make up the total cost, that is, the conditionally variable costs can be determinedas the full cost - conditionally

fixed costs, and vice versa, conditionally fixed costs can be defined as the full cost - conditionally variable costs);

– costs for 1 rub. commercial products show the relative amount of profit per ruble of operating costs, that is, this is the ratio of the unit cost to the wholesale price, which characterizes the effectiveness of measures taken to increase the competitiveness and demand for products in demand markets.

The maximum values of indicators for assessing the competitiveness of an enterprise are determined on the basis of their comparison between identical enterprises in the regions of the Southern Federal District and the North Caucasus Federal District. If only one enterprise of this direction operates in the regions, then to assess its competitiveness, the maximum values of the indicators for evaluating an identical enterprise in other regions of the Southern Federal District and the North Caucasus Federal District can be used. The values of the coefficients for assessing the competitiveness of an enterprise can theoretically vary from 0 to 1 (ratio 2).

$$TO_{NS} = 0 \div 1. \qquad (2)$$

Consequently, enterprises that have received a comprehensive assessment, the value of which is close to one, will be competitive. In fact, the value of the coefficient will be less than one. To select the most promising enterprise for state incentives within the framework of PPP projects, attracting foreign investment, or receiving donor assistance, it is advisable to use the selection criterion, which is determined by function (3).

$$KP = \max... \qquad (3)$$

The importance of increasing the competitiveness of an enterprise lies in the mutual influencethe enterprise and the competitiveness of its branches: on the one hand (competitive enterprises contribute to the increase in the competitiveness of all enterprises in general (cumulative effect), and on the other hand, a competitive enterprise creates conditions for the development of the competitive advantages of its participants (synergistic effect).

The methodology is intended to identify promising potential enterprises for foreign investment within the framework of programs for creating innovation centers, as well as to organize state support for identical enterprises identified in the region within the framework of public-private programs, which makes it possible to compare the results of the work of different industry enterprises.

To identify the prerequisites for determining its effectiveness, it is necessary to assess the level of competitiveness of enterprises - subjects of the regions of the Southern Federal District and the North Caucasus Federal District, therefore the next task of the study is to develop a methodology for analyzing and assessing the competitiveness of enterprises in the regions of the Southern Federal District and the North Caucasus Federal District.

The methodology for researching the competitiveness of an enterprise made it possible to formulate the following system-forming signs of the concept of "enterprise competitiveness":

1) comparison with competitors;

2) a combination of consumer interests (product competitiveness) and producers' interests (effective use of the enterprise's competitive potential).

Competitive potential of the enterprise is a set of internal factors of the competitive advantages of enterprises that ensure its competitive position in the market. The elements of competitive potential were determined on the basis of M. Porter's value chain concept, which he considers from the point of view of the source of competitive advantages of enterprises. The value chain allows you to divide all activities of the enterprise into several categories: primary types (logistics, operations, outbound logistics (MTO), marketing and sales, after-sales service) and supporting types (infrastructure, human resource management, technology development, logistics supply). Following this theoretical foundation, the competitive potential of an enterprise includes such components as marketing, management, finance, logistics,

On the basis of the theoretical study, the competitiveness of an enterprise can be defined as the property of an object to produce competitive products due to a more efficient use of its competitive potential in comparison with competitors.

The development of a methodology for analyzing and assessing the competitiveness of enterprises involves solving the following methodological problems.

The most adequate to the content of the concept of enterprise competitiveness is the method of the total weighted assessment of the factors of competitiveness, which consists in calculating the sum of the products of the assessments of the factors by their significance. Its advantages are that it allows:

– get a comprehensive assessment and compare it with the assessment of competitors;

– make a quantitative assessment of the main factors of the competitive advantages of the enterprise and, on the basis of it, identify the competitive advantages and competitive problems of the enterprise in order to develop an effective strategy for increasing competitiveness;

– monitor the competitiveness plan and take proactive control measures, flexibly responding to changes in the factors of the external and internal environment of the enterprise.

Since in the work the competitiveness of an enterprise is considered as a property of an object to produce competitive products due to a more efficient use of its competitive potential in comparison with competitors, the following criteria are proposed as factors for assessing competitiveness: the

competitiveness of a product (considered as a result) and competitive potential (considered as a resource of an enterprise). The competitiveness of an enterprise is assessed in a specific market. The environmental factors for the regions of the same market will be the same, therefore they are not involved in the assessment. However, in planning the competitiveness of enterprises, environmental factors must be taken into account.

To assess the competitiveness of an enterprise, a system of dimensional (with different units of measurement) indicators is proposed. The index method was used to bring them to comparable (dimensionless) units of measurement.

To convert the dimensional units of measurement of competitiveness indicators into dimensionless ones, the index is calculated as the ratio of the dimensional indicator of the assessment of the competitiveness factor to the maximum value of the indicator in the given market. It seems that this method of comparing indicators for assessing the competitiveness of an enterprise has the following advantages: first, it allows you to compare the analyzed indicators with the indicators of the industry leader, which corresponds to the essence of the category "competitiveness" as a comparison with a competitor; secondly, it is less laborious and easily algorithmic; third, it is more suitable for comparing quantitative rather than qualitative indicators.

Thus, a methodology is proposed for analyzing and assessing the competitiveness of an enterprise based on measuring competitive potential, which includes the following stages:

- selection of indicators for assessing the factors of enterprise competitiveness;
- determining the importance of indicators in the overall assessment of competitiveness;
- calculation of dimensionless estimates of the indicators of the competitiveness of the enterprise;
- assessment of the competitiveness of the product;
- calculation of the generalized indicator of the competitiveness of the enterprise;
- analysis of the competitiveness of the enterprise.

Table 2 shows a system of indicators for assessing the competitive potential of enterprises.

Table 2. The system of indicators for assessing the competitive potential of an enterprise

Factors of the competitive potential of the enterprise	Indicators for assessing the competitive potential of an enterprise
1.Efficiency marketing	The ratio of the quality of the product and the costs of its production and marketing
	Growth rate of marketable products
	Growth in sales and profits
	Profitability
	Market share, image
2. Efficiency management	Return on total assets, return on equity; return on investment
	Net profit for 1 rub. sales volume; profit from product sales per 1 rub. sales volume; profit ex. period for 1 rub. sales volume
3. The financial condition of the enterprise	Equity ratio; current liquidity ratio; coverage ratio, autonomy ratio, fixed asset index, total profitability of the enterprise, return on equity, profitability of products
4. The level of organization of production	Production capacity utilization rate; production and sales facilities; volume and directions of investments
	The share of certified products in accordance with international standards of the ISO 9000 series
	Depreciation of OPF, growth of labor productivity
5. Efficiency of MTO	The quality and prices of the supplied materials. Material return, turnover, allowing direct connections; the coefficient of uniformity of goods receipt; profitability of transaction costs; profitability of purchasing goods
6. Activity of innovation activity	Annual expenditure on R&D, number of patents for inventions
	The share of innovative products, the share of product exports, the number of advanced technologies created

	The volume of shipped innovative products (services), the number of patented technologies, the number of patented technologies, the cost of innovation, the number of acquired and transferred new technologies, software
7. competitiveness staff	Personnel turnover rate, performance lead rate labor in relation to wages, educational level of the labor force, level of professional qualifications of workers

For each factor of the competitive potential of enterprises, indicators of enterprise competitiveness and their significance were selected (Table 3).

Table 3. The system of indicators for assessing the competitiveness of the enterprise and their significance

Competitive factors enterprises	Indicators for assessing the competitiveness of the enterprise	Significance of indicators %
1.Competitiveness of goods	Weighted average for the product range of competitiveness of the goods	50
2.Efficiency marketing	Exceeding the permissible level of stocks of finished goods	5
	Sales growth rate	5
	Total	10
3. Efficiency management	Return on investment	3
	Costs per 1 rub. products sold	3
	Total	6
4. Financial condition of the enterprise	Coefficient of provision with own circulating assets	3
	Current liquidity ratio	3
	Total	6
5.The level of organization of production	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. Activity of innovation activity	Share of innovative products	5
	Cost of innovation	5
	Total	10
8. Competitiveness nstaff	Coefficient of advancing labor productivity growth in relation to wage growth	3
	Employee turnover rate	3
	Total	6
	Total importance of competitive potential	50
	Maximum significance score	100

Determination of the importance of indicators in the overall assessment of competitiveness. The economic meaning, embedded in the content of the concept of "enterprise competitiveness" (as the ability of an enterprise to produce competitive goods due to the higher value of its competitive potential in comparison with competitors), should be formed in such a way that the importance of the terms of enterprise competitiveness is equal, i.e. 50% is the “contribution” of the competitiveness of the product and 50% is the “contribution” of the competitive potential, and then the economic and mathematical model for assessing the competitiveness of the enterprise will have the form (function 4):

$$Kp = f(50\%\ Kt, 50\%\ PC), \quad (4)$$

where Кп is the competitiveness of the enterprise; CT - the competitiveness of the product;

PC- the competitive potential of the enterprise.

It is proposed to determine the significance of particular indicators for assessing competitive

potential as follows. The greatest importance (10%) in the assessment is occupied by such factors as the activity of innovation and marketing efficiency, which is justified by the specifics of the industry: high importance for consumers of such product properties as compliance with the fashion direction; frequent changes in fashion and its impact on changing consumer preferences; the choice of "fashion products" is dictated by aesthetic considerations and public acceptance; high differentiation of consumer preferences by market segments; a wide range and lack of a reference sample with which to compare to assess the competitiveness of a product.

The significance of the other five factors of competitive potential (management efficiency, the financial condition of the enterprise, the level of production organization, the efficiency of the material supply chain, the competitiveness of the personnel) is assumed to be equal to each other and is determined by mathematical calculations:

(50% - 20%) / 5 = 6%.

The significance of particular indicators for assessing each factor of competitive potential is determined by dividing the significance for each factor by the number of indicators for assessing this factor. As a result, the following estimates of significance were obtained, which are presented in Table 3. Probably, another solution is possible, but the authors came to the conclusion that such an approach would be more reasonable and more effective. Indices of dimensionless indicators are determined for positive indicators that have a positive trend - growth (for example, profitability of products sold, labor productivity) and for negative indicators that have a positive trend - decrease (for example, depreciation of fixed assets, excess of finished goods in the warehouse compared with the norm, the rate of turnover):

For the maximum (minimum) value for each index of the dimensionless indicator, the value of the indicator of an enterprise-leader in the industry is taken. The proposed methodological approach is a method for constructing a model of an industry “leader enterprise”. It can be a conditional enterprise, which is formed according to the highest indicators of the analyzed enterprises of the industry. This approach to the formation of a model of an enterprise-leader is acceptable, since it will provoke each enterprise to improve its performance in a competitive environment.

We believe that the more effective way to translate indicators that have a "negative value", that is, the lower the level of material consumption, the more effective the competitiveness of the goods, consider it as "+1", and with an increase in the level of material consumption, the indicator of the competitiveness of the goods will decrease in this case. the level of material consumption will tend to zero. Thus, the value of the coefficient of efficiency of the technological process will always have a positive value and strive for unity, thus confirming the most reasonable choice of innovative technological solutions that guarantee the enterprise and products competitive advantages in demand markets with similar enterprises and their products.

Assessment of the competitiveness of the product. Light industry products, due to their diversified nature, are diverse in their consumer and technical properties and have a wide assortment. In order to reduce the complexity of calculations, it is proposed to assess the competitiveness of the assortment group of goods. An assortment group is understood as an assortment of goods, united by common characteristics into certain sets of goods.

Light industry goods have different properties due to their industry affiliation (garments, knitwear, footwear, fabrics, etc.). The parameters for assessing the consumer properties of light industry goods are subdivided into the following groups: aesthetic, functional and cost. Each group of parameters is characterized by a system of single indicators. To determine them, it is proposed to use a priori ranking using the developed questionnaires, in which a list of assessment indicators by type of goods has been prepared for the respondents. Respondents can supplement this list by including indicators that, in their opinion, are important in assessing the competitiveness of a product. The developed questionnaires make it possible to assess the significance of individual consumer parameters of goods for various market segments.

The final set of parameters of the product, by which the competitiveness will be assessed, is carried out according to the value of the assessment of the importance of consumer parameters.

The values of assessing the competitiveness of an enterprise can theoretically vary from 0 to 100:

$$TO_{NS} = 0 \div 100. \qquad (5)$$

For the qualitative characteristics of the obtained assessments of competitiveness, a scale for assessing the quality level is required. In economic practice, they use the principle of constructing scales with an equal step, progressive and regressive scales. Progressive and regressive scales are most often used for material incentives. We believe that the most appropriate is a scale with an equal step, since it, firstly, corresponds to solving a practical problem (specification of the qualitative level of competitiveness), and secondly, it is easy to build and use. The scale step is defined as 100 (maximum score): 4 (number of levels) = 25. As a result of the calculation, the following scale was obtained (Table 4).

Table 4. Scale for assessing the quality level of competitiveness of an enterprise

Percentage score	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

The economic meaning of the obtained generalized assessment of competitiveness is that it shows the degree of satisfaction with the product and the degree of use of the competitive potential of the enterprise.

We will assess the competitiveness of the enterprise using a priori ranking, for which we compiled a questionnaire and conducted a survey with the participation of respondents (Tables 5-8; Figures 1 and 2).

Table 5. Criteria for assessing the competitiveness of light industry enterprises located in the regions of the Southern Federal District and the North Caucasus Federal District

No.	List of factors for assessing the competitive potential of enterprises in the regions of the Southern Federal District and the North Caucasus Federal District	Rank
1	The ratio of the quality of the product and the costs of its production and marketing	
2	Sales growth rate	
3	Exceeding the permissible level of stocks of finished goods	
4	Assessment of the level of partnerships with stakeholders of the enterprise	
5	Market share of the enterprise	
6	Return on investment	
7	Return on Total Assets	
8	Cost of innovation	
9	Equity ratio	
10	Capacity utilization rate	
11	Labor productivity	
12	Material efficiency	
13	The share of certified products in accordance with international standards of the ISO series	
14	Reducing the level of material consumption	
15	Share of innovative products	
16	Trade turnover allowing direct links	
17	The coefficient of advancing labor productivity in relation to the growth of wages	
18	Coefficient of uniform supply of goods to sales markets	
19	Depreciation of fixed assets	
20	Employee turnover rate	
21	Costs per ruble of products sold	
22	Weighted average for the product range of competitiveness of the goods	

Table 6. Results of the questionnaire survey of bachelors, masters, teachers and specialists - university graduates working at light industry enterprises, on the impact of competitive potential on the performance of light industry enterprises located in the regions of the Southern Federal District and the North Caucasus Federal District

Experts	Factors																					
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**
1	5	8	6	2	7	9	10	4	11	15	17	12	14	13	3	18	19	20	16	12	20	1
2	3	2	14	13	8	9	15	5	16	10	12	17	1	18	4	19	6	10	20	21	11	7
3	8	16	21	5	2	10	6	7	11	17	12	14	1	20	3	13	15	17	19	18	4	9
4	10	13	21	14	2	6	11	4	5	7	9	19	1	18	3	15	16	7	17	20	8	12
5	15	2	16	14	17	3	2	5	6	13	7	10	1	8	18	21	9	20	19	11	4	12
6	1	2	10	12	7	13	11	3	14	15	8	16	17	21	4	9	20	22	5	6	19	18

7	12	11	14	16	10	9	2	20	8	19	7	18	1	13	22	15	17	6	21	5	3	4
8	2	19	9	12	8	3	11	20	4	22	7	13	5	17	21	10	14	18	16	1	6	15
9	10	4	18	3	8	19	9	14	21	15	5	17	1	12	11	16	20	22	13	6	2	7
10	6	7	17	18	16	14	5	19	13	8	4	9	10	11	22	3	21	12	20	15	1	2
11	10	5	4	9	3	12	11	8	1	22	2	13	14	16	17	6	20	18	21	7	19	15
12	8	3	9	13	2	22	14	11	15	19	4	17	6	16	20	10	18	21	12	1	5	7
13	4	1	9	6	13	15	3	19	14	8	18	20	17	21	5	16	10	2	22	12	7	11
14	13	14	10	3	1	2	16	15	20	5	21	17	4	11	19	7	18	6	22	9	12	8
15	7	14	3	11	17	19	4	12	9	21	1	18	5	20	22	15	8	16	2	13	6	10
16	2	3	5	6	8	4	10	15	7	11	18	16	1	12	21	19	13	14	17	22	20	9
17	6	15	7	8	11	10	9	1	21	20	16	17	2	12	3	22	19	13	4	18	14	5
18	3	1	22	6	19	13	14	11	17	18	2	21	12	16	4	5	10	15	20	7	8	9
19	2	3	6	7	12	11	17	13	18	16	1	20	5	14	19	8	15	9	10	22	21	4
20	2	12	8	11	14	7	15	10	17	9	16	18	1	20	5	19	4	13	22	6	21	3
21	1	14	21	9	8	15	16	7	5	6	4	18	19	17	10	20	22	11	12	13	2	3
22	10	1	18	11	5	12	20	19	6	15	7	8	2	9	4	13	17	15	16	21	3	14
23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
24	9	1	10	11	3	2	13	12	15	19	8	7	14	18	20	4	17	22	16	21	5	6
25	20	4	11	18	5	6	2	17	15	16	1	8	10	14	13	7	12	22	9	21	3	19
26	3	1	10	14	4	5	12	7	19	17	6	21	13	22	8	16	9	20	18	15	2	11
27	7	2	19	8	1	15	6	20	17	16	3	9	14	13	18	5	22	11	12	21	10	4
28	8	3	16	9	1	17	6	7	19	18	2	10	15	20	14	4	22	12	13	21	11	5
29	4	11	7	10	1	9	2	17	14	21	8	19	6	20	13	22	3	18	12	16	5	15

Table 7. Results of processing the a priori ranking of bachelors, masters, teachers and specialists - university graduates, on the impact of competitive potential on the performance of light industry enterprises located in the regions of the Southern Federal District and the North Caucasus Federal District

Expert	Factor																					
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**K**
1	5	8	6	2	7	9	10	4	11	16	18	12,5	15	14	3	19	20	21,5	17	12,5	21,5	1	0,33
2	3	2	15	14	8	9	16	5	17	10,5	13	18	1	19	4	20	6	10,5	21	22	12	7	0,44
3	8	16	22	5	2	10	6	7	11	17,5	12	14	1	21	3	13	15	17,5	20	19	4	9	0,57
4	11	14	22	15	2	6	12	4	5	7,5	10	20	1	19	3	16	17	7,5	18	21	9	13	0,35
5	16	2,5	17	15	18	4	2,5	6	7	14	8	11	1	9	19	22	10	21	20	12	5	13	0,28
6	1	2	10	12	7	13	11	3	14	15	8	16	17	21	4	9	20	22	5	6	19	18	0,34
7	12	11	14	16	10	9	2	20	8	19	7	18	1	13	22	15	17	6	21	5	3	4	0,29
8	2	19	9	12	8	3	11	20	4	22	7	13	5	17	21	10	14	18	16	1	6	15	0,26
9	10	4	18	3	8	19	9	14	21	15	5	17	1	12	11	16	20	22	13	6	2	7	0,49
10	6	7	17	18	16	14	5	19	13	8	4	9	10	11	22	3	21	12	20	15	1	2	0,30
11	10	5	4	9	3	12	11	8	1	22	2	13	14	16	17	6	20	18	21	7	19	15	0,33
12	8	3	9	13	2	22	14	11	15	19	4	17	6	16	20	10	18	21	12	1	5	7	0,37
13	4	1	9	6	13	15	3	19	14	8	18	20	17	21	5	16	10	2	22	12	7	11	0,27
14	13	14	10	3	1	2	16	15	20	5	21	17	4	11	19	7	18	6	22	9	12	8	0,21
15	7	14	3	11	17	19	4	12	9	21	1	18	5	20	22	15	8	16	2	13	6	10	0,24
16	2	3	5	6	8	4	10	15	7	11	18	16	1	12	21	19	13	14	17	22	20	9	0,39
17	6	15	7	8	11	10	9	1	21	20	16	17	2	12	3	22	19	13	4	18	14	5	0,24
18	3	1	22	6	19	13	14	11	17	18	2	21	12	16	4	5	10	15	20	7	8	9	0,37
19	2	3	6	7	12	11	17	13	18	16	1	20	5	14	19	8	15	9	10	22	21	4	0,43
20	2	12	8	11	14	7	15	10	17	9	16	18	1	20	5	19	4	13	22	6	21	3	0,23
21	1	14	21	9	8	15	16	7	5	6	4	18	19	17	10	20	22	11	12	13	2	3	0,35
22	10	1	19	11	5	12	21	20	6	15,5	7	8	2	9	4	13	18	15,5	17	22	3	14	0,54
23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	0,38
24	9	1	10	11	3	2	13	12	15	19	8	7	14	18	20	4	17	22	16	21	5	6	0.69
25	20	4	11	18	5	6	2	17	15	16	1	8	10	14	13	7	12	22	9	21	3	19	0,28
26	3	1	10	14	4	5	12	7	19	17	6	21	13	22	8	16	9	20	18	15	2	11	0,69
27	7	2	19	8	1	15	6	20	17	16	3	9	14	13	18	5	22	11	12	21	10	4	0,69
28	8	3	16	9	1	17	6	7	19	18	2	10	15	20	14	4	22	12	13	21	11	5	0,69
29	4	11	7	10	1	9	2	17	14	21	8	19	6	20	13	22	3	18	12	16	5	15	0,41
30	1	3	21	10	8	9	7	14	12	13	11	22	15	17	6	18	19	16	5	20	2	4	0,63
31	13	4	14	16	3	22	7	21	8	17	5	15	6	12	11	18	10	9	20	1	2	19	0,26
32	9	2	10	14	1	16	15	19	17	20	3	4	11	13	12	18	5	21	7	22	6	8	0,46

33	1	9	10	12	11	7	6	5	15	14	13	17	16	18	19	8	21	4	22	20	3	2	0,42
34	12	2	13	11	10	1	18	8	19	17	9	7	14	20	6	3	21	16	22	15	4	5	0,69
35	4	3	15	5	6	7	14	16	8	11	1	20	17	21	12	9	10	2	22	13	18	19	0,36
36	2	4	11	12	1	14	19	20	21	5	18	17	6	22	7	8	10	3	9	13	15	16	0,23
37	10	9	17	11	4	5	15	14	16	13	1	2	19	22	3	18	6	7	8	12	20	21	0,20
38	1	8	9	7	5	15	12	11	14	13	5	10	2	16	18	5	17	20	19	21	3	22	0,48
39	2	5	16	10	9	15	19	11	8	7	1	18	6	21	14	22	12	17	4	20	3	13	0,45
40	1	2	17	14	15	16	8	18	3,5	3,5	5,5	9	7	5,5	10	11	12	13	20	19	22	21	0,25
41	1	3	22	4	2	5	6	13	15	16	17	18	7	19	20	8	9	10	11	12	21	14	0,40
42	1	18	10	17	9	13	16	19	6	7	15	2	14	5	4	20	11	8	21	12	22	3	0,20
43	21	17,5	8,5	15	16	19	21	21	2,5	11	2,5	8,5	2,5	13	8,5	8,5	5,5	2,5	5,5	17,5	13	13	0,17
44	21,5	8,5	12	21,5	17	18	19	8,5	4	20	4	4	4	12	4	4	15	4	10	15	15	12	0,19
45	11	4	18	5	1	2	3	16	17	20	6	19	10	9	15	14	21	12	13	22	7	8	
46	4	2	21	7	18	17	12	6	11	10	5	1	19	9	8	15	22	14	16	20	13	3	0,32
47	3	13	18	9	14	1	2	4	6,5	21,5	10,5	5	15	10,5	8	21,5	6,5	16	20	19	17	12	0,27
48	8	5	17	6	3,5	18	9,5	9,5	7	12	11	14	2	13	3,5	22	21	15	16	20	19	1	0,51
49	6,5	5	16	6,5	19,5	8	21,5	3	9	21,5	10	15	2	14	17	19,5	4	11	13	18	12	1	0,32
50	17	14	21	1	22	8	9	20	5	7	6	10	12	13	11	15	2	16	18	19	3	4	0,21
51	13	1	22	15	9	8	21	6	10	7	12	11	16	14	17	2	20	18	19	5	4	3	0,30
52	3	1	22	12	4	9	8	10	5	15	6	13	16	14	11	17	20	7	18	19	21	2	0,60
53	15	18	19	13	6	7	3	20,5	8	17	1,5	12	16	11	22	5	20,5	4	9	14	10	1,5	0,22
54	8	1	21	2	10	4	13	12	5	20	19	6	18	7	22	9	17	16	15	14	3	11	0,31
55	10	11	16	17	12	21	14	22	13	1,5	1,5	15	18	3,5	19	20	3,5	7,5	6	5	7,5	9	0,18
Amounts ranks	393	368,5	765,5	559	455	583	600,5	679,5	634,5	772	440,5	732	516,5	815,5	670	715,5	778	723,5	819,5	814	563	516,5	
Without heretics	7	2	6	4	6	7	6	3	7	0	8	2	7	0	3	0	03	3	6	00	7	8	
Coef. concord.		0,16		0,69																			
Criterion Pearson		183,2		6,55																			

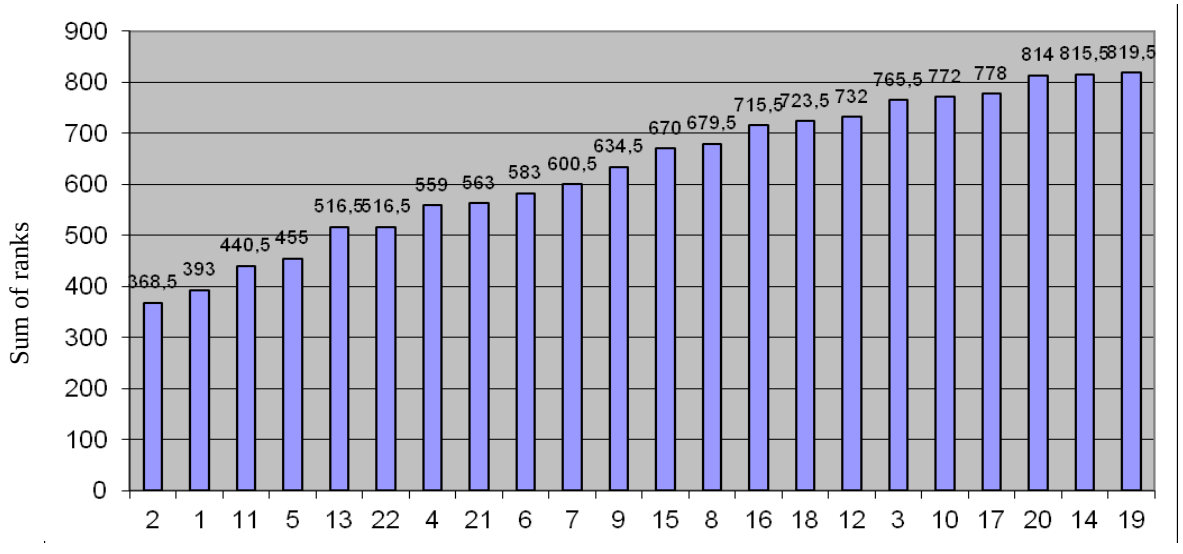


Figure 1 - The results of the questionnaire survey of bachelors, masters, teachers and specialists - university graduates working at light industry enterprises, on the impact of competitive potential on the performance of light industry enterprises located in the regions of the Southern Federal District and the North Caucasus Federal District

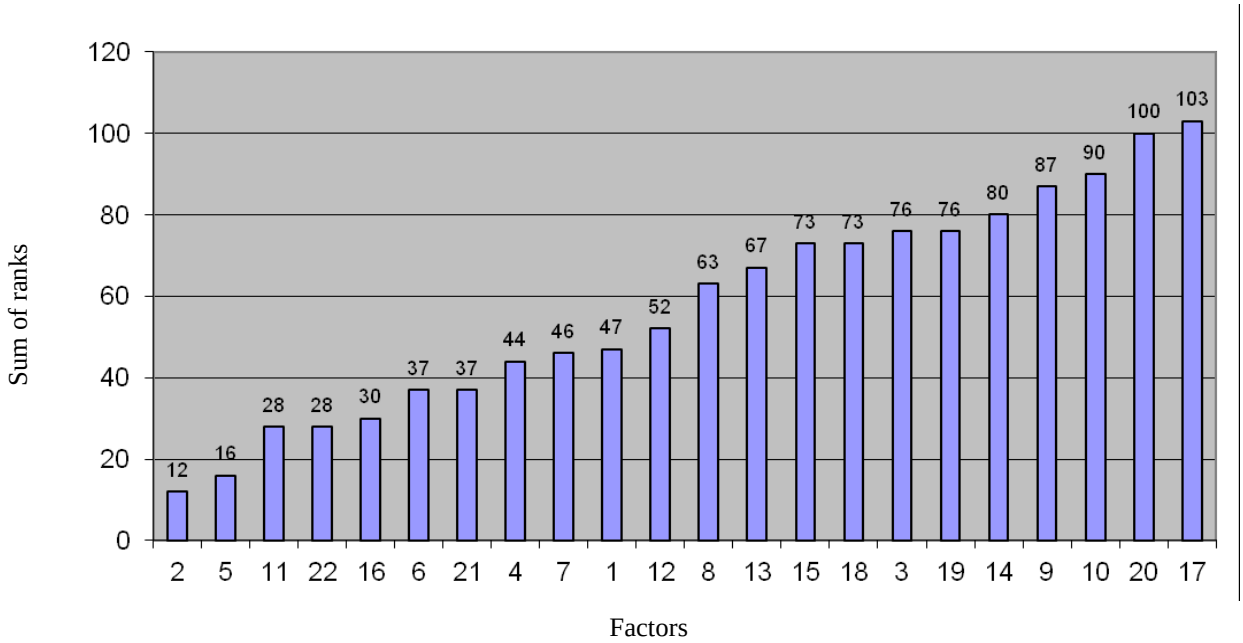


Figure 2 - The results of a survey of bachelors, masters, teachers and specialists - university graduates working at light industry enterprises, on the impact of competitive potential on the performance of a light industry enterprise located in the regions of the Southern Federal District and the North Caucasus Federal District, without heretics, that is, without those respondents, opinion which does not agree with the majority of survey participants

Table 8. Results of a survey of bachelors, masters, teachers and specialists - university graduates working at light industry enterprises on the impact of competitive potential on the results of the activities of light industry enterprises in the Southern Federal District and the North Caucasus Federal District to assess their competence

No.	Experts	Factors																							Wi
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	54	55	
1	1-й	5	8	6	2	7	9	10	4	11	15	17	12	14	13	3	18	19	20	16	12	20	1			0,50
2	2-й	3	2	14	13	8	9	15	5	16	10	12	17	1	18	4	19	6	10	20	21	11	7			0,63
3	3-й	8	16	21	5	2	10	6	7	11	17	12	14	1	20	3	13	15	17	19	18	4	9			0,63
4	4-й	10	13	21	14	2	6	11	4	5	7	9	19	1	18	3	15	16	7	17	20	8	12			0,61
5	6-й	1	2	10	12	7	13	11	3	14	15	8	16	17	21	4	9	20	22	5	6	19	18			0,43
6	7-й	12	11	14	16	10	9	2	20	8	19	7	18	1	13	22	15	17	6	21	5	3	4			0,73
7	8-й	2	19	9	12	8	3	11	20	4	22	7	13	5	17	21	10	14	18	16	1	6	15			0,61
8	9-й	10	4	18	3	8	19	9	14	21	15	5	17	1	12	11	16	20	22	13	6	2	7			0,66
9	10-й	6	7	17	18	16	14	5	19	13	8	4	9	10	11	22	3	21	12	20	15	1	2			0,63
10	11-й	10	5	4	9	3	12	11	8	1	22	2	13	14	16	17	6	20	18	21	7	19	15			0,56
11	12-й	8	3	9	13	2	22	14	11	15	19	4	17	6	16	20	10	18	21	12	1	5	7			0,57
12	13-й	4	1	9	6	13	15	3	19	14	8	18	20	17	21	5	16	10	2	22	12	7	11			0,47
13	14-й	13	14	10	3	1	2	16	15	20	5	21	17	4	11	19	7	18	6	22	9	12	8			0,45
14	15-й	7	14	3	11	17	19	4	12	9	21	1	18	5	20	22	15	8	16	2	13	6	10			0,60
15	16-й	2	3	5	6	8	4	10	15	7	11	18	16	1	12	21	19	13	14	17	22	20	9			0,65
16	17-й	6	15	7	8	11	10	9	1	21	20	16	17	2	12	3	22	19	13	4	18	14	5			0,51
17	18-й	3	1	22	6	19	13	14	11	17	18	2	21	12	16	4	5	10	15	20	7	8	9			0,57
18	19-й	2	3	6	7	12	11	17	13	18	16	1	20	5	14	19	8	15	9	10	22	21	4			0,46
19	20-й	2	12	8	11	14	7	15	10	17	9	16	18	1	20	5	19	4	13	22	6	21	3			0,54
20	21-й	1	14	21	9	8	15	16	7	5	6	4	18	19	17	10	20	22	11	12	13	2	3			0,48
21	22-й	10	1	18	11	5	12	20	19	6	15	7	8	2	9	4	13	17	15	16	21	3	14			0,62
22	23-й	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			0,59
23	24-й	9	1	10	11	3	2	13	12	15	19	8	7	14	18	20	4	17	22	16	21	5	6			0,61

24	**25-й**	20	4	11	18	5	6	2	17	15	16	1	8	10	14	13	7	12	22	9	21	3	19			0,69
25	**26-й**	3	1	10	14	4	5	12	7	19	17	6	21	13	22	8	16	9	20	18	15	2	11			0,64
26	**27-й**	7	2	19	8	1	15	6	20	17	16	3	9	14	13	18	5	22	11	12	21	10	4			0,48
27	**28-й**	8	3	16	9	1	17	6	7	19	18	2	10	15	20	14	4	22	12	13	21	11	5			0,47
28	**29-й**	4	11	7	10	1	9	2	17	14	21	8	19	6	20	13	22	3	18	12	16	5	15			0,64
29	**30-й**	1	3	21	10	8	9	7	14	12	13	11	22	15	17	6	18	19	16	5	20	2	4			0,56
30	**31-й**	13	4	14	16	3	22	7	21	8	17	5	15	6	12	11	18	10	9	20	1	2	19			0,64
31	**32-й**	9	2	10	14	1	16	15	19	17	20	3	4	11	13	12	18	5	21	7	22	6	8			0,56
32	**33-й**	1	9	10	12	11	7	6	5	15	14	13	17	16	18	19	8	21	4	22	20	3	2			0,54
33	**34-й**	12	2	13	11	10	1	18	8	19	17	9	7	14	20	6	3	21	16	22	15	4	5			0,55
34	**35-й**	4	3	15	5	6	7	14	16	8	11	1	20	17	21	12	9	10	2	22	13	18	19			0,45
35	**36-й**	2	4	11	12	1	14	19	20	21	5	18	17	6	22	7	8	10	3	9	13	15	16			0,27
36	**37-й**	10	9	17	11	4	5	15	14	16	13	1	2	19	22	3	18	6	7	8	12	20	21			0,40
37	**38-й**	1	6	7	5	4	13	10	9	12	11	4	8	2	14	16	4	15	18	17	19	3	20			0,60
38	**39-й**	2	5	16	10	9	15	19	11	8	7	1	18	6	21	14	22	12	17	4	20	3	13			0,60
39	**40-й**	1	2	15	12	13	14	6	16	3	3	4	7	5	4	8	9	10	11	18	17	20	19			0,60
40	**41-й**	1	3	22	4	2	5	6	13	15	16	17	18	7	19	20	8	9	10	11	12	21	14			0,53
41	**42-й**	1	18	10	17	9	13	16	19	6	7	15	2	14	5	4	20	11	8	21	12	22	3			0,38
42	**43-й**	10	8	3	6	7	9	10	10	1	4	1	3	1	5	3	3	2	1	2	8	5	5			0,38
43	**44-й**	10	2	4	10	6	7	8	2	1	9	1	1	1	4	1	1	5	1	3	5	5	4			0,48
44	**45-й**	11	4	18	5	1	2	3	16	17	20	6	19	10	9	15	14	21	12	13	22	7	8			0,64
45	**46-й**	4	2	21	7	18	17	12	6	11	10	5	1	19	9	8	15	22	14	16	20	13	3			0,56
46	**47-й**	3	11	16	8	12	1	2	4	6	19	9	5	13	9	7	19	6	14	18	17	15	10			0,72
47	**48-й**	7	4	15	5	3	16	8	8	6	10	9	12	2	11	3	20	19	13	14	18	17	1			0,58
48	**49-й**	6	5	15	6	18	7	19	3	8	19	9	14	2	13	16	18	4	10	12	17	11	1			0,51
49	**50-й**	17	14	21	1	22	8	9	20	5	7	6	10	12	13	11	15	2	16	18	19	3	4			0,68
50	**51-й**	13	1	22	15	9	8	21	6	10	7	12	11	16	14	17	2	20	18	19	5	4	3			0,59
51	**52-й**	3	1	22	12	4	9	8	10	5	15	6	13	16	14	11	17	20	7	18	19	21	2			0,56
52	**53-й**	14	17	18	12	5	6	2	19	7	16	1	11	15	10	20	4	19	3	8	13	9	1			0,47
53	**54-й**	8	1	21	2	10	4	13	12	5	20	19	6	18	7	22	9	17	16	15	14	3	11			0,65
54	**55-й**	7	8	13	14	9	18	11	19	10	1	1	12	15	2	16	17	2	5	4	3	5	6			0,47
55	**5-й**	15	2	16	14	17	3	2	5	6	13	7	10	1	8	18	21	9	20	19	11	4	12			0,73

The criteria for assessing the competitiveness of a light industry enterprise using the software developed by the authors made it possible for the first time to formalize the role of experts - respondents on the basis of their competence to the problem under consideration. The need for such an approach is due to the desire to have an objective assessment of competence, taking into account not only the opinion of the invited party of the expert respondents to participate in the survey, but also using the assessment criterion - the coefficient of concordance - the value of which varies from 0 to 1. And if W = 0–0 , 5 - this is their lack of agreement with the opinion of those experts whose value of the coefficient of concordance (W) tends to 1, which confirms their high competence and the possibility of their further participation as expert respondents. The results of a survey of experts on assessing the competitive potential of light industry enterprises, although they received the value of the coefficient of concordance (W) in the range of 0.4-0.6, but excluding heretics, that is, those respondents whose opinion does not coincide with the opinion of most other experts, we found a pleasant fact that the opinion of those respondents whose authority is beyond doubt, and those whom the program classified as heretics, have an unambiguous or close opinion that the factors characterizing the influence of competitive potential on the competitiveness of an enterprise are identical, and they can be used in further research in assessing this very competitiveness of enterprises, assuming that he is able to manufacture import-substituting products for consumers in the regions of the Southern Federal District and the North Caucasus Federal District. At the same time, manufacturers have every reason for these criteria,

– the ratio of the quality of the product and the costs of its production and marketing;

– sales growth rates;

– costs of innovation;

– labor productivity;

– the level of partnerships with interested participants in the production of import-substituting products;

– costs per ruble of products sold, and the main criterion;

– the weighted average of the product range of the competitiveness of the goods.

But at the same time, all the responding experts were unanimous that the competitiveness of the enterprise will be more stable over time if the enterprise's share in the demand market is stable. In any case, it will not decrease over time if it is guaranteed a return on investment and, of course, a stable profitability of the total assets of the light industry, engaged in the production of import-substituting products, is ensured. The opinion of all experts is justified that the competitiveness of an enterprise is also influenced by a stable trade turnover on the basis of direct contractual relations with the sellers of the products of these same enterprises.

Agreewe are with them on the issue of the role of highly qualified personnel, which of course, although it was reflected in the questionnaire in the form of one criterion - the employee turnover rate - but did not cause the experts, with regret, concern about the liquidation of lyceums, colleges , on the basis of which they trained highly qualified workers and middle managers - foremen, technicians, mechanics, technologists, engaged in servicing not only an innovative technological process, but also innovative equipment. And it is completely sad that the training of engineering and technical personnel has practically ceased, explaining all this by the lack of their demand, although the heads of the enterprises themselves are at a loss. There is also a downside to this situation, namely, that managers have withdrawn from training these highly qualified specialists through targeted training in colleges and universities, not wanting to bear the costs of this very training, forgetting the Russian proverb: "A miser pays twice." It is also disappointing that the majority of enterprise managers believe that it will be resolved by itself, but if a shoemaker, a seamstress-minder, a furrier can be trained in the workplace, then it is unlikely to prepare a leading engineer for a production manager and organizer for filled technological processes with an effective innovative solution.

Once again I want to recall one more Russian proverb: "That until the thunder breaks out, the peasant does not cross himself." Is it really necessary to step on a rake, get a tangible blow on the forehead and shout - "Ugh, I remembered the name of what this tool is, what a rake." It is funny and sad, and yet we believe in common sense that the truth is more expensive and the truth will prevail - we will be able to revive this very light industry, which was confirmed by the experts - respondents, showing unanimity on the main criteria for assessing the competitiveness of light industry enterprises.

Dear respondent!

What priorities would you give preference in assessing the high performance properties and quality of fur products, taking advantage of the privileges - to assign them the appropriate rank from the arithmetic series - preferable starting from 1, and not non-preferred - a higher figure, ensuring that the requirements of the arithmetic series are met, namely, not allowing missing numbers. If you have difficulties in choosing preferences, you can use the "linked ranks", but here, too, it is necessary to satisfy the requirements of the arithmetic series (tables 9-12, figures 3 and 4).

Table 9. Criteria for assessing the impact on the quality of domestic fur products, formed based on the results of a survey of leading experts

No.	The list of high performance indicators and quality of fur products	Rank
1	Lightfastness to fur dyeing	
2	Fur resistance to moisture	
3	Dry cleaning resistance	
4	Lack of color variation in the product	
5	Absence of intravital diseases and injuries, confirmation by sanitary and ecological certificates	
6	Fur type	
7	Resistance to low temperatures, heat-shielding properties	
8	Price	
9	Duration of the warranty period	
10	Weight (product weight)	
11	Wrinkle resistance	
12	Shine of the hairline of the fur product	
13	Hairline height (length)	
14	Hair density	
15	Hair softness	
16	The elasticity of the hairline in wet and hot state (providing the product with given form)	
17	The strength of the bond of the hairline with the skin tissue	
18	The size of the dressed skins	
19	Dry friction fastness of the hairline	

20	Skin grade	
21	Compliance of fittings and other accessories in the manufacture of fur products with the requirements that apply to them	
22	The presence of a "chip"	

Table 10. The results of the questionnaire survey of bachelors, masters, teachers and specialists working at light industry enterprises, on the criteria for assessing the impact of "chipping on the quality of domestic fur products

Experts	Factors																					
	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22
1	1	3	2	6	7	8	4	10	20	15	18	21	11	14	16	17	12	13	19	5	19	9
2	16	3	2	17	1	18	19	6	4	7	8	20	9	10	11	12	20	13	5	14	15	20
3	8	7	6	9	15	1	16	2	10	3	11	20	17	12	21	18	19	5	14	4	13	22
4	8	9	4	11	13	1	7	3	12	10	20	14	15	6	5	19	16	17	18	2	21	22
5	15	14	16	13	12	1	3	2	5	4	9	6	7	8	17	18	19	10	21	11	20	21
6	7	13	8	4	1	20	18	2	10	6	21	5	3	9	11	14	12	22	19	17	16	15
7	11	13	12	21	14	15	17	1	2	3	4	16	7	5	6	19	21	8	18	9	20	10
8	12	13	14	11	10	1	4	2	9	3	20	8	7	6	5	18	21	22	16	15	17	19
9	3	2	6	7	10	1	12	5	13	11	22	4	8	17	15	14	9	19	18	21	16	20
10	7	13	15	14	2	6	5	1	20	12	19	16	22	17	18	4	8	21	3	11	9	10
11	10	2	9	8	22	11	1	19	13	7	18	6	5	4	3	17	14	15	16	12	20	21
12	10	9	11	12	13	19	8	1	22	6	7	5	4	3	2	14	15	21	18	16	17	20
13	3	7	4	1	17	5	6	16	9	10	11	12	12	13	14	15	19	18	8	2	20	20
14	10	4	14	5	20	1	11	2	9	15	21	12	17	16	6	18	7	19	13	3	8	22
15	12	15	14	13	2	3	16	11	17	4	19	20	22	18	5	6	7	1	9	8	10	21
16	14	16	15	3	21	2	5	17	18	1	19	6	8	7	9	11	10	12	20	4	13	22
17	5	6	17	2	1	7	3	14	18	10	12	15	16	11	20	19	4	13	9	8	21	22
18	3	21	13	14	15	22	4	20	19	5	6	8	18	17	16	7	10	9	12	11	2	1
19	4	11	12	7	2	1	8	3	6	5	15	13	14	9	10	17	16	20	19	18	21	22
20	19	3	18	21	22	16	5	10	15	17	14	13	12	1	2	6	7	8	9	11	20	4
21	15	10	16	9	8	17	14	6	7	13	2	4	3	1	5	12	11	20	18	19	21	22
22	3	5	1	7	2	8	6	21	13	22	15	4	17	19	18	9	12	11	14	20	10	16
23	2	1	3	6	11	14	7	16	4	17	12	20	13	15	5	21	8	22	18	9	19	10
24	15	16	14	13	1	12	2	4	3	18	17	19	20	10	9	8	7	6	11	5	21	22
25	17	15	16	14	4	18	13	2	1	3	19	20	6	7	8	10	9	12	11	21	5	22
26	5	4	15	6	14	7	1	2	2	3	18	9	16	17	8	11	12	10	13	19	20	21
27	3	6	2	11	4	20	1	9	12	10	5	15	13	14	19	16	17	18	7	8	22	21
28	2	4	11	13	1	10	14	3	18	8	15	17	16	9	19	20	6	7	21	5	22	12
29	5	2	3	4	6	22	9	1	8	7	15	10	21	11	12	16	18	20	13	14	17	19
30	5	20	2	11	8	17	3	7	6	9	10	15	13	14	12	18	1	19	22	4	21	16
31	6	1	5	12	13	17	7	20	18	3	4	21	11	9	10	14	15	16	2	8	22	19
32	1	9	2	10	11	16	8	12	17	3	13	18	21	19	4	5	6	14	7	15	20	22
33	6	4	5	21	20	1	19	7	2	3	16	8	9	10	11	13	14	12	15	17	18	22
34	9	7	8	10	14	1	6	2	16	11	17	15	5	4	3	18	13	21	20	12	19	22
35	2	8	9	10	11	4	5	12	3	13	14	16	15	18	17	19	1	22	6	7	21	20
36	3	2	4	5	11	12	1	10	6	6	7	15	14	17	19	9	8	8	13	16	18	20
37	8	12	13	4	14	5	6	11	15	7	16	17	1	2	18	19	20	6	21	3	10	9
38	3	1	5	8	11	15	6	12	16	9	21	2	20	7	14	19	10	17	13	4	18	22
39	15	13	16	5	17	1	18	2	3	4	22	19	8	6	7	14	9	10	11	12	20	21
40	4	10	18	5	21	11	12	3	1	2	22	13	14	6	15	16	8	7	17	9	19	20
41	7	8	9	10	20	11	12	3	2	1	13	14	15	16	17	18	4	19	6	5	21	22
42	6	9	8	7	20	4	5	3	1	2	15	10	14	11	13	12	16	17	18	19	21	22
43	17	1	2	3	4	5	6	9	7	8	13	12	11	10	10	18	14	14	15	16	19	20
44	10	11	12	9	1	13	8	14	20	15	16	17	2	3	4	19	5	6	6	7	18	19
45	6	6	8	3	15	1	2	1	5	7	14	7	9	3	10	10	4	12	11	4	13	16
46	6	6	6	5	1	15	3	16	7	9	15	8	3	13	14	10	4	3	11	12	17	2
47	5	7	8	6	9	2	10	4	22	3	15	14	11	13	12	17	20	21	18	1	19	16
48	17	16	15	12	18	1	13	14	2	2	11	5	6	3	4	19	7	4	9	8	20	10
49	6	7	6	5	2	1	8	2	1	1	9	10	11	12	14	13	10	3	4	4	5	1
50	3	4	8	7	9	21	6	19	17	18	10	13	14	11	12	5	1	2	2	15	16	20

51	1	3	4	2	7	3	12	11	10	15	14	10	13	19	20	16	18	17	6	5	8	9
52	1	11	12	13	14	16	15	20	2	21	17	4	3	6	5	18	7	22	8	10	9	19

Table 11. Results of processing a priori ranking of bachelors, masters, teachers and specialists working at light industry enterprises, on the criteria for assessing the impact of "chipping" on the quality of domestic fur products

Expert	Factor																					
	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	QC
1	1	3	2	6	7	8	4	10	21	15	18	22	11	14	16	17	12	13	19,5	5	19,5	9	0,45
2	16	3	2	17	1	18	19	6	4	7	8	21	9	10	11	12	21	13	5	14	15	21	0,33
3	8	7	6	9	15	1	16	2	10	3	11	20	17	12	21	18	19	5	14	4	13	22	0,54
4	8	9	4	11	13	1	7	3	12	10	20	14	15	6	5	19	16	17	18	2	21	22	0,76
5	15	14	16	13	12	1	3	2	5	4	9	6	7	8	17	18	19	10	21,5	11	20	21,5	0,74
6	7	13	8	4	1	20	18	2	10	6	21	5	3	9	11	14	12	22	19	17	16	15	0,40
7	11	13	12	21,5	14	15	17	1	2	3	4	16	7	5	6	19	21,5	8	18	9	20	10	0,31
8	12	13	14	11	10	1	4	2	9	3	20	8	7	6	5	18	21	22	16	15	17	19	0,76
9	3	2	6	7	10	1	12	5	13	11	22	4	8	17	15	14	9	19	18	21	16	20	0,62
10	7	13	15	14	2	6	5	1	20	12	19	16	22	17	18	4	8	21	3	11	9	10	0,24
11	10	2	9	8	22	11	1	19	13	7	18	6	5	4	3	17	14	15	16	12	20	21	0,49
12	10	9	11	12	13	19	8	1	22	6	7	5	4	3	2	14	15	21	18	16	17	20	0,39
13	3	7	4	1	18	5	6	17	9	10	11	12,5	12,5	14	15	16	20	19	8	2	21,5	21,5	0,53
14	10	4	14	5	20	1	11	2	9	15	21	12	17	16	6	18	7	19	13	3	8	22	0,57
15	12	15	14	13	2	3	16	11	17	4	19	20	22	18	5	6	7	1	9	8	10	21	0,25
16	14	16	15	3	21	2	5	17	18	1	19	6	8	7	9	11	10	12	20	4	13	22	0,40
17	5	6	17	2	1	7	3	14	18	10	12	15	16	11	20	19	4	13	9	8	21	22	0.47
18	3	21	13	14	15	22	4	20	19	5	6	8	18	17	16	7	10	9	12	11	2	1	0,21
19	4	11	12	7	2	1	8	3	6	5	15	13	14	9	10	17	16	20	19	18	21	22	0,76
20	19	3	18	21	22	16	5	10	15	17	14	13	12	1	2	6	7	8	9	11	20	4	0,22
21	15	10	16	9	8	17	14	6	7	13	2	4	3	1	5	12	11	20	18	19	21	22	0,34
22	3	5	1	7	2	8	6	21	13	22	15	4	17	19	18	9	12	11	14	20	10	16	0,26
23	2	1	3	6	11	14	7	16	4	17	12	20	13	15	5	21	8	22	18	9	19	10	0,44
24	15	16	14	13	1	12	2	4	3	18	17	19	20	10	9	8	7	6	11	5	21	22	0,35
25	17	15	16	14	4	18	13	2	1	3	19	20	6	7	8	10	9	12	11	21	5	22	0,29
26	6	5	16	7	15	8	1	2,5	2,5	4	19	10	17	18	9	12	13	11	14	20	21	22	0,71
27	3	6	2	11	4	20	1	9	12	10	5	15	13	14	19	16	17	18	7	8	22	21	0,46
28	2	4	11	13	1	10	14	3	18	8	15	17	16	9	19	20	6	7	21	5	22	12	0,42
29	5	2	3	4	6	22	9	1	8	7	15	10	21	11	12	16	18	20	13	14	17	19	0,50
30	5	20	2	11	8	17	3	7	6	9	10	15	13	14	12	18	1	19	22	4	21	16	0,43

31	6	1	5	12	13	17	7	20	18	3	4	21	11	9	10	14	15	16	2	8	22	19	0,38
32	1	9	2	10	11	16	8	12	17	3	13	18	21	19	4	5	6	14	7	15	20	22	0,41
33	6	4	5	21	20	1	19	7	2	3	16	8	9	10	11	13	14	12	15	17	18	22	0,60
34	9	7	8	10	14	1	6	2	16	11	17	15	5	4	3	18	13	21	20	12	19	22	0,76
35	2	8	9	10	11	4	5	12	3	13	14	16	15	18	17	19	1	22	6	7	21	20	0,52
36	3	2	4	5	13	14	1	12	6,5	6,5	8	17	16	19	21	11	9,5	9,5	15	18	20	22	0,50
37	9	13	14	4	15	5	6,5	12	16	8	17	18	1	2	19	20	21	6,5	22	3	11	10	0,36
38	3	1	5	8	11	15	6	12	16	9	21	2	20	7	14	19	10	17	13	4	18	22	0,51
39	15	13	16	5	17	1	18	2	3	4	22	19	8	6	7	14	9	10	11	12	20	21	0,68
40	4	10	18	5	21	11	12	3	1	2	22	13	14	6	15	16	8	7	17	9	19	20	0,65
41	7	8	9	10	20	11	12	3	2	1	13	14	15	16	17	18	4	19	6	5	21	22	0,56
42	6	9	8	7	20	4	5	3	1	2	15	10	14	11	13	12	16	17	18	19	21	22	0,76
43	19	1	2	3	4	5	6	9	7	8	14	13	12	10,5	10,5	20	15,5	15,5	17	18	21	22	0,64
44	11	12	13	10	1	14	9	15	22	16	17	18	2	3	4	20,5	5	6,5	6,5	8	19	20,5	0,32
45	9,5	9,5	13	4,5	21	1,5	3	1,5	8	11,5	20	11,5	14	4,5	15,5	15,5	6,5	18	17	6,5	19	22	0,76
46	9	9	9	7	1	19,5	4	21	11	13	19,5	12	4	17	18	14	6	4	15	16	22	2	0,24
47	5	7	8	6	9	2	10	4	22	3	15	14	11	13	12	17	20	21	18	1	19	16	0,59
48	19	18	17	14	20	1	15	16	2,5	2,5	13	7	8	4	5,5	21	9	5,5	11	10	22	12	0,30
49	12,5	14	12,5	10,5	5,5	2,5	15	5,5	2,5	2,5	16	17,5	19	20	22	21	17,5	7	8,5	8,5	10,5	2,5	0,27
50	4	5	9	8	10	22	7	20	18	19	11	14	15	12	13	6	1	2,5	2,5	16	17	21	0,25
51	1	3,5	5	2	8	3,5	14	13	11,5	17	16	11,5	15	21	22	18	20	19	7	6	9	10	0,37
52	1	11	12	13	14	16	15	20	2	21	17	4	3	6	5	18	7	22	8	10	9	19	0,28
Sum of ranks	413	443	499,5	479,5	560,5	492	445,5	444,5	534,5	444	763,5	670	625,5	560	607,5	776	604,5	725	696,5	556	896,5	919	
No heretics	39	49	46	46	59	8	30	13	44	31	87	60	55	36	36	84	82	97	91	66	99	107	
W		0,19		0,76																			
Criterion Pearson		207,9		7,66																			

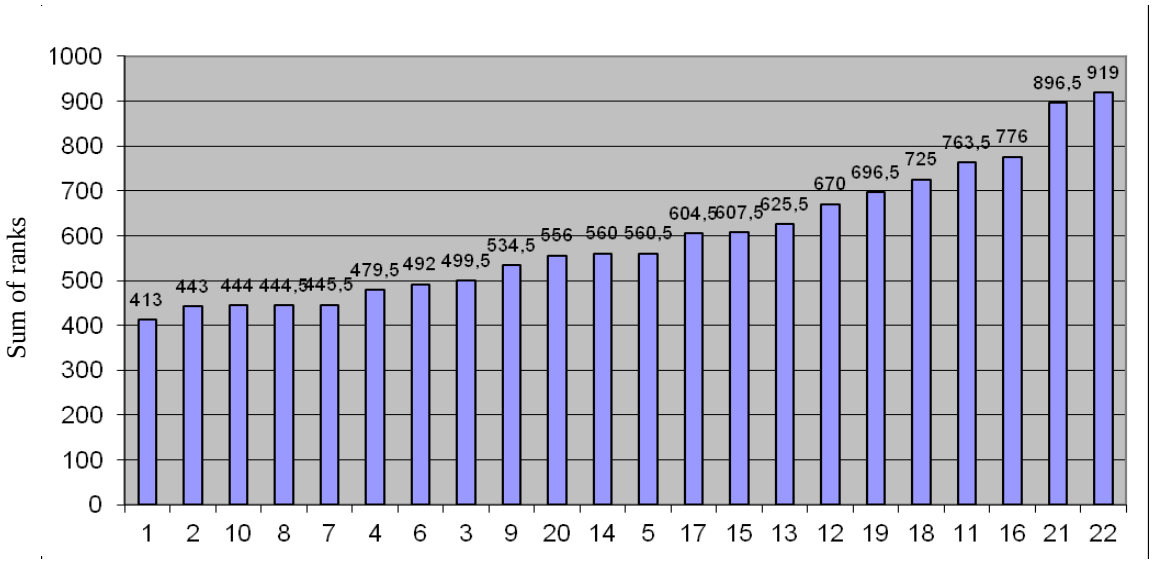


Figure 3 - Results of the survey of bachelors, masters, teachers and specialists - university graduates working at light industry enterprises, on the criteria for assessing the impact of chipping on the quality of domestic fur products

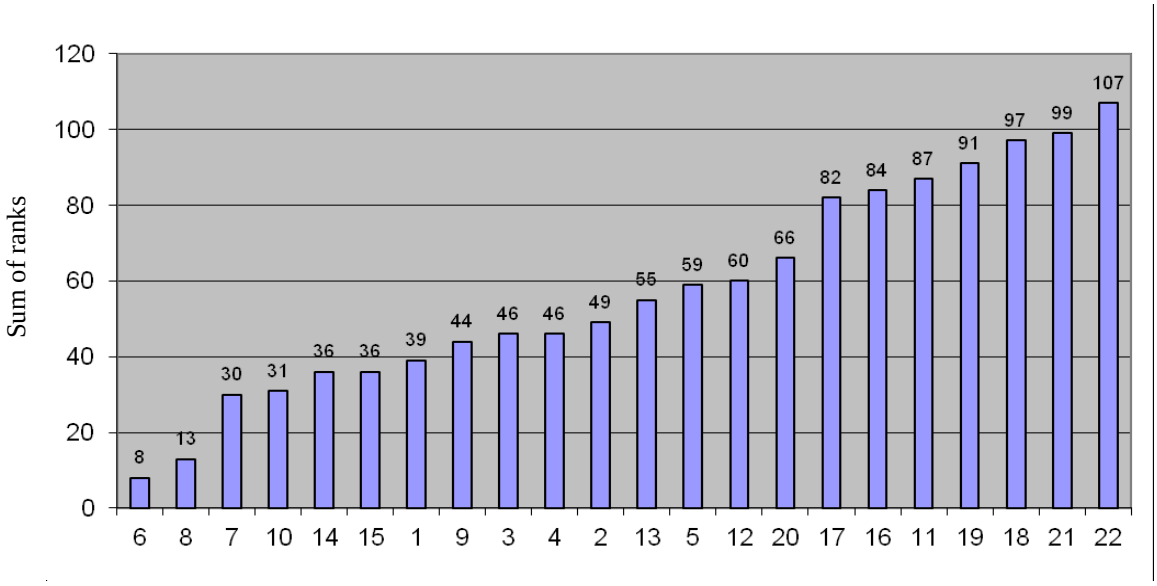


Figure 4 - Results of the survey of bachelors, masters, teachers and specialists - university graduates working at light industry enterprises, on the criteria for assessing the impact of chipping on the quality of domestic fur products without heretics, i.e. without those respondents whose opinion does not agree with the majority of survey participants

Table 12. The results of the questionnaire survey of bachelors, masters, teachers and specialists working at light industry enterprises, on the criteria for assessing the impact of "chipping" on the quality of domestic fur products

xper-s / Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2nd	3	2	14	13	8	9	15	5	16	10	12	17	1	18	4	19	6	10	20	21	11	7		0,661769
3rd	8	16	21	5	2	10	6	7	11	17	12	14	1	20	3	13	15	17	19	18	4	9		0,66855
4th	10	13	21	14	2	6	11	4	5	7	9	19	1	18	3	15	16	7	17	20	8	12		0,555807
5th	15	2	16	14	17	3	2	5	6	13	7	10	1	8	18	21	9	20	19	11	4	12		0,496609

6th	1	2	10	12	7	13	11	3	14	15	8	16	17	21	4	9	20	22	5	6	19	18		0,733333
7th	12	11	14	16	10	9	2	20	8	19	7	18	1	13	22	15	17	6	21	5	3	4		0,417232
8th	2	19	9	12	8	3	11	20	4	22	7	13	5	17	21	10	14	18	16	1	6	15		0,471469
9th	10	4	18	3	8	19	9	14	21	15	5	17	1	12	11	16	20	22	13	6	2	7		0,597175
10th	6	7	17	18	16	14	5	19	13	8	4	9	10	11	22	3	21	12	20	15	1	2		0,381356
11th	10	5	4	9	3	12	11	8	1	22	2	13	14	16	17	6	20	18	21	7	19	15		0,674576
12th	8	3	9	13	2	22	14	11	15	19	4	17	6	16	20	10	18	21	12	1	5	7		0,55113
13th	4	1	9	6	13	15	3	19	14	8	18	20	17	21	5	16	10	2	22	12	7	11		0,59548
14th	13	14	10	3	1	2	16	15	20	5	21	17	4	11	19	7	18	6	22	9	12	8		0,564689
15th	7	14	3	11	17	19	4	12	9	21	1	18	5	20	22	15	8	16	2	13	6	10		0,431638
16th	2	3	5	6	8	4	10	15	7	11	18	16	1	12	21	19	13	14	17	22	20	9		0,707062
17th	6	15	7	8	11	10	9	1	21	20	16	17	2	12	3	22	19	13	4	18	14	5		0,779379
18th	3	1	22	6	19	13	14	11	17	18	2	21	12	16	4	5	10	15	20	7	8	9		0,560452
19th	2	3	6	7	12	11	17	13	18	16	1	20	5	14	19	8	15	9	10	22	21	4		0,599153
20th	2	12	8	11	14	7	15	10	17	9	16	18	1	20	5	19	4	13	22	6	21	3		0,723446
21st	1	14	21	9	8	15	16	7	5	6	4	18	19	17	10	20	22	11	12	13	2	3		0,613277
22nd	10	1	18	11	5	12	20	19	6	15	7	8	2	9	4	13	17	15	16	21	3	14		0,504662
23rd	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		0,753672
24th	9	1	10	11	3	2	13	12	15	19	8	7	14	18	20	4	17	22	16	21	5	6		0,614124
25th	20	4	11	18	5	6	2	17	15	16	1	8	10	14	13	7	12	22	9	21	3	19		0,370339
26th	3	1	10	14	4	5	12	7	19	17	6	21	13	22	8	16	9	20	18	15	2	11		0,648305
27th	7	2	19	8	1	15	6	20	17	16	3	9	14	13	18	5	22	11	12	21	10	4		0,537288
28th	8	3	16	9	1	17	6	7	19	18	2	10	15	20	14	4	22	12	13	21	11	5		0,624576
29th	4	11	7	10	1	9	2	17	14	21	8	19	6	20	13	22	3	18	12	16	5	15		0,561299
30th	1	3	21	10	8	9	7	14	12	13	11	22	15	17	6	18	19	16	5	20	2	4		0,652825
31st	13	4	14	16	3	22	7	21	8	17	5	15	6	12	11	18	10	9	20	1	2	19		0,361582
32nd	9	2	10	14	1	16	15	19	17	20	3	4	11	13	12	18	5	21	7	22	6	8		0,519774
33rd	1	9	10	12	11	7	6	5	15	14	13	17	16	18	19	8	21	4	22	20	3	2		0,615537
34th	12	2	13	11	10	1	18	8	19	17	9	7	14	20	6	3	21	16	22	15	4	5		0,65226
35th	4	3	15	5	6	7	14	16	8	11	1	20	17	21	12	9	10	2	22	13	18	19		0,509605
36th	2	4	11	12	1	14	19	20	21	5	18	17	6	22	7	8	10	3	9	13	15	16		0,478814
37th	10	9	17	11	4	5	15	14	16	13	1	2	19	22	3	18	6	7	8	12	20	21		0,49661
38th	1	6	7	5	4	13	10	9	12	11	4	8	2	14	16	4	15	18	17	19	3	20		0,490667
39th	2	5	16	10	9	15	19	11	8	7	1	18	6	21	14	22	12	17	4	20	3	13		0,486723
40th	1	2	15	12	13	14	6	16	3	3	4	7	5	4	8	9	10	11	18	17	20	19		0,477671
41st	1	3	22	4	2	5	6	13	15	16	17	18	7	19	20	8	9	10	11	12	21	14		0,59209
42nd	1	18	10	17	9	13	16	19	6	7	15	2	14	5	4	20	11	8	21	12	22	3		0,65226
43rd	10	8	3	6	7	9	10	10	1	4	1	3	1	5	3	3	2	1	2	8	5	5		0,228348
44th	10	2	4	10	6	7	8	2	1	9	1	1	1	4	1	1	5	1	3	5	5	4		0,365285
45th	11	4	18	5	1	2	3	16	17	20	6	19	10	9	15	14	21	12	13	22	7	8		0,605367
46th	4	2	21	7	18	17	12	6	11	10	5	1	19	9	8	15	22	14	16	20	13	3		0,691243
47th	3	11	16	8	12	1	2	4	6	19	9	5	13	9	7	19	6	14	18	17	15	10		0,714306
48th	7	4	15	5	3	16	8	8	6	10	9	12	2	11	3	20	19	13	14	18	17	1		0,816846
49th	6	5	15	6	18	7	19	3	8	19	9	14	2	13	16	18	4	10	12	17	11	1		0,605739
50th	17	14	21	1	22	8	9	20	5	7	6	10	12	13	11	15	2	16	18	19	3	4		0,436441
51st	13	1	22	15	9	8	21	6	10	7	12	11	16	14	17	2	20	18	19	5	4	3		0,531921
52nd	3	1	22	12	4	9	8	10	5	15	6	13	16	14	11	17	20	7	18	19	21	2		0,727966
53rd	14	17	18	12	5	6	2	19	7	16	1	11	15	10	20	4	19	3	8	13	9	1		0,386376
54th	8	1	21	2	10	4	13	12	5	20	19	6	18	7	22	9	17	16	15	14	3	11		0,578531
55th	7	8	13	14	9	18	11	19	10	1	1	12	15	2	16	17	2	5	4	3	5	6		0,252898
1st	5	8	6	2	7	9	10	4	11	15	17	12	14	13	3	18	19	20	16	12	20	1		

xper-s	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	1
2nd	3	2	14	13	8	9	15	5	16	10	12	17	1	18	4	19	6	10	20	21	11	7			0,661769
3rd	8	16	21	5	2	10	6	7	11	17	12	14	1	20	3	13	15	17	19	18	4	9			0,66855
4th	10	13	21	14	2	6	11	4	5	7	9	19	1	18	3	15	16	7	17	20	8	12			0,555807
5th	15	2	16	14	17	3	2	5	6	13	7	10	1	8	18	21	9	20	19	11	4	12			0,496609
6th	1	2	10	12	7	13	11	3	14	15	8	16	17	21	4	9	20	22	5	6	19	18			0,733333
7th	12	11	14	16	10	9	2	20	8	19	7	18	1	13	22	15	17	6	21	5	3	4			0,41723

																							2
8th	2	19	9	12	8	3	11	20	4	22	7	13	5	17	21	10	14	18	16	1	6	15	0,471469
9th	10	4	18	3	8	19	9	14	21	15	5	17	1	12	11	16	20	22	13	6	2	7	0,597175
10th	6	7	17	18	16	14	5	19	13	8	4	9	10	11	22	3	21	12	20	15	1	2	0,381356
11th	10	5	4	9	3	12	11	8	1	22	2	13	14	16	17	6	20	18	21	7	19	15	0,674576
12th	8	3	9	13	2	22	14	11	15	19	4	17	6	16	20	10	18	21	12	1	5	7	0,55113
13th	4	1	9	6	13	15	3	19	14	8	18	20	17	21	5	16	10	2	22	12	7	11	0,59548
14th	13	14	10	3	1	2	16	15	20	5	21	17	4	11	19	7	18	6	22	9	12	8	0,564689
15th	7	14	3	11	17	19	4	12	9	21	1	18	5	20	22	15	8	16	2	13	6	10	0,431638
16th	2	3	5	6	8	4	10	15	7	11	18	16	1	12	21	19	13	14	17	22	20	9	0,707062
17th	6	15	7	8	11	10	9	1	21	20	16	17	2	12	3	22	19	13	4	18	14	5	0,779379
18th	3	1	22	6	19	13	14	11	17	18	2	21	12	16	4	5	10	15	20	7	8	9	0,560452
19th	2	3	6	7	12	11	17	13	18	16	1	20	5	14	19	8	15	9	10	22	21	4	0,599153
20th	2	12	8	11	14	7	15	10	17	9	16	18	1	20	5	19	4	13	22	6	21	3	0,723446
21st	1	14	21	9	8	15	16	7	5	6	4	18	19	17	10	20	22	11	12	13	2	3	0,613277
22nd	10	1	18	11	5	12	20	19	6	15	7	8	2	9	4	13	17	15	16	21	3	14	0,504662
23rd	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	0,753672
24th	9	1	10	11	3	2	13	12	15	19	8	7	14	18	20	4	17	22	16	21	5	6	0,614124
25th	20	4	11	18	5	6	2	17	15	16	1	8	10	14	13	7	12	22	9	21	3	19	0,370339
26th	3	1	10	14	4	5	12	7	19	17	6	21	13	22	8	16	9	20	18	15	2	11	0,648305
27th	7	2	19	8	1	15	6	20	17	16	3	9	14	13	18	5	22	11	12	21	10	4	0,537288
28th	8	3	16	9	1	17	6	7	19	18	2	10	15	20	14	4	22	12	13	21	11	5	0,624576
29th	4	11	7	10	1	9	2	17	14	21	8	19	6	20	13	22	3	18	12	16	5	15	0,561299
30th	1	3	21	10	8	9	7	14	12	13	11	22	15	17	6	18	19	16	5	20	2	4	0,652825
31st	13	4	14	16	3	22	7	21	8	17	5	15	6	12	11	18	10	9	20	1	2	19	0,361582
32nd	9	2	10	14	1	16	15	19	17	20	3	4	11	13	12	18	5	21	7	22	6	8	0,519774
33rd	1	9	10	12	11	7	6	5	15	14	13	17	16	18	19	8	21	4	22	20	3	2	0,615537
34th	12	2	13	11	10	1	18	8	19	17	9	7	14	20	6	3	21	16	22	15	4	5	0,65226
35th	4	3	15	5	6	7	14	16	8	11	1	20	17	21	12	9	10	2	22	13	18	19	0,509605
36th	2	4	11	12	1	14	19	20	21	5	18	17	6	22	7	8	10	3	9	13	15	16	0,478814
37th	10	9	17	11	4	5	15	14	16	13	1	2	19	22	3	18	6	7	8	12	20	21	0,49661
38th	1	6	7	5	4	13	10	9	12	11	4	8	2	14	16	4	15	18	17	19	3	20	0,490667
39th	2	5	16	10	9	15	19	11	8	7	1	18	6	21	14	22	12	17	4	20	3	13	0,486723
40th	1	2	15	12	13	14	6	16	3	3	4	7	5	4	8	9	10	11	18	17	20	19	0,477671
41st	1	3	22	4	2	5	6	13	15	16	17	18	7	19	20	8	9	10	11	12	21	14	0,59209
42nd	1	18	10	17	9	13	16	19	6	7	15	2	14	5	4	20	11	8	21	12	22	3	0,65226
43rd	10	8	3	6	7	9	10	10	1	4	1	3	1	5	3	3	2	1	2	8	5	5	0,228348
44th	10	2	4	10	6	7	8	2	1	9	1	1	1	4	1	1	5	1	3	5	5	4	0,365285
45th	11	4	18	5	1	2	3	16	17	20	6	19	10	9	15	14	21	12	13	22	7	8	0,60536

																							7
46th	4	2	21	7	18	17	12	6	11	10	5	1	19	9	8	15	22	14	16	20	13	3	0,691243
47th	3	11	16	8	12	1	2	4	6	19	9	5	13	9	7	19	6	14	18	17	15	10	0,714306
48th	7	4	15	5	3	16	8	8	6	10	9	12	2	11	3	20	19	13	14	18	17	1	0,816846
49th	6	5	15	6	18	7	19	3	8	19	9	14	2	13	16	18	4	10	12	17	11	1	0,605739
50th	17	14	21	1	22	8	9	20	5	7	6	10	12	13	11	15	2	16	18	19	3	4	0,436441
51st	13	1	22	15	9	8	21	6	10	7	12	11	16	14	17	2	20	18	19	5	4	3	0,531921
52nd	3	1	22	12	4	9	8	10	5	15	6	13	16	14	11	17	20	7	18	19	21	2	0,727966
53rd	14	17	18	12	5	6	2	19	7	16	1	11	15	10	20	4	19	3	8	13	9	1	0,386376
54th	8	1	21	2	10	4	13	12	5	20	19	6	18	7	22	9	17	16	15	14	3	11	0,578531
55th	7	8	13	14	9	18	11	19	10	1	1	12	15	2	16	17	2	5	4	3	5	6	0,252898
1st	5	8	6	2	7	9	10	4	11	15	17	12	14	13	3	18	19	20	16	12	20	1	

To confirm the effectiveness of the software product on assessing the competence of survey participants who are invited as respondents, we first calculated the results of a survey of respondents about the impact of the criterion of competitive potential on the competitiveness of an enterprise, in terms of their competence. The most interesting thing is that the results of assessing the influence of the criterion of the competitive potential of an enterprise coincide only by 50%, but this result is justified by the complexity of the questions - the factors proposed to the respondents, the meaning of which assumed the participation of only highly qualified specialists on the problem under study. But then the task formulated by the authors when developing this software for assessing the consistency of survey participants with any degree of their awareness of the object under study would not have been realized.

Even obtaining a negative result when the value of the coefficient of concordance (W) is less than 0.5 or tending to 0, this is also a result that confirms either the complexity of the problem or its lack of study, that is, additional investigated problem is required with the correction of the questionnaire with an increase in the number of factors. but more often with a decrease in the number of factors, since the researcher is entitled to exclude from the questionnaire those factors on which the researchers already have an identical opinion. Such formation of the questionnaire will provoke a decrease in the cost of a priori ranking, get a reliable answer to the question posed and formulate an opinion that will be more significant for making a final decision.

To confirm our assumptions, it is necessary to conduct a survey on the influence of factors on the demand for fur products in connection with their chipping, in order to reduce counterfeiting and exclude manufacturers from the desire to make products from low-quality, less popular furs, passing them off as elite ones.

A questionnaire was developed, in which we included only those factors that are always heard by the specialists involved in the production of these very fur products.

The same factors are understandable to consumers of fur products, since each of them was naturally interested in the product that he was going to purchase. The results of the survey confirmed the validity of our assumptions about the effectiveness of the software for assessing the most significant factors, because the opinion of the expert respondents is consistent with the experts, namely:

X6. type of fur;

X7 - resistance to low temperatures, heat-shielding properties;

X8 - price;

X1 - lightfastness to fur coloring; X3 - resistance to dry cleaning;

X10 - weight (product weight);

X14 - the thickness of the hairline;

X9 is the duration of the warranty period; X4 - lack of variability in the product; X15 - the softness of the hairline;

X20 - grade of skin.

Other factors were not identified by experts for several reasons, but the main thing is that they did not have sufficient experience in participating in assessing the quality of fur products, and on the role of those factors that shape their quality. This is confirmed by the obtained value of the concordance coefficient in the range of W <0.5. But in any case, the use of software allows customs to ensure the supply of high-quality fur products to the domestic markets, protecting our consumers from counterfeiting, counterfeiting, and smuggling. In addition, the identification of the most significant factors creates

the direction of the researcher's actions in order to offer manufacturers the improvement of innovative technological solutions in the production of fur products that meet the requirements of technical regulations and regulatory documents,

Tables 13 and 14 show the calculations of the optimal power for the range from 300 to 900 pairs for men's and women's shoes for the entire range of footwear. The analysis of the obtained characteristics for three variants of a given technological process in the manufacture of the entire assortment of footwear has confirmed the effectiveness of the software product given below for evaluating the proposed innovative technological process using universal and multifunctional equipment. So, with a range of 300 - 900 pairs, the best according to the given criteria is the output volume of 889 pairs (for men) and 847 pairs (for women). If the production areas proposed by the regional and municipal authorities of these districts - the Southern Federal District and the North Caucasus Federal District - according to the normative indicators, will not allow the calculated production volumes to be realized, then, in this case, the option of the optimal capacity is chosen that is acceptable, for example, the production volume of 556 pairs, which corresponds to the normative indicators for the proposed production areas and is characterized by the best values of the indicated criteria, which form the cost of the entire assortment of shoes. The generalized volumes of the main costs in the production of men's shoes are shown in Table 13, and in the production of women's shoes - in Table 14.

To assess the effectiveness of the production activity of a shoe company, it is necessary to analyze the annual results of the operation of the enterprise for the production of men's and women's assortment of shoes.

Table 13. Calculation of technical and economic indicators at optimal power with a range of 300-900 pairs in the production of men's shoes

Power	Equipment type	Optimalpower, steam per shift	Labor productivity of 1 worker, steam	Percentage of workload of workers,%	Wage losses per unit of production, rub	Specific reduced costs for 100 pairs of shoes, rub
300-500	1	500	28.09	61.39	13.68	6735.36
500-700	1	556	27.73	69.14	9.83	6404.71
700-900	1	889	28.09	77.20	6.42	5236.17
300-500	2	500	28.09	61.39	13.68	6728.68
500-700	2	556	27.91	68.70	9.97	6083.28
700-900	2	889	28.09	77.20	6.42	5240.72
300-500	3	500	28.09	61.39	13.68	7533.95
500-700	3	700	28.12	67.28	10.56	6734.02
700-900	3	889	28.09	77.20	6.42	5876.59

These calculations indicate that with 100% of sales of men's and women's shoes in the specified period of time, not only the costs of production and sales of products are covered, but also a profit of 3,697.4 thousand rubles remains. This testifies to the efficient operation of the enterprise, as well as to the correct marketing and assortment policy. The product profitability is 14.9%.

Table 14. Calculation of technical and economic indicators at optimal power with a range of 300-900 pairs in the production of women's shoes

Variantspower	View equipment	Optimal power, steam per shift	Labor productivity of 1 worker, steam	Worker load factor,%	Loss on wages per unit of product tion, rub	Specific reduced costs per 100 pairs shoes, rub
300-500	1	500	27.73	62.18	13.40	6980.5
500-700	1	700	27.73	69.14	9.83	6277.43
700-900	1	847	27.73	74.50	7.54	5673.49
300-500	2	500	24.45	63.90	14.11	7630.92
500-700	2	556	27.73	69.14	9.83	6404.71
700-900	2	812	25.64	75.40	7.77	6060.55
300-500	3	500	27.00	61.74	14.02	7827.12
500-700	3	556	29.32	68.21	9.71	6607.65

700-900	3	847	27.00	74.70	7.66	6341.05

By proving their proposals, the authors confirmed the results of calculating technical and economic indicators (tables 15-23) using the software they developed, which allowed them to choose production volumes that would guarantee the manufacturer an economic effect, in which the complex efficiency indicator (Kef) evaluating it will be strive for its maximum value, namely, to one.

Table 15. Calculating the cost of a costing unit by model
The model "Winter boots (model A)" was selected as the base model

P / p No.	Article title	Model A	Model B	Model B	Model G
1	Raw materials and basic materials	80625.12	57,097.96	26510.38	24,646.80
2	Supporting materials	2,454.35	2,046.85	1,878.20	1,780.80
3	Fuel and energy costs	906.89	779.91	780.08	743.65
4	Fixed costs and add. Salary, including deductions to SVVF	8 294.68	7 133.28	7 134.89	6,801.68
5	Expenses for preparation and development of production	73.53	70.64	63.21	69.80
6	Equipment maintenance and operation costs	2 818.97	2,424.27	2,424.81	2 311.57
7	General operating expenses	1961.51	1,686.87	1,687.25	1 608.45
eight	General expenses (200%)	11,728.49	11,259.35	9682.83	9685.02
nine	Production cost	108,863.54	82,499.13	50161.65	47,647.77
ten	Business expenses	2,177.27	8,249.91	5,016.17	4,764.78
eleven	Full cost	111,040.81	90,749.04	55,177.82	52,412.55

Table 16. Calculation of the wholesale price (Tsopt = Price / 1.18)

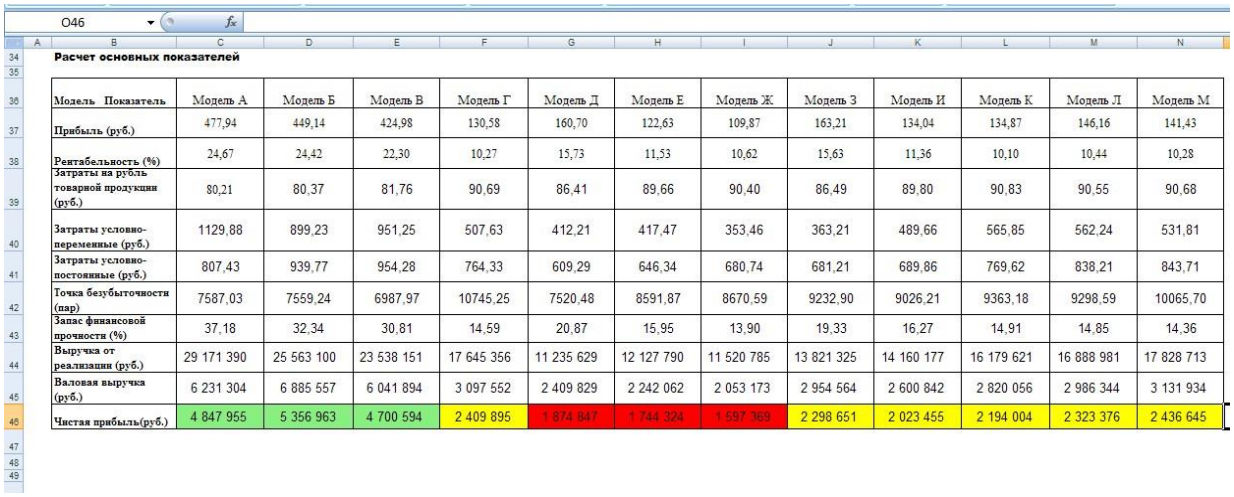
Model	Price	Wholesale price
Winter boots (model A)	1600,00	1355.93
Autumn boots (model B)	1300,00	1101.69
Spring low shoes (model B)	750.00	635.59
Summer sandals (model D)	700,00	593.22

Table 17. Calculation of basic cost indicators

Index	Model			
	Winter boots (model A)	Autumn boots (model B)	Spring semi-teens (model b)	Summer sandals (model D)
Profit (RUB)	245.52	194.20	83.81	69.09
Profitability (%)	22.11	21.40	15.19	13.18
Costs per ruble of commercial products (rub.)	174.71	82.37	86.81	88.35
Conditional variable costs (RUB)	839.86	599.25	291.69	271.71
Conditional fixed costs (RUB)	270.55	308.24	260.09	252.42
Break-even point (pairs)	13182.81	14923.22	22606.93	21959.73
Financial strength margin (%)	47.57	46.15	21.33	15.85
Sales proceeds (RUB)	34,096,215.78	30 532 236.66	18 264 314.24	12 127 790
Gross revenue (RUB)	6 721 390.01	30 532 236.66	17,046,769.92	2,242,062
Net profit (RUB)	5,229,241.43	23,754,080.12	13,262,387.00	1,744,324

Net profit of the enterprise for the year for all models (rubles) = 54,289,669.13

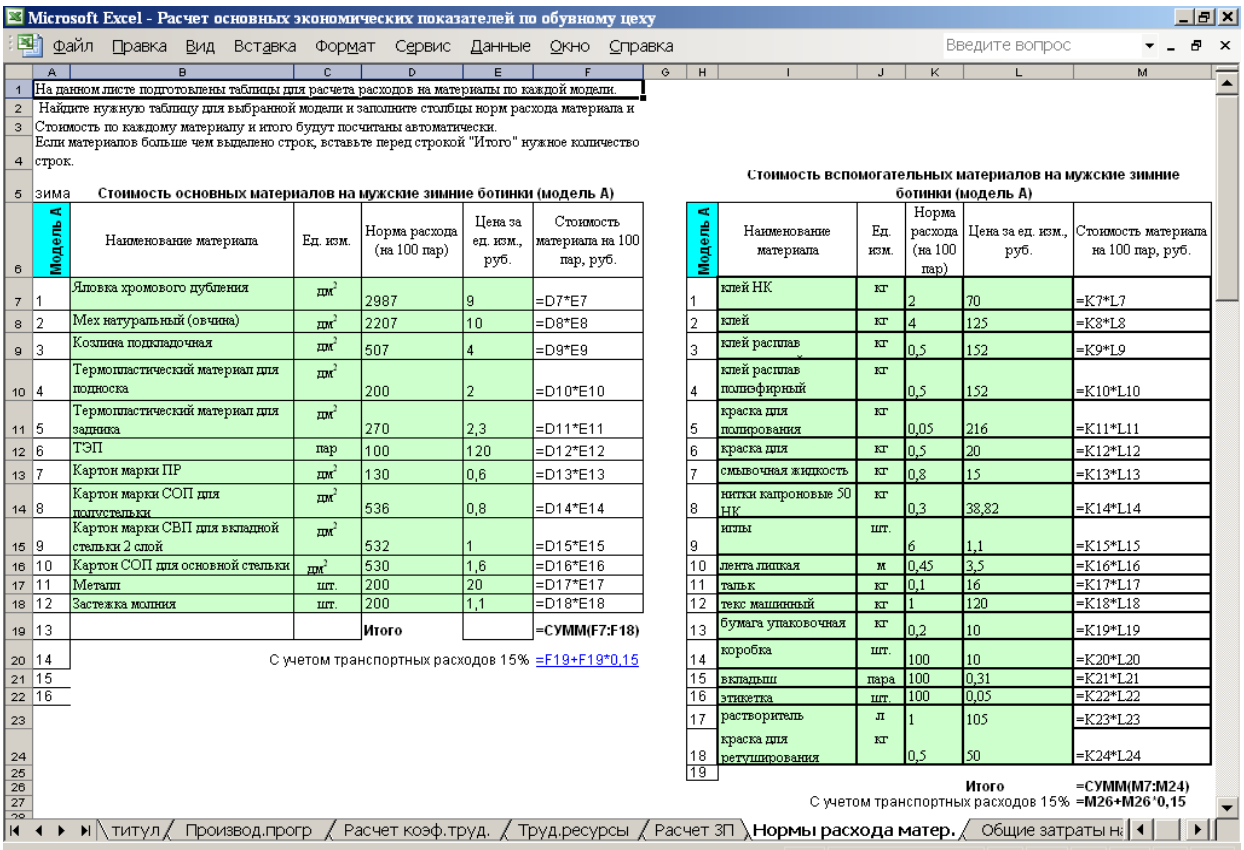
Table 18. Calculation of the main costs for the assortment range for 12 shoe models (for example, women's shoes)



Расчет основных показателей

Модель Показатель	Модель А	Модель Б	Модель В	Модель Г	Модель Д	Модель Е	Модель Ж	Модель З	Модель И	Модель К	Модель Л	Модель М
Прибыль (руб.)	477,94	449,14	424,98	130,58	160,70	122,63	109,87	163,21	134,04	134,87	146,16	141,43
Рентабельность (%)	24,67	24,42	22,30	10,27	15,73	11,53	10,62	15,63	11,36	10,10	10,44	10,28
Затраты на рубль товарной продукции (руб.)	80,21	80,37	81,76	90,69	86,41	89,66	90,40	86,49	89,80	90,83	90,55	90,68
Затраты условно-переменные (руб.)	1129,88	899,23	951,25	507,63	412,21	417,47	353,46	363,21	489,66	565,85	562,24	531,81
Затраты условно-постоянные (руб.)	807,43	939,77	954,28	764,33	609,29	646,34	680,74	681,21	689,86	769,62	838,21	843,71
Точка безубыточности (пар)	7587,03	7559,24	6987,97	10745,25	7520,48	8591,87	8670,59	9232,90	9026,21	9363,18	9298,59	10065,70
Запас финансовой прочности (%)	37,18	32,34	30,81	14,59	20,87	15,95	13,90	19,33	16,27	14,91	14,85	14,36
Выручка от реализации (руб.)	29 171 390	25 563 100	23 538 151	17 645 356	11 235 629	12 127 790	11 520 785	13 821 325	14 160 177	16 179 621	16 888 981	17 828 713
Валовая выручка (руб.)	6 231 304	6 885 557	6 041 894	3 097 552	2 409 829	2 242 062	2 053 173	2 954 564	2 600 842	2 820 056	2 986 344	3 131 934
Чистая прибыль(руб.)	4 847 955	5 356 963	4 700 594	2 409 895	1 874 847	1 744 324	1 597 369	2 298 651	2 023 455	2 194 004	2 323 376	2 436 645

Table 19. Calculation of the cost of basic and auxiliary materials by models (model A)



Microsoft Excel - Расчет основных экономических показателей по обувному цеху

На данном листе подготовлены таблицы для расчета расходов на материалы по каждой модели.
Найдите нужную таблицу для выбранной модели и заполните столбцы норм расхода материала и
Стоимость по каждому материалу и итого будут посчитаны автоматически.
Если материалов больше чем выделено строк, вставьте перед строкой "Итого" нужное количество
строк.

зима **Стоимость основных материалов на мужские зимние ботинки (модель А)**

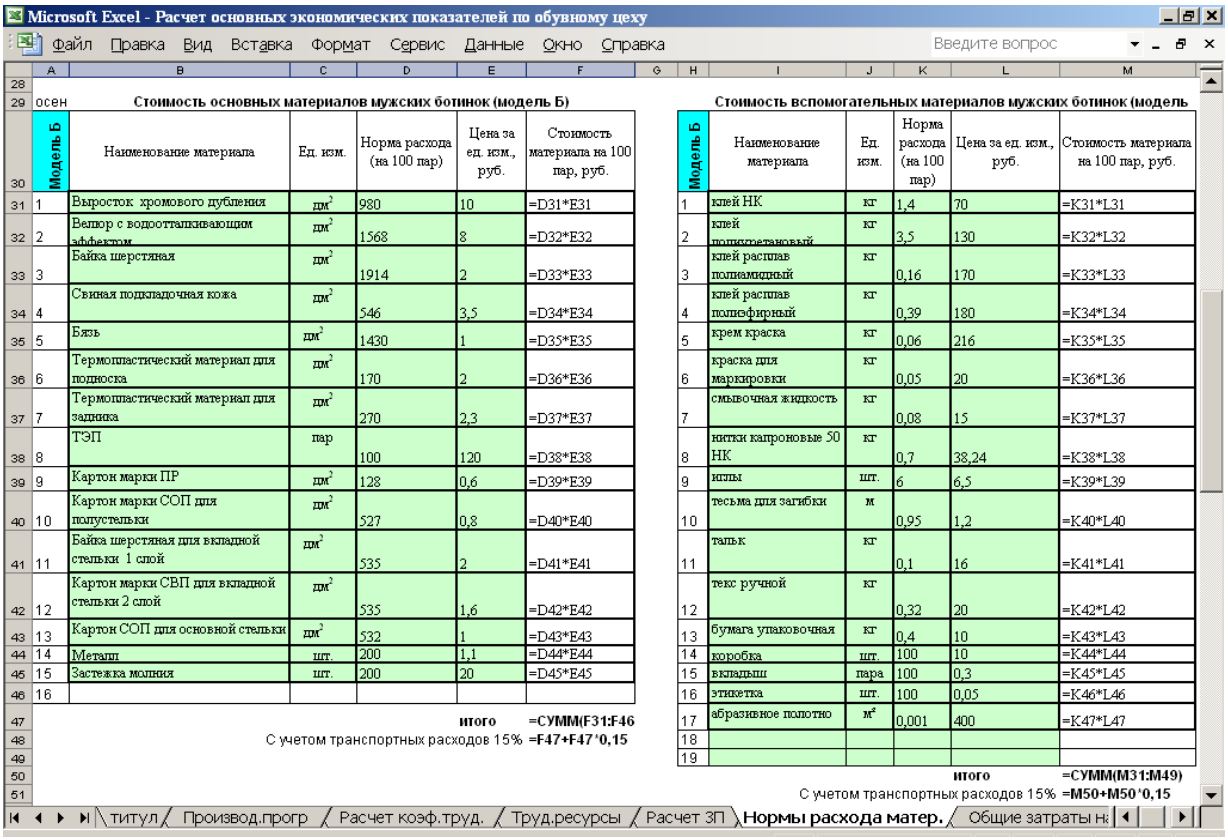
Модель А	Наименование материала	Ед. изм.	Норма расхода (на 100 пар)	Цена за ед. изм., руб.	Стоимость материала на 100 пар, руб.
1	Яловка хромового дубления	дм²	2987	9	=D7*E7
2	Мех натуральный (овчина)	дм²	2207	10	=D8*E8
3	Козлина подкладочная	дм²	507	4	=D9*E9
4	Термопластический материал для подноска	дм²	200	2	=D10*E10
5	Термопластический материал для задника	дм²	270	2,3	=D11*E11
6	ТЭП	пар	100	120	=D12*E12
7	Картон марки ПР	дм²	130	0,6	=D13*E13
8	Картон марки СОП для подстельки	дм²	536	0,8	=D14*E14
9	Картон марки СВП для вкладной стельки 2 слой	дм²	532	1	=D15*E15
10	Картон СОП для основной стельки	дм²	530	1,6	=D16*E16
11	Металл	шт.	200	20	=D17*E17
12	Застежка молния	шт.	200	1,1	=D18*E18
13			Итого		=СУММ(F7:F18)
14			С учетом транспортных расходов 15%		=F19+F19*0,15

Стоимость вспомогательных материалов на мужские зимние ботинки (модель А)

Модель А	Наименование материала	Ед. изм.	Норма расхода (на 100 пар)	Цена за ед. изм., руб.	Стоимость материала на 100 пар, руб.
1	клей НК	кг	2	70	=K7*L7
2	клей	кг	4	125	=K8*L8
3	клей расплав	кг	0,5	152	=K9*L9
4	клей расплав полиэфирный	кг	0,5	152	=K10*L10
5	краска для полирования	кг	0,05	216	=K11*L11
6	краска для	кг	0,5	20	=K12*L12
7	смывочная жидкость	кг	0,8	15	=K13*L13
8	нитки капроновые 50 НК	кг	0,3	38,82	=K14*L14
9	иглы	шт.	6	1,1	=K15*L15
10	лента липкая	м	0,45	3,5	=K16*L16
11	тальк	кг	0,1	16	=K17*L17
12	текс машинный	кг	1	120	=K18*L18
13	бумага упаковочная	кг	0,2	10	=K19*L19
14	коробка	шт.	100	10	=K20*L20
15	вкладыш	пара	100	0,31	=K21*L21
16	этикетка	шт.	100	0,05	=K22*L22
17	растворитель	л	1	105	=K23*L23
18	краска для ретуширования	кг	0,5	50	=K24*L24
			Итого		=СУММ(M7:M24)
			С учетом транспортных расходов 15%		=M26+M26*0,15

титул | Производ.прогр | Расчет коэф.труд. | Труд.ресурсы | Расчет ЗП | Нормы расхода матер. | Общие затраты на

Table 20. Calculation of the cost of basic and auxiliary materials by models (model B)



осен — Стоимость основных материалов мужских ботинок (модель Б)

Модель Б		Наименование материала	Ед. изм.	Норма расхода (на 100 пар)	Цена за ед. изм., руб.	Стоимость материала на 100 пар, руб.
1		Выросток хромового дубления	дм²	980	10	=D31*E31
2		Велюр с водоотталкивающим эффектом	дм²	1568	8	=D32*E32
3		Байка шерстяная	дм²	1914	2	=D33*E33
4		Свиная подкладочная кожа	дм²	546	3,5	=D34*E34
5		Бязь	дм²	1430	1	=D35*E35
6		Термопластический материал для подноска	дм²	170	2	=D36*E36
7		Термопластический материал для задника	дм²	270	2,3	=D37*E37
8		ТЭП	пар	100	120	=D38*E38
9		Картон марки ПР	дм²	128	0,6	=D39*E39
10		Картон марки СОП для полустельки	дм²	527	0,8	=D40*E40
11		Байка шерстяная для вкладной стельки 1 слой	дм²	535	2	=D41*E41
12		Картон марки СВП для вкладной стельки 2 слой	дм²	535	1,6	=D42*E42
13		Картон СОП для основной стельки	дм²	532	1	=D43*E43
14		Металл	шт.	200	1,1	=D44*E44
15		Застежка молния	шт.	200	20	=D45*E45
16						
				итого		=СУММ(F31:F46
				С учетом транспортных расходов 15%		=F47+F47*0,15

Стоимость вспомогательных материалов мужских ботинок (модель

Модель Б		Наименование материала	Ед. изм.	Норма расхода (на 100 пар)	Цена за ед. изм., руб.	Стоимость материала на 100 пар, руб.
1		клей НК	кг	1,4	70	=K31*L31
2		клей полиуретановый	кг	3,5	130	=K32*L32
3		клей расплав полиамидный	кг	0,16	170	=K33*L33
4		клей расплав полиэфирный	кг	0,39	180	=K34*L34
5		крем краска	кг	0,06	216	=K35*L35
6		краска для маркировки	кг	0,05	20	=K36*L36
7		смывочная жидкость	кг	0,08	15	=K37*L37
8		нитки капроновые 50 НК	кг	0,7	38,24	=K38*L38
9		иглы	шт.	6	6,5	=K39*L39
10		тесьма для загибки	м	0,95	1,2	=K40*L40
11		тальк	кг	0,1	16	=K41*L41
12		текс ручной	кг	0,32	20	=K42*L42
13		бумага упаковочная	кг	0,4	10	=K43*L43
14		коробка	шт.	100	10	=K44*L44
15		вкладыш	пара	100	0,3	=K45*L45
16		этикетка	шт.	100	0,05	=K46*L46
17		абразивное полотно	м²	0,001	400	=K47*L47
18						
19						
				итого		=СУММ(M31:M49)
				С учетом транспортных расходов 15%		=M50+M50*0,15

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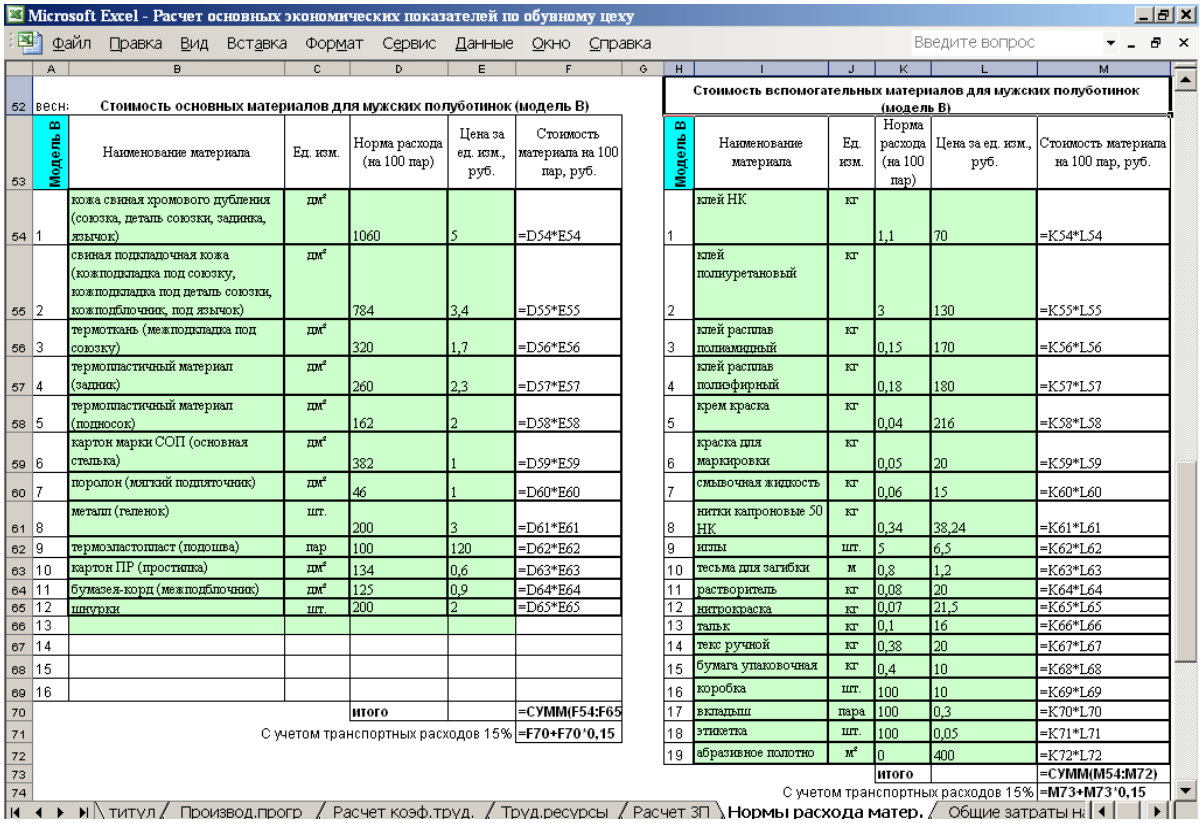
Table 21. Calculation of the cost of basic and auxiliary materials by model (model B)



весн: — Стоимость основных материалов для мужских полуботинок (модель В)

Модель В		Наименование материала	Ед. изм.	Норма расхода (на 100 пар)	Цена за ед. изм., руб.	Стоимость материала на 100 пар, руб.
1		кожа свиная хромового дубления (союзка, деталь союзки, задинка, язычок)	дм²	1060	5	=D54*E54
2		свиная подкладочная кожа (кожподкладка под союзку, кожподкладка под деталь союзки, кожподблочник, под язычок)	дм²	784	3,4	=D55*E55
3		термоткань (межподкладка под союзку)	дм²	320	1,7	=D56*E56
4		термопластичный материал (задник)	дм²	260	2,3	=D57*E57
5		термопластичный материал (подносок)	дм²	162	2	=D58*E58
6		картон марки СОП (основная стелька)	дм²	382	1	=D59*E59
7		поролон (мягкий подпяточник)	дм²	46	1	=D60*E60
8		металл (геленок)	шт.	200	3	=D61*E61
9		термоэластопласт (подошва)	пар	100	120	=D62*E62
10		картон ПР (простилка)	дм²	134	0,6	=D63*E63
11		бумазея-корд (межподблочник)	дм²	125	0,9	=D64*E64
12		шнурки	шт.	200	2	=D65*E65
13						
14						
15						
16						
				итого		=СУММ(F54:F65
				С учетом транспортных расходов 15%		=F70+F70*0,15

Стоимость вспомогательных материалов для мужских полуботинок (модель В)

Модель В		Наименование материала	Ед. изм.	Норма расхода (на 100 пар)	Цена за ед. изм., руб.	Стоимость материала на 100 пар, руб.
1		клей НК	кг	1,1	70	=K54*L54
2		клей полиуретановый	кг	3	130	=K55*L55
3		клей расплав полиамидный	кг	0,15	170	=K56*L56
4		клей расплав полиэфирный	кг	0,18	180	=K57*L57
5		крем краска	кг	0,04	216	=K58*L58
6		краска для маркировки	кг	0,05	20	=K59*L59
7		смывочная жидкость	кг	0,06	15	=K60*L60
8		нитки капроновые 50 НК	кг	0,34	38,24	=K61*L61
9		иглы	шт.	5	6,5	=K62*L62
10		тесьма для загибки	м	0,8	1,2	=K63*L63
11		растворитель	кг	0,08	20	=K64*L64
12		нитрокраска	кг	0,07	21,5	=K65*L65
13		тальк	кг	0,1	16	=K66*L66
14		текс ручной	кг	0,38	20	=K67*L67
15		бумага упаковочная	кг	0,4	10	=K68*L68
16		коробка	шт.	100	10	=K69*L69
17		вкладыш	пара	100	0,3	=K70*L70
18		этикетка	шт.	100	0,05	=K71*L71
19		абразивное полотно	м²	0	400	=K72*L72
				итого		=СУММ(M54:M72)
				С учетом транспортных расходов 15%		=M73+M73*0,15

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Table 22. Calculation of the cost of basic and auxiliary materials by models (model D)

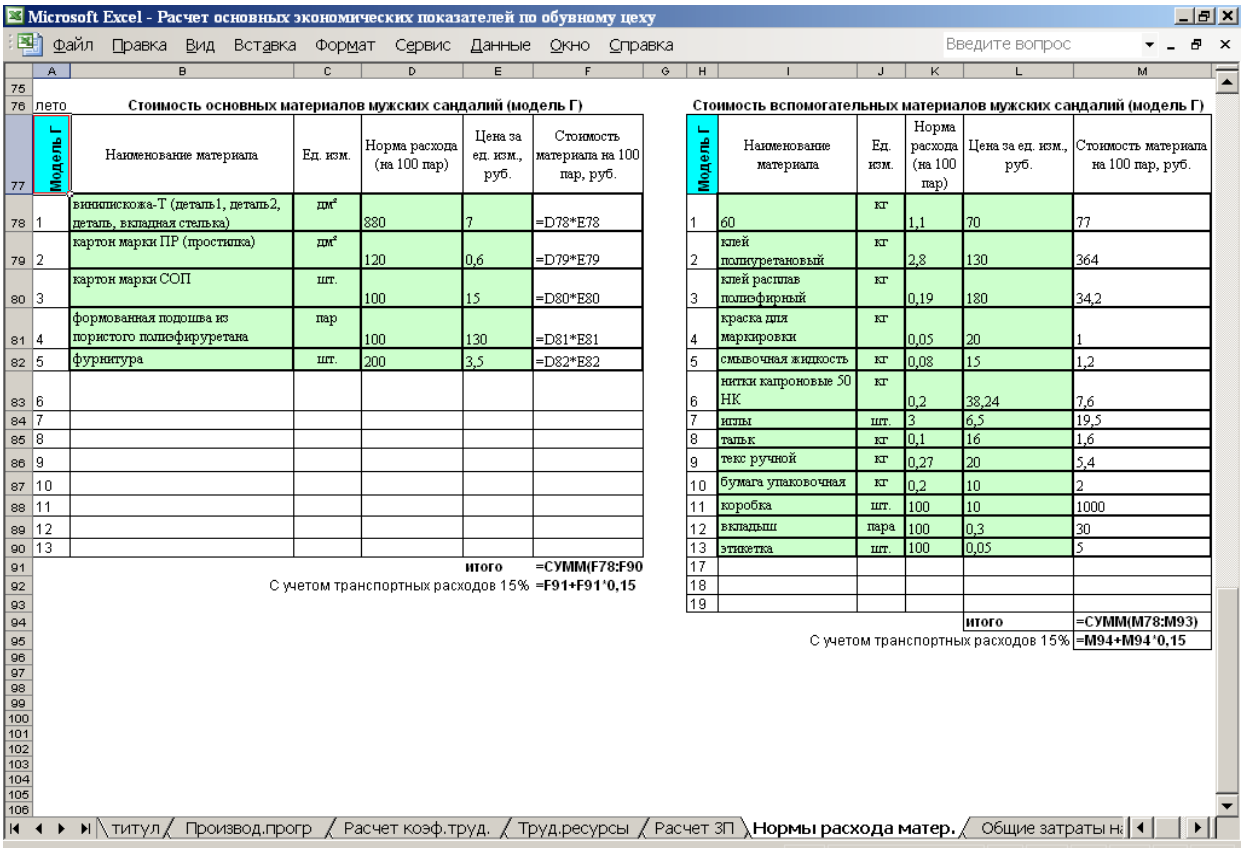

Table 23. Annual results of the shoe enterprise for the production of the entire assortment of shoes

Indicators	Jan.	Feb	March	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Sales volume, pairs	26114	26114	29661	29661	29661	28168	28168	28168	25358	25358	25358	26114
Sales proceeds tions, thousand rubles	45032.84	45032.84	31026.82	31026.82	31026.82	24033.9	24033.9	24033.9	30640.47	30640.47	30640.47	45032.84
Cost price units of production,rub.	1435.54	1435.54	890.2	890.2	890.2	726.7	726.7	726.7	1024.58	1024.58	1024.58	1435.54
Full cost bridge, thousand rubles	37487.78	37487.78	26405.04	26405.04	26405.04	20373.34	20373.34	20373.34	25747.78	25747.78	25747.78	37487.78
Profit from sales, thousand rubles	7545.06	7545.06	4621.78	4621.78	4621.78	3660.56	3660.56	3660.56	4892.69	4892.69	4892.69	7545.06
Income tax, thousand roubles.	1509	1509	924.36	924.36	924.36	732,112	732,112	732,112	978.5	978.5	978.5	1509
Net profit, thousand roubles.	6036	6036	3697.4	3697.4	3697.4	2928,448	2928,448	2928,448	3914.19	3914.19	3914.19	6036
Profitability products,%	16.8	16.8	14.9	14.9	14.9	15.2	15.2	15.2	15.9	15.9	15.9	16.8

Assortment formation is a problemspecific goods, their separate series, determination of the relationship between "old" and "new" goods, goods of single and serial production, "high technology" and "conventional" goods, materialized goods, or licenses and know-how. When forming the assortment, problems of prices, quality, guarantees, service arise, whether the manufacturer is going to play the role of a leader in creating fundamentally new types of products or is forced to follow other manufacturers.

The formation of the assortment is preceded by the development of the assortment concept by the enterprise. It is a directed construction of the optimal assortment structure, product offer, while, on the one hand, the consumer requirements of certain groups (market segments) are taken as a basis, and on the other, the need to ensure the most efficient use of raw materials, technological, financial and other resources by the enterprise. in order to produce products with low costs.

The assortment concept is expressed in the form of a system of indicators characterizing the possibilities of optimal development of the production assortment of a given type of goods. These indicators include: a variety of types and varieties of goods (taking into account the typology of consumers); the level and frequency of the assortment renewal; the level and ratio of prices for goods of this type, etc.

The assortment formation system includes the following main points:

- determination of current and future needs of buyers, analysis of the ways of using shoes and peculiarities of purchasing behavior in the relevant market;
- assessment of existing competitors' analogues;
- a critical assessment of the products manufactured by the enterprise in the same range as in paragraphs. 1 and 2, but from the point of view of the buyer;
- deciding which products should be added to the assortment, and which ones should be excluded from it due to changes in the level of competitiveness; whether it is necessary to diversify products at the expense of other areas of production of the enterprise that go beyond its established profile.
- consideration of proposals for the creation of new models of footwear, improvement of existing ones;
- development of specifications for new or improved models in accordance with the requirements of buyers;
- exploring the possibilities of producing new or improved models, including issues of prices, costs and profitability;
- testing (testing) footwear, taking into account potential consumers in order to find out their acceptability in terms of key indicators;
- development of special recommendations for the production departments of the enterprise regarding quality, style, price, name, packaging, service, etc. in accordance with the results of the tests carried out, confirming the acceptability of the characteristics of the product or predetermining the need to change them;
- assessment and revision of the entire range.

Assortment planning and management is an integral part of marketing. Even well-thought-out sales and advertising plans will not be able to neutralize the consequences of mistakes made earlier in assortment planning.

The optimal assortment 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.

Achieving the highest possible profitability is ensured through constant monitoring of economic indicators and timely decision-making on adjusting the assortment.

The stability of marketing indicators is ensured, first of all, due to constant monitoring of the market situation and timely response to changes, and even better, the adoption of proactive actions.

In addition, it is important that there are not too many product names. For the majority of Russian enterprises, the main reserve for assortment optimization still lies in a significant reduction in the assortment range. Too large assortment has a bad effect on economic indicators - there are many positions that cannot even reach the break-even level in terms of sales. As a result, the overall profitability drops dramatically. Only the exclusion of unprofitable and marginal items from the assortment can give the company an increase in overall profitability by 30-50%.

In addition, a large assortment diffuses the strength of the company, makes it difficult to offer a competent product to customers (even the sales staff are not always able to explain the difference between a particular item or name), and scatters the attention of end consumers.

Here it will be appropriate to recall the psychology of human perception of information. The reality is that the average person is able to perceive no more than 5–7 (rarely up to 9) semantic constructs at a time. Thus, a person, making a choice, first chooses these same 5-7 options based on the same number of criteria. If the seller offers a larger number of selection criteria, the buyer begins to feel discomfort and independently weeds out criteria that are insignificant from his point of view. The same happens when choosing a product itself. Now imagine what happens if there is a hundred practically indistinguishable (for him) goods in front of a person, and he needs to buy one. People in such a situation behave as follows:

either they refuse to buy at all, since they are not able to compare such a number of options, or prefer what they have already taken (or what seems familiar). There is another category of people (about 7%), lovers of new products, who, on the contrary, will choose something that they have not tried yet.

Thus, from the point of view of the buyer (to ensure a calm choice from the perceivable options) the assortment should consist of no more than 5-7 groups of 5-7 items, ie. from the point of view of perception, the entire assortment should be optimally comprised of 25-50 items. If there are objectively more names, then the only way out is additional classification.

It is generally accepted that the customer wants a wide range of products. This widest assortment is often referred to even as a competitive advantage. But in fact, it turns out that for a manufacturer a wide assortment is hundreds of product names, and for a consumer - 7 items is already more than enough.

And thus, the consumer does not need a wide assortment at all, but the variety he needs.

If the company adheres to a wide assortment approach, then it is enough to conduct a sales analysis, look at the statistics to make sure that 5-10, at most 15% of the items are the sales leaders, all other positions are sold very little, the demand for them is low, although the costs differ little from costs for sales leaders. It turns out a situation when several items "feed" the entire wide assortment of the enterprise. And this is far from always justified from the point of view of ensuring the completeness of the assortment (a favorite argument of sellers), that is, the presence of various names to cover the maximum possible options for customer needs. In practice, it turns out that completeness is fully ensured, even if the existing assortment is reduced by half or even three times. The main thing, in this case, is to correctly classify the entire product and to achieve that so that the assortment includes goods from each possible group of this classification. Moreover, the more grounds a company can identify for classification, the more balanced the decision will be. So, the classification of goods can be according to the satisfied needs of customers, according to the functional purpose of the goods, according to the benefit for the company.

Of particular importance in such a situation is the role played by certain positions in the assortment. For this, products can be classified into the following groups:

A - the main group of goods (which bring the main profit and are in the stage of growth);

B - a supporting group of goods (goods that stabilize sales revenue and are in the stage of maturity);

B - a strategic group of goods (goods designed to ensure the future profit of the company);

D - tactical group of goods (goods designed to stimulate sales of the main product group and are in the stage of growth and maturity);

D - a group of products under development (products that are not present on the market, but ready to enter the market);

E - goods leaving the market (which do not bring profit and must be removed from production, withdrawn from the market).

After that, it is necessary to determine the share of each group in the total production. For a stable position of the company in the assortment structure: group of goods A and B must be at least 70%.

Thus, this makes it possible to evaluate the existing assortment set in the company and, correlating it with the profit received, to assess the correctness of the assortment planning, its balance.

In addition, an increase in the volume of goods of groups that generate the main income will not always contribute to an increase in the company's profits. Here it is important to pay attention to the remainder of unsold goods (what increase it will give and the possibility of its further sale).

Production planning is one of the important problems of assortment policy. In economics, forecasting of future expenses and income is widely used on the basis of calculating the cost of production at variable costs. The essence of this method lies in the fact that the costs of the enterprise are divided into fixed and variable, depending on the degree of their response to changes in the scale of production.

The basis of fixed costs is the costs associated with the use of fixed assets (fixed capital). These include the cost of depreciation of fixed assets, rental of production facilities, as well as the salaries of management personnel, deductions for the social needs of these personnel. The basis of variable costs is the costs associated with the use of working capital (working capital). These include the cost of raw materials, supplies, fuel, wages of production workers and deductions for their social needs.

It should be emphasized that the total fixed costs, being a constant value and not depending on the volume of production, can change under the influence of other factors. For example, if prices rise, then the total fixed costs also rise.

The method of calculating the amount of coverage provides for the calculation of only variable costs associated with the production and sale of a unit of production. It is based on the calculation of the average variable costs and the average coverage, which is gross profit and can be calculated as the difference between the product price and the sum of variable costs. Limiting the cost of production to only variable costs simplifies rationing, planning, control due to a sharply reduced number of cost items. The advantage of this method of accounting and costing is also a significant reduction in the labor intensity of accounting and its simplification.

When applying the method of calculating the amount of coverage, it is advisable to use indicators such as the amount of coverage (marginal income) and

the coverage ratio. The amount of coverage (marginal income) is the difference between sales revenue and the total amount of variable costs. The amount of coverage can be calculated in another way - as the sum of fixed costs and profit. Calculation of the amount of coverage allows you to determine the funds of the enterprise, received by it in the sale of manufactured products in order to reimburse fixed costs and make a profit. Thus, the amount of coverage shows the overall level of profitability, both of the entire production and of individual products: the higher the difference between the selling price of a product and the sum of variable costs, the higher the amount of coverage and the level of profitability.

The coverage ratio is the proportion of coverage in sales revenue or the proportion of the average coverage in the price of a product.

It is also important to determine at what volume of sales the gross costs of the enterprise will be recouped. To do this, it is necessary to calculate the break-even point at which the proceeds or the volume of production are accepted, which will cover all costs and zero profit. Those. the minimum volume of proceeds from the sale of products is revealed, at which the level of profitability will be more than 0.00%. If the company receives more revenue than the break-even point, then it is working profitably. By comparing these two values of revenue, you can estimate the allowable decrease in revenue (sales volume) without the danger of being at a loss. The revenue corresponding to the break-even point is called the threshold revenue. The volume of production (sales) at the break-even point is called the threshold volume of production (sales).

To estimate how much the actual revenue exceeds the breakeven revenue, it is necessary to calculate the safety factor (the percentage deviation of the actual revenue from the threshold). To determine the effect of a change in revenue on a change in profit, the production leverage ratio is calculated. The higher the effect of production leverage, the more risky from the point of view of reducing profits is the position of the enterprise.

To divide the total costs into fixed and variable costs, we will use the high and low points method, which assumes the following algorithm:

– among the data on the production volumes of various types of footwear and the costs of its production, the maximum and minimum values are selected;

– the differences between the maximum and minimum values of the volume of production and costs are found;

– the rate of variable costs for one product is determined by referring the difference in cost levels for a period to the difference in levels of production for the same period;

– the total value of variable costs for the maximum and minimum volume of production is determined by multiplying the rate of variable costs for the corresponding volume of production;

– the total amount of fixed costs is determined as the difference between all costs and the amount of variable costs (example 1).

The minimum volume of production falls on the release of model A - 500 pairs, the maximum - for the release of model B - 1600 pairs.

The minimum and maximum costs for the production of footwear models A and B, respectively, amount to 179,465 rubles. (358.93◌ 500) and 428 180 rubles. (428.18◌ 1000). The difference in the levels of the volume of production is 1100 pairs (1600-500), and in the levels of costs - 248715 rubles. (428180-179465). The variable cost rate per item is 226.1 (248715/1100). The total amount of variable costs for the minimum production volume is 113,045 rubles. (226.1 * 500), and for the maximum volume - 361,760 rubles. (226.1 * 1600). The total fixed costs 179465-113045 = 66420, 428180-361760 = 66420. Thus, for our example, the value of fixed costs will be 66420 rubles. and they will be distributed among the manufactured types of footwear in proportion to the total cost of each type of product.

The profit from the sale of Model A is negative. However, before deciding to exclude this type of footwear from the assortment, it is necessary to calculate the profit from the sale of all manufactured types of products. At the same time, it is important that the amount of revenue exceeds the amount of variable costs.

Let us summarize the solution of the first example in table 24.

Table 24. Solution of the first example

Index	Value, rub.
Revenues from sales	951,008
Variable costs	798,132
Fixed costs	66420
Coverage amount, 1-2	152876
Coverage ratio, 4/1	0.16
Threshold revenue, 3/5	415125

Safety factor,%, (1-6) / 1 * 100	56.35
Profit	86 456
Production Leverage Effect, 4/8	1.77

Let's see how the profit of the enterprise will change if the production of unprofitable model A is abandoned. In this case, the company's revenue will decrease by the volume of revenue from the sale of this type of product and its size will be 753,508 rubles. (951 008-197 500).

At the same time, the total costs of the enterprise will also be reduced by the amount of variable costs required for the production and sale of brand A footwear. This value will be equal to 164,290 rubles. Since fixed costs do not depend on the amount of revenue, the abandonment of the production of brand A shoes will not affect their total value.

Thus, the total costs of the enterprise without the production of brand A footwear will amount to 633,842 rubles. (798 132-164 290). And the organization will not receive a loss in the course of its activities (753 508-633 842 = 119 666 rubles). The use of the method of calculating the average size of the coverage makes it possible to make a decision on the feasibility of further production of brand A footwear.

The average coverage for both shoe brands is positive. If the company reduces the output of brand A footwear by one unit, it will lose 66.6 rubles. from covering fixed costs. The exclusion from production of the entire volume of production of this brand will lead to losses in the amount of 33,300 rubles. (500 · 66.6). From the foregoing, we can conclude that brand A shoes should be kept in stock.

Thus, it is not always advisable to make a decision based only on the value of total costs and profit per unit of production, because in the end result the enterprise may lose profit. Now let's consider the situation (example 2), when the company plans to release a new product - model B in the amount of 1,700 pairs at a price of 467.40 rubles. for 1 pair. However, the production facilities of this organization are suitable for the production of only 4,000 pairs of shoes. And if it is going to start producing Model B shoes, it will have to abandon the production of 500 pairs of other models. The question arises: should we introduce new products into the assortment, and if so, what products should be cut back?

The average value of variable costs for a new type of product is 375.34 rubles. Then the average coverage is 92.06 rubles. (467.40 - 375.34). The increase in the profit of the enterprise due to the production of shoes of model B will amount to 156,502 rubles. (1700 * 92.06). Among all types of footwear produced by the enterprise, model B has the smallest average coverage (66.6 rubles). If the production of 500 pairs of shoes is abandoned, the organization will lose 33,300 rubles, while the enterprise will additionally receive 156,502 rubles from the production of brand B footwear. The profit of the enterprise from the change in the assortment will amount to 123,202 rubles. (156 502 - 33 300). Let us trace how the safety factor, the effect of production leverage and the profit of the enterprise will change if model B is included in the assortment of footwear production (table 25).

Table 25. Solution of the second example

Index	Value, rub.
Revenues from sales	1,745,588
Variable costs	1,520,478
Fixed costs	66420
Coverage amount, 1-2	225 110
Coverage ratio, 4/1	0.13
Threshold revenue, 3/5	515,046
Safety factor,%, (1-6) / 1 * 100	70.49
Profit	158 690
Production Leverage Effect, 4/8	1.42

The given data show that as a result of the renewal of the assortment, the position of the enterprise has improved:

– profit increased from 86,456 rubles. up to 158 690 rubles;

– safety margin increased by 14.14% (70.49 - 56.35);

– the effect of production leverage decreased by 0.35 points (from 1.77 to 1.42).

Thus, in the costing system for variable costs, profit is reflected as a function of the volume of sales, and in the full distribution system, it depends on both production and sales.

Both considered systems have their own advantages and disadvantages. So, for example, when

the volume of production exceeds the volume of sales, a higher profit will be shown in the system of full cost allocation. In the case when the volume of sales exceeds the volume of production, the higher profit will be reflected in the calculation of the cost price at variable costs. However, when calculating the cost of variable costs, information for making a decision can be obtained with significantly fewer calculations. The choice is up to the management of the enterprise in order to ensure its stable position in the conditions of unstable demand with timely and effective actions. This is especially important in the manufacture of the entire assortment of children's shoes and when working with customers - with mothers and children, creating all the conditions for them to satisfy their interests.

In a market economy, in order to survive in a constantly changing economic environment, shoe enterprises need to focus on the target audience:

- an increase in the amount of profit as a result of a company in the volume of sales of products, a decrease in its cost price and an increase in product quality.

In order to get the desired profit in conditions when the prices for shoes and production volumes are dictated by the market, the company always faces the choice of what products and how much to produce in terms of the costs of manufacturing them and taking into account the solvency of potential buyers. The availability of high-quality, competitive footwear is a prerequisite for the highly efficient functioning of a footwear enterprise.

An important criterion for the competitiveness of footwear on the market is its cost with its corresponding quality and the purchasing power of the population.

The main criterion for the viability and profitability of an enterprise is profit; in order to increase losses, first of all, it is necessary to reduce the cost of shoes.

The change in the total cost, which includes all the costs of manufacturing and selling footwear, depends on the ratio of changes in costs for each calculation item.

An important factor affecting the level of costs for the production of footwear is the change in the assortment and the technological process.

Choosing a technology that is capable of efficiently realizing unmarked goals in a highly competitive environment will ensure that the developed range of footwear will be chosen by the buyer and will allow the enterprise to get the maximum profit.

To solve this problem, it is necessary to most widely use the injection method, which ensures the manufacture (production) of the entire assortment of high quality footwear with different profitability of certain types of footwear to meet the demand of various groups of the population.

In the cost of footwear production, the largest share is made up of costs for raw materials and basic materials, and then for wages and depreciation deductions.

The production of footwear by the molding method is possible with the use of artificial and synthetic leather and textile materials, which will reduce the cost and get a large profit, because the range of these materials is cheaper and much more varied.

Production per year before the introduction of 98,800 pairs, after the introduction of 172,900 pairs.

To make a profit, the company must constantly monitor the proportion of costs for the manufacture of the proposed many assortment of footwear.

Conclusion

This is possible only if the heads of enterprises implement modern technological solutions formed on the basis of the use of multifunctional and universal equipment and at the same time it is necessary to remember that the innovative technological solution itself should not be costly, that is, on the one hand, provide the enterprise with sustainable technical and economic indicators and guaranteeing their demand not only in the sales markets of the regions of the Southern Federal District and the North Caucasus Federal District, but in the regions of other districts of Russia and to be attractive to foreign consumers. But on the other hand, consumers should have a choice to compare the price niche for the offered products with analogues of foreign firms, and always have priority. This will be possible during the formation of production,

The wider application of the injection method will allow enterprises in market conditions to receive such a volume of profit that will allow them not only to firmly hold their positions in the sales market for their shoes, but also to ensure the dynamic development of its production in a competitive environment, this is especially important in the manufacture of the entire product range. children's shoes:

1. Analysis of the implementation of the plan for competitiveness. It is carried out on the basis of comparing the actual level of competitiveness of the enterprise with the planned value.
2. Analysis of the dynamics of the level of competitiveness of the enterprise. The dynamics show the change in the indicator over time, and the frequency should be at least 1 year.
3. Identification of competitive advantages and competitive problems in the internal environment of the enterprise. This analysis is carried out based on the results of assessing the competitiveness of enterprises. Competitive problems will be those factors of competitiveness that will receive the smallest (in comparison with competitors) dimensionless assessment of indicators; competitive advantages -

factors that have received a higher rating. The identified competitive advantages and competitive problems of enterprises are the information base for developing a strategy for increasing the competitiveness of enterprises.

The developed methodology for assessing and analyzing the competitiveness of an enterprise, in contrast to the 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 indicators for analyzing the competitiveness of enterprises, namely, on the basis of innovative technological solutions in combination with an assortment policy, these very enterprises always have a message to ensure effective work results, guaranteeing themselves and their employees from bankruptcy ...

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CLINICOMORPHOLOGICAL ANALYSIS IN OSTEOMEDULLARY TUMORS

Abstract: *Considering the histogenetic closeness of Ewing's sarcoma and PNET, proved based on molecular-genetic and cultural studies, as well as the uniformity of therapeutic approaches in the diagnosis of these tumors, the need for differential diagnosis of them has not been sufficiently justified [1]. The only real morphological feature that distinguishes PNET from Ewing's sarcoma is the expressed rosette formation [7].*

Key words: *Osteomedullary tumors, Ewing's sarcoma, PNET, pseudorosettes, rosette formation*
Language: *English*
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Introduction

Osteomedullary tumors include Ewing's sarcoma, malignant bone lymphoma (reticulosarcoma), and primitive neuroectodermal tumors of the bone [2, p79; 4,p.68;7,p.464]. Some of the representatives of this group – Ewing's sarcoma and primitive neuroectodermal tumors (hereinafter PNET) are localized mainly in bones and soft tissues [5,p.214; 6,p.343]. These tumors were reported long before the introduction of electron microscopy and immunohistochemistry [1,p.532; 3,p.174; 8,p.295].

Purpose of the study.

Analysis of clinicomorphological signs in osteomedullary tumors.

Materials and Methods.

This work, following the tasks set, includes data on bone marrow tumors of patients who underwent treatment at the Oncology Clinic of AMU from 2007 to 2020.

To solve the set tasks, the following research methods were used in the work: clinical, radiological, cytological, histological, histochemical, and statistical.

Cytological research methods - routine cytological analysis of punctates, imprint smears, stained with hematoxylin-eosin and thionine,

followed by histological verification of the diagnosis and comparison of cytological and histological findings [3,p.294-299].The histological research methods included cases in which archival material was preserved (histological preparations, paraffin blocks, or material fixed in formalin), as well as current observations.

Material for histochemical analysis was fixed in 80% alcohol. Staining with iodic acid and Schiff's reagent (SHIK or PAS reaction) was used to identify glycogen; Kreiberg stain was used to identify chondroid and myxomatous degeneration of the stroma.

All histological and histochemical research methods used in this work were repeatedly tested, modes were worked out, errors were measured, and described in detail in manuals on histochemistry.

All digital data obtained during the experiments were statistically processed taking into account modern requirements. The data obtained were statistically analyzed by nonparametric methods according to Wilcoxon-Mann-Whitney.

Results and Discussion

We found Ewing's sarcoma in 114 cases. In most patients with this pathology, the disease began either in full health, for no apparent reason, or sometime after the trauma. According to our data, a trauma preceded the appearance of a tumor in 40% of cases. The average time of tumor emergence after the injury was 5 months. The shortest period was a few days, the longest was 12 months. A trauma in anamnesis was noted in 30 of our patients (26.3%). Clinical manifestations of the disease occurred at various time intervals - from several days to 2 years.

In most cases, the disease began slowly, gradually: mild, quickly subsiding pains appeared in the affected part of the bone with significant light gaps between attacks. The described course of the disease was observed in 85 (74.5%) of 114 (100%) of our patients. Like in other malignant neoplasms of the skeleton, the characteristic triad of symptoms was repeated with the greatest constancy in Ewing's sarcoma: pain in the affected part of the skeleton, swelling, dysfunction. According to our research, pain in Ewing's sarcoma never reached the acute "skeletal" pain characteristic of osteosarcoma. Another permanent symptom of the disease is swelling. In our observations, the tumor was detected in 70 (61.4%) of 114 (100%) patients; as the first sign of the disease - in 31 (27.2%) patients. The sizes of the tumors varied - from a small localized swelling to extensive deformity of the affected limb. We detected an increase in body temperature at different periods of the disease in 40 patients (35.0%); however, we did not find a direct relationship between the degree of malignancy of the tumor and temperature response.

The cytological picture of Ewing's sarcoma is characterized by the presence of a large number of tumor cells, which are scattered or form structures in the form of rosettes and complexes. The cells are of the same type in shape and size, the background of the preparation is formed by erythrocytes. Tumor cells are predominantly round in shape, oval-shaped cells also occur. The cytoplasm is stained weakly basophilic, it's borders are not always clear, vacuoles are often visible. The nuclei are large, mostly rounded, located in the center of the cell, monomorphic or weakly polymorphic. The structure of chromatin is fine-grained, uniform. Nucleoli (1-2) of a rounded shape are visible in the nuclei. The presence of blood vessels is sometimes noted. Cells with a polymorphic structure are quite rare.

According to the results of microscopic examination, the cell mass with an almost invisible stromal component dominates in the tumor [4, p.214]. Secondly, it is generally accepted that the cells of Ewing's sarcoma are relatively small in size, round in shape, and monomorphic. A part of the tumor cells is concentrated around small (capillary type) vessels, forming irregular strands in the longitudinal section, and pseudorosette structures in the transverse section. Fibrous elements of the stroma in the tumor tissue are almost undetectable. The argyrophilic carcass is present only in the vessels and to a very small extent in the perivascular spaces. In the histochemical study, the differential diagnosis should be carried out for malignant bone lymphoma, from which the Ewing's sarcoma cells differ in less polymorphism and usually a significantly lower number of atypical mitotic figures [5, p.2436-2449]. After fixation in alcohol under the influence of Schiff's reagent (SHIK-PAS reaction) and using amylase as control, a significant content of glycogen is always detectable in Ewing's tumor cells, which is absent in the cells of malignant bone lymphoma.

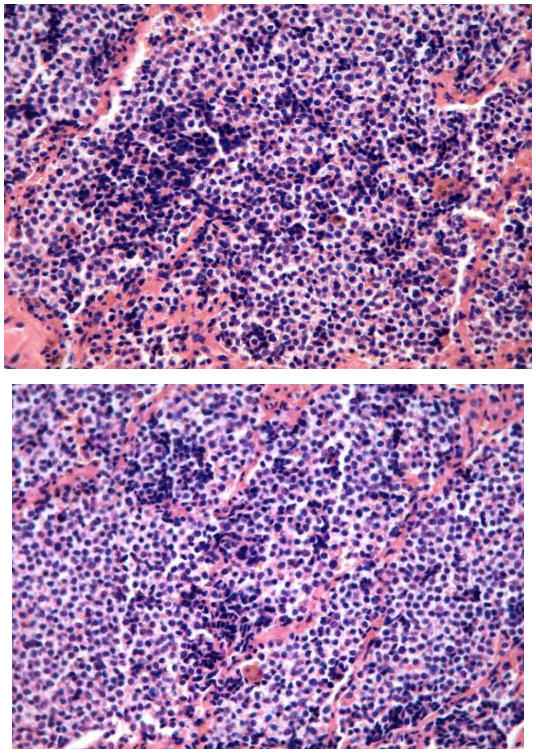

Figure. 1. Patient D., 16 years old. Ewing's sarcoma of the humerus. The diffuse variant of the structure of the tumor with the presence of two variants of cells. The bulk of the tumor is represented by cells with an enlightened cytoplasm, in which the same type, rounded or oval nuclei are located. The second variant of hyperchromic, smaller cells. Staining with hematoxylin and eosin. Magnification 200x.

We detected PNET in 42 cases. In the majority of patients, clinical signs of the disease appeared during the first 4 - 5 months after a trauma, immediately after a trauma, or shortly after it. Some patients (10 observations - 23.8%) denied the role of trauma in anamnesis. In the majority of the patients studied by us (37 observations-88.1%), the symptoms of this pathology were noted for no apparent reason or sometime after the trauma. We believe that the frequent definite coincidence in time and localization of the trauma with the subsequent development of the tumor suggests that the damage in some cases triggered the acceleration of the growth of a malignant tumor, which had been without symptoms until that time. Like in Ewing's sarcoma, characteristic triads of symptoms are repeated: pain in the affected part of the skeleton, swelling, dysfunction of the limbs. The tumor was detected in 35 (83.3%) of 42 patients (100%); as the first sign of the disease in 9 (21.4%) patients. The sizes of the tumors varied - from a small localized swelling to extensive deformity of the affected bone.

A characteristic feature of PNET was an extremely aggressive clinical course of the tumor process [2, p. 79-80]. Life expectancy in 32 (76.1%) patients averaged 8 months, in the remaining 10 (23.9%) patients averaged 12 months after diagnosis.

Tumor tissue in PNET is characterized by diffuse growths of the same type of rounded and oval cells with barely distinguishable cytoplasm. The cells are usually tightly adjoined. With good blood supply, especially with a developed capillary network, the formation of pseudorosettes (such as Homer Wright) and pseudoalveoli, which are clusters of tumor cells around the capillaries, is noted. At high magnification, in the center of such a pseudorosette or pseudoalveolus, a lumen formed by an endotheliocyte is always seen. In the presence of vessels of a larger caliber (venules, veins, arterioles) confluent fields of hemorrhagic necrosis are formed in the tumor with the simultaneous underdevelopment of the capillary network. In this case, the cells are preserved only in the form of sleeves around the wide-walled vessels, forming the so-called pericytic structures. Returning to the question of pseudorosettes,it should be noted that they are still rare in Ewing's sarcoma and, in a total study of a tumor section, make up less than 10% of its area. Besides, in PNET, practically the only specific morphological feature at the light level is pronounced rosette formation (more precisely, pseudorosette formation), which makes up the majority of the tumor area (about 80%)[6, p.174]. Thus, based on literature data and our research, we can conclude that in the presence of this symptom (taking into account, of course, all clinical and radiological information), the diagnosis is in favor of a primitive neuroectodermal tumor.

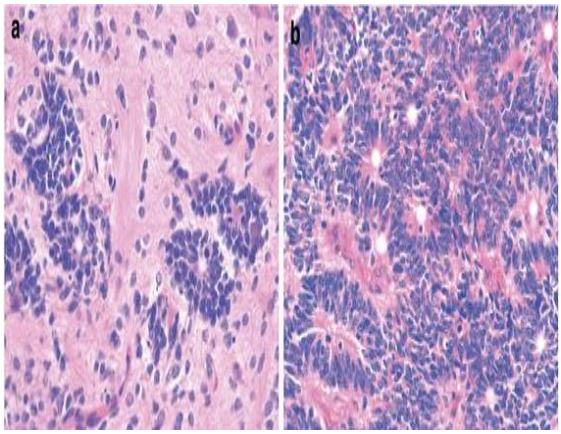

Figure 2. Patient D. 12 years old. PNET, femoral. Diffuse growths of the same type of rounded and oval cells with barely distinguishable cytoplasm. The cells are usually tightly adjoined. Formation of pseudorosettes (like Homer Wright) and pseudoalveoli, which are clusters of tumor cells around the capillaries. At high magnification, in the center of such a pseudorosette or pseudoalveolus, a lumen formed by an endotheliocyte is always found (b). Staining with hematoxylin and eosin. Magnification 200x.

Conclusion: Thus, the basic light-optical signs for the diagnosis of PNET are: diffuse nature of growth, pronounced monomorphism of cells and nuclei (among the nosological units considered in the work, this feature is most characteristic of Ewing's sarcoma and PNET), the presence of a perivascular nature of necrosis by the formation of pericytic cell sleeves. Considering the histogenetic proximity of Ewing's sarcoma and PNET, proven on the basis of molecular-genetic and cultural studies, as well as the uniformity of therapeutic approaches for these tumors, the need for differential diagnosis of them has not been justified yet. The only significant morphological feature that distinguishes PNET from Ewing's sarcoma is pronounced rosette formation.

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EPITHELIUM ULTRASTRUCTURE OF THE BRONCHI OF EXPERIMENTAL ANIMALS IN ACUTE LUNG INJURY

Abstract*: In acute lung injury (ALI), some changes that affect both the ciliary epithelium apparatus and the structure of intracellular organelles of ciliated cells and Clara cells occur in the ultrastructural organization of the bronchiolar epithelium. Thedystrophicanddestructive changes found in electron microscopy appear to be the result of an intervention with an inflammatory disease affecting not only the large bronchi butalsothebronchioles.*

Key words*: alveolar-capillary membrane, acute lung injury, endotoxemia, electron microscopic studies, ciliated cells*

Language*: English*

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Scopus ASCC*: 2700.*

Introduction

Acute lung injury (ALI) is an acute inflammation disorder that disrupts the endothelial and epithelial barriers of the lungs [2,p.24;4,p.441;5,p.1075]. The alveolar-capillary membrane consists of microvascular endothelium, interstitium, and alveolar epithelium[1,p.74]. Cellular characteristics of ALI include loss of alveolar-capillary membrane integrity, excessive transepithelial migration of neutrophils, and release of pro-inflammatory cytotoxic mediators [3,p.229; 7,p.207; 8,p.313]. Biomarkers found on epithelium and endothelium that are involved in inflammatory and coagulation cascades predict morbidity and mortality in ALI[6,p.244].

The research aimed to determine the morphofunctional reorganization of the epithelium in acute lung injury.

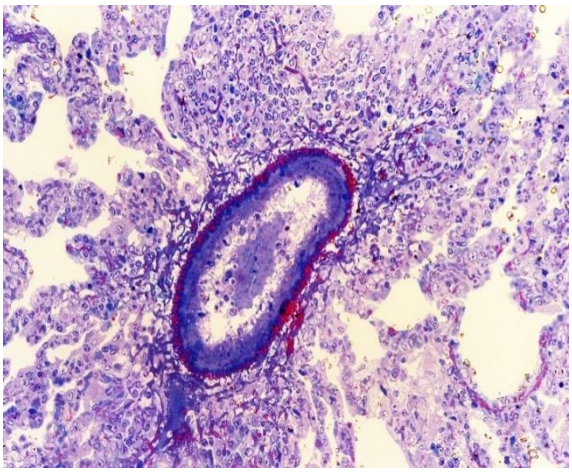
Materials and Methods

The material for the study was the distal airways (bronchioles) with a diameter of less than 2 mm, isolated from the lungs of 10 white rats, in which ALI was modeled in acute endotoxemia [1]. The animals were decapitatedunder thiopental anesthesia with calypsol. The material for electron microscopy was fixed by immersion in a mixture of 2.5% glutaraldehyde, 2.5% paraformaldehyde, and 0.1% picric acid solutions in phosphate buffer (pH = 7.4) for 15 minutes. The material obtained from the lungs of 10 healthy white rats was used as a control. Further processing of the material of bronchioles from the lungs - dehydration and filling in Araldite and Epon-812 was performed following the generally accepted method [8]. Semi- and ultrathin sections were obtained using a Leica EM UC7 ultramicrotome. Semi-thin sections (1–2 μm) were stained using trichrome staining (methylene blue-azure II- fuchsin stain) according to F. D'Amico (2005) and examined under a Zeiss light microscope (PromoStar) [7]. The images were photographed with a Canon digital camera (Japan). Ultrathin sections (50-70 nm) were stained with a 2% saturated aqueous solution of uranyl acetate, then with a 0.4% solution of pure lead citrate (Serva) in a 0.1 M NaOH solution. For viewing and photographing stained and unstained ultrathin sections, an electron microscope JEM-1400 (Japan) at an accelerating voltage of 80-120 kV was used.

Results and discussion

Total results of light-optical and electron microscopic studies on the bronchial mucosa showed that an inflammatory process with a predominance of degenerative - exudative changes had already developed in the early stages. A plethora of blood

vessels, stasis, cell clusters were observed with an admixture of more or fewer amounts of cells (macrophages, lymphocytes, leukocytes), fibrin filaments, and diapedesis. An increase in vascular permeability also occurred (Fig. 1)



Fugure.1. Predominance of degenerative - exudative changes in the bronchial mucosa
Staining: hematoxylin-eosin
MAG: 280x.

Significant alterative changes were manifested by the destruction of epitheliocytes, the accumulation of a large amount of mucus, and neutrophilic leukocytes (Figure 2).

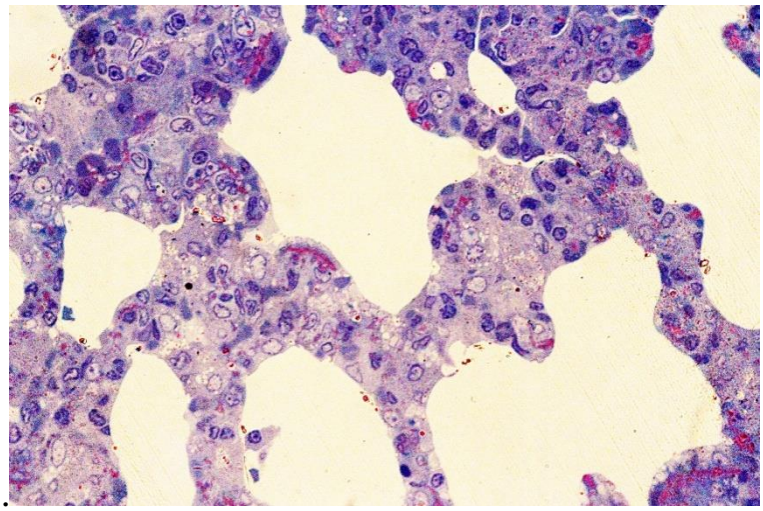


Figure 2. Significant alterative changes in the bronchial mucosa
Staining: hematoxylin- eosin
MAG: 280x.

Ultrastructural analysis of ciliated cells revealed destruction of some of the cilia. On the apical surface of ciliated cells, cytoplasmic outgrowths, resembling microvilli, 0.5 - 0.6 μm in length, appeared, at the base of which plasmalemma invaginations were determined (Figure 3).

Cells with well-developed tubules of the rough endoplasmic reticulum, which were located mainly in the supranuclear area of the cells, dominated in the ciliated cells.

Cells with fragmentation and vacuolization of the tubules of the rough endoplasmic reticulum were also identified among the ciliated cells. The Golgi complex was well developed in these cells. The cisterns of the Golgi complex were expanded and contained substrates of medium electron density. In the immediate vicinity of the Golgi complex, lysosomes with a diameter of 0.5-0.7 μm occurred, which fused with mitochondria. Clusters of numerous ribosomes and polysomeswere also found there (Figure 4).

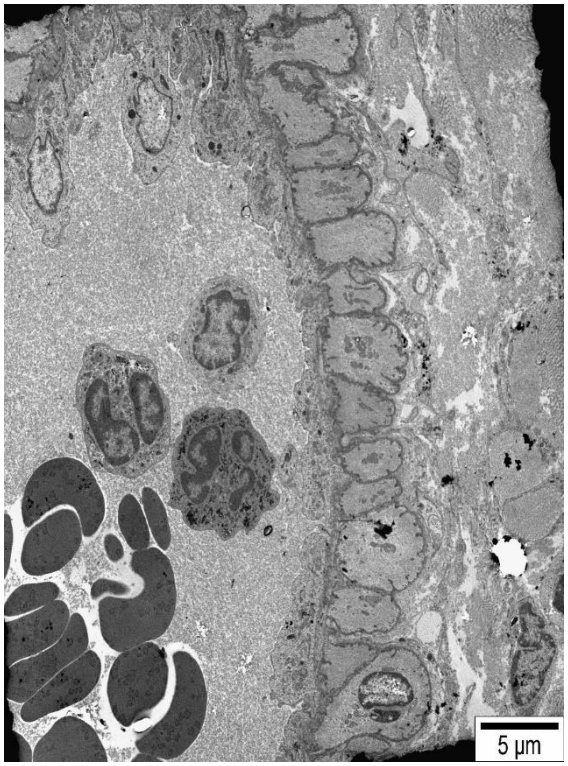


Figure 3. Electronogram. Destruction of some cilia, plasmalemma invaginations
MAG: 5000x

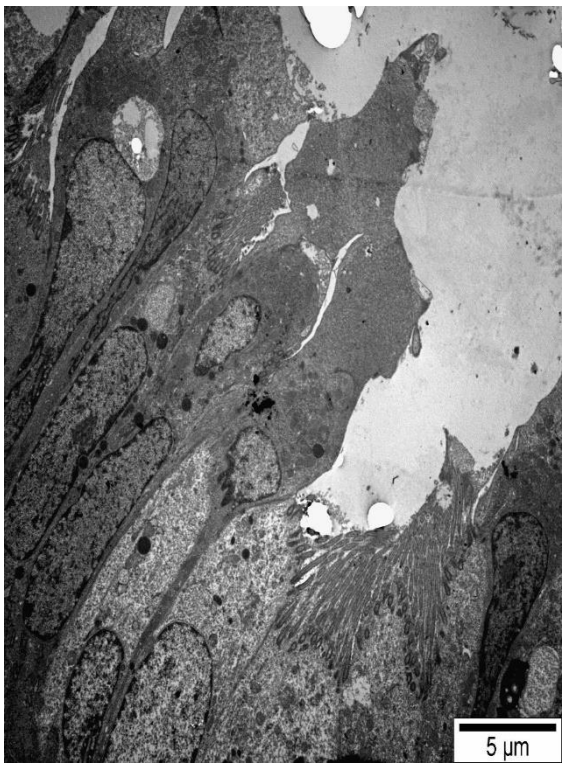


Figure 4. Electronogram. Cells with well-developed tubules of the rough endoplasmic reticulum dominated in the ciliated cells.
MAG: 5000x

The basal cells of the integumentary epithelium of the bronchial mucous membrane had a large nucleus with pronounced nucleoli; elements of the endoplasmic reticulum were few. Free ribosomes and tonofibrils were oriented along the basal membrane. Mitochondria were small and had a one-electron density matrix.

The structure of the basal membrane of the integumentary epithelium, as a rule, changed. Besides, unchanged basal membranes were found at the sites of translocation of lymphoid elements from the lamina propria of the mucous membrane.

Changes in the epithelium of the trachea and bronchi were characterized by pronounced hyperplasia of the goblet cells. Expanded cisterns of the cytoplasmic reticulum, densely covered with ribosomes, were recorded in them. The endoplasmic reticulum was surrounded by mitochondria. It should be noted that the extrusion of granules of mucoid secretion was realized by the mechanism of holocrine secretion, i.e., a part of the cytoplasm of the glandulocyte was rejected with the involvement of fragments of mitochondria and ribosomes in this process.

Under these experimental conditions, swelling of the endothelial cells of the vessels of the microcirculatory bed, leading to a narrowing of the lumen of the hemocapillaries, was noted. In this case, there were contacts between the plasmalemma of endothelial cells and formed elements of the blood with a simultaneous increase in the number of pinocytic vesicles concentrated in the apical part of the cytoplasm (Figure 5).

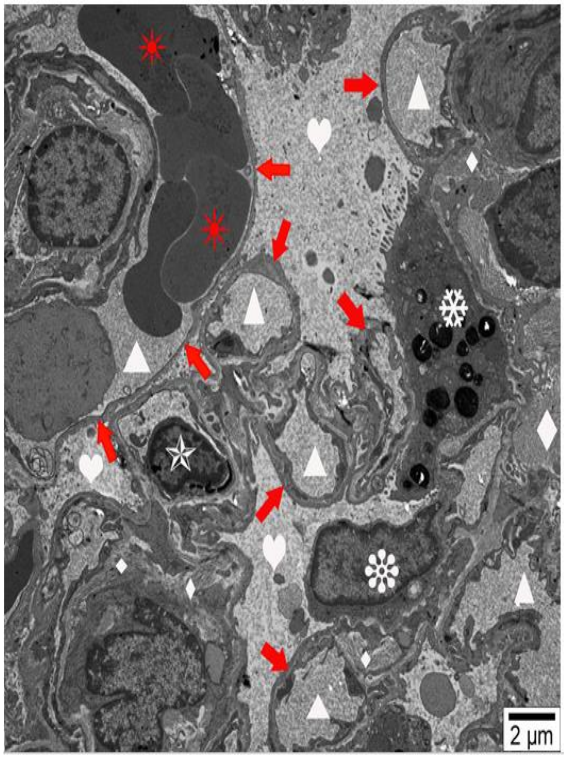


Figure 5.Electronogram. Swelling of vascular endothelial cells of the microcirculatory bed, leading to a narrowing of the lumen of the hemocapillaries. Contacts between plasmalemma of endothelial cells and formed elements
MAG: 12500x

Thus, the phenomena of catarrhal-sclerotic bronchitis developed in the walls of the intrapulmonary bronchi.In the background of local destructive processes, foci of granulation tissue with an abundance of newly formed microcirculation vessels (arterioles, capillaries) developed in the connective tissue of the lamina propria of the mucous membrane.The described changes in the walls of the bronchi were usually mosaic in nature. Their intensity increased as the diameter of the bronchi decreased, reaching a maximum in the bronchioles. Under these conditions, we also detected various morphological variants of obstructive bronchitis (catarrhal, catarrhal-sclerotic) as well as morphological signs of the inflammatory process chronization. Plasmorrhage, hemorrhages developed in the wall of the bronchi, the number of lymphocytes, plasma cells, macrophages, granulocytes, and mast cells increased significantly. Inflammatory changes were localized mainly around the end sections and excretory ducts of the bronchial glands. Very large infiltrates contained lymphocytes, as well as single eosinophils, polymorphonuclear

leukocytes, and macrophages. With the addition of purulent inflammation in the infiltrates, polymorphonuclear leukocytes predominated. The wall of the bronchioles in some cases underwent purulent fusion. As the process progressed, a significant amount of mucous and/or purulent content accumulated in the lumen of the bronchi, which aggravated the processes of bronchial obstruction.

In the long term, morphological signs of the development of severe forms of bronchitis were recorded, with a tendency to their chronization. Productive inflammation, especially in the small bronchi, ultimately leads to the transformation of the epithelium and obliteration of the bronchi with purulent masses, which in total, can result in the development of irreversible obstruction of the airways.

Conclusion

Thus, we have established facts indicating the formation of pronounced morphofunctional changes, reorganization of the epithelium of the airways leading to a tendency towards chronization of the inflammatory process in acute lung injury, in experimental animals under these experimental conditions.

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MECHANISMS FOR FORECASTING TIME SERIES OF INDICATORS OF POWER SUPPLY SYSTEMS BASED ON SOFT CALCULATIONS IN NON-STATIONARY CONDITIONS

Abstract: *Scientific and methodological foundations for the application of methods and algorithms for data mining based on neural networks, fuzzy sets and fuzzy inferences, neuro-fuzzy networks, and genetic algorithms have been developed and implemented. As tools for the analysis and forecasting of time series of random processes, optimization mechanisms for determining and setting the parameters of genetic operators, dynamic identification models are proposed. The results of the study were obtained by solving forecasting problems in real conditions.*

Key words: *fuzzy inference, fuzzy logic, neural network, neuro-fuzzy network, genetic algorithms, forecast, time series.*

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Introduction

Relevance of the topic. Important tasks of creating, improving, developing methods and algorithms for data mining (ADM) and optimizing the forecasting of time series of non-stationary processes are the selection of informative features, finding empirical patterns of various types, building analytical descriptions of sets (classes) of objects, finding critical cases and generating descriptions of reference examples [1,2].

The tools of technologies for intellectualization of information processing of non-stationary objects make it possible to find such regularities independently and build hypotheses about relationships to ensure time series forecasting with high accuracy at minimal material and time costs [3,4].

However, most ADM algorithms, when identifying and evaluating relationships in data, use the concept of averaging over a sample, which often leads to operations on non-existent values, and operate with long historical data. The key objectives of this study are the following [5]:

– development of efficient algorithms for data analysis and processing, forecasting systems in interactive and integrated environments;

- the use of methods of the mathematical apparatus of soft computing, formed to solve complex applied problems and obtain various applications;

– designing the latest areas of application of problem-oriented ADM systems embedded in various

services, as well as including tools for specific application tasks;

– implementation of ADM systems in the form of an easily interpretable and unified framework that provides reliability, adaptability and high performance of data processing.

In this paper, we have developed time series forecasting mechanisms based on NN, neuro-fuzzy networks (NFN) and genetic algorithms (GA), which, compared with traditional methods, have advantages that differ in mechanisms: finding acceptable solutions, avoiding local extrema, data transformation, application probabilistic rules and the search for randomness in optimizing the solution of high-dimensional problems.

Time series forecasting based on NN, NFN with GA. Algorithms and computational schemes for determining the appropriate activation function, coefficients of synaptic connections, rational architecture of the neural network, calculation of weight coefficients, and the number of neurons in layers during training of the neural network have been developed to build ADM systems for non-stationary objects based on NN [6,7].

For the development of the use of ADM systems, an important issue is the optimization of identification and approximation of complex non-stationary objects with discrete time based on the determination and tuning of the parameters of the NN model using GA [8,9].

The mechanisms of genetic parameter tuning are built on the basis of the following rules:

- "adaptive mutation", which makes it possible to sharply increase the level of mutation in the case when there is a deterioration in the quality of the GA;

- an increase in the level of mutation after a decrease in the average value of the quality function is recorded;

- using a small mutation and changing only the last bits of the binary encoding of the real number.

If this does not lead to an increase in the average value of the quality function within a given time of the population of an individual, then the range of the local search is increased by mutating more bits; adaptation of the level of mutation and the probability of crossing, which are regulated when performing GA. Let a sample of fuzzy data be given

$$(X_r, y_r),\ r=\overline{1,M}, \tag{1}$$

where is $X_r=(x_{r1}, x_{r2},...,x_{rn})$ the input n -dimensional vector;

$y_r=(y_1, y_2,...,y_M)$ – is the corresponding output vector.

The NFN model based on fuzzy inference rules is given as

$$\bigcup_{p=1}^{k_j}\left(\bigcap_{i=1}^{n} x_i = a_{i,jp} - c\ весом\ w_{jp}\right) \to y_j = b_{mo} + b_{m1}x_1^j + ... + b_{mn}x_n^j . \tag{2}$$

The coefficients $B=(b_{ij})$, $i=\overline{1,m}$, $j=\overline{0,n}$, are found such that the minimum of the expression is reached

$$\sum_{r=1}^{M}\left(y_r - y_r^f\right) \to \min, \tag{3}$$

where is y_r^f – the result of fuzzy rules with the parameter B in the r th line (X_r).

The input matrix X_r corresponds to the result of the following fuzzy inference

$$y_r^f = \frac{\sum_{i=1}^{m}\mu_{d_i}(X_r)\cdot d_i}{\sum_{i=1}^{m}\mu_{d_i}(X_r)}, \tag{4}$$

where is $d_i = b_{i0} + b_{i1}x_{r1} + b_{i2}x_{r2} + ... + b_{in}x_{rn}$ the NFN output according to the i -rule;

$\mu_{d_i}(X_r)$ – is the membership function (MF) corresponding to each input variable:

$$\mu_{d_i}(X_r) = \mu_{i1}(x_{r1})\cdot\mu_{i1}(x_{r2})\cdot\mu_{i1}(x_{r3})\cdot....\cdot\mu_{i1}(x_{rn}) \vee$$
$$\vee\ \mu_{i2}(x_{r1})\cdot\mu_{i2}(x_{r2})\cdot\mu_{i2}(x_{r3})\cdot....\cdot\mu_{i2}(x_{rn}) \vee\ ...$$
$$... \vee\ \mu_{im}(x_{r1})\cdot\mu_{im}(x_{r2})\cdot\mu_{im}(x_{r3})\cdot....\cdot\mu_{im}(x_{rn}),$$
$$\beta_{ir} = \frac{\mu_{d_i}(X_r)\cdot d_i}{\sum_{i=1}^{m}\mu_{d_i}(X_r)}. \tag{5}$$

Let's rewrite (8) in the form:

$$y_r^f = \sum_{i=1}^{m}\beta_{ir}d_i = \sum_{i=1}^{m}\left(\beta_{ir}\cdot b_{i0} + \beta_{ir}\cdot b_{i1}\cdot x_{r1} + \beta_{ir}\cdot b_{i2}\cdot x_{r2} + ...\beta_{ir}\cdot b_{in}\cdot x_{rn}\right). \tag{6}$$

Let us introduce the following notation:

$$Y^f = \left(y_1^f, y_2^f, ..., y_M^f\right)^T,$$
$$Y = (y_1, y_2, ..., y_M)^T.$$

Let us rewrite problem (3) in matrix form so that the condition

$$E = \left(Y - Y^f\right)^T \cdot \left(Y - Y^f\right) \to \min. \quad (7)$$

At each moment of time, the current population of chromosomes is identified with a population - a complex of points in the search space, and in addition, in contrast to the traditional genetic operators of mutation, crossing and selection in this case, a complex of search operators is additionally introduced, such as selection, reflection, stretching and compression [10,11].

Optimization of time series forecasting based on GA. For optimization, it is required to find the minimum of some function

$$E(x) = \sum_{r=1}^{M} \left(y_r - y_r^f\right)^2 \to \min. \quad (8)$$

Fuzzy GA is performed from the formation of a complex of initial values

$$x_i(0) \to \begin{pmatrix} x_1(0) \\ x_2(0) \\ \vdots \\ x_N(0) \end{pmatrix} \to \begin{pmatrix} x_{11}(0) & x_{12}(0) & \dots & x_{1n}(0) \\ x_{21}(0) & x_{22}(0) & \dots & x_{2n}(0) \\ \vdots & & & \\ x_{N1}(0) & x_{N2}(0) & \dots & x_{Nn}(0) \end{pmatrix}, \; i = \overline{1, N} \geq n+1$$

which is a population of chromosomes, rather arbitrarily located in the -dimensional search space.

Next, the selection operation is performed, then crossover and mutation, and a new population of chromosomes $x_i(1)$ is obtained, after which the selection operation is performed [12,13].

At this stage, the value of the suitability function (fitness) in all chromosomes is calculated and the average fitness of the population is found

$$E_{\text{average}} = \frac{1}{N} \sum_{i=1}^{N} E(x_i(k)). \quad (9)$$

Chromosomes with a fitness function less than the average for the entire population are replaced by the best ones [14,15].

Moreover, if $E_{\text{average}} < E(x_i(k))$, and $x_i(k+1) = x_i(k)$, then

$$\min_{i=1,N} (E(x_i(k))). \quad (10)$$

From the set of these chromosomes, the worst is found - $x_i(1)$, in which the value of the function $E(x_H(1))$ is maximum.

Then this point is reflected through the center of gravity of all other vertices - points, forming a new complex , $x_i(1)$, $i = \overline{1, N}$.

Such a reflection, together with stretching and compression, ensures the movement of the fuzzy GA to the extremum of the function $E(x)$.

Due to the random distribution of chromosomes in the population, the search is global in nature [16].

Consider the optimization process at the k th iteration of the search, when the complex $x_i(k)$, $i = \overline{1, N}$.

We assume that among the set $x_i(k)$ there is the worst chromosome such that

$$E(x_H(k)) = \min_i \{E(x_1(k)), ..., E(x_H(k))\}. \quad (11)$$

The center of gravity of a population without the worst point is defined as

$$x_{cj}(k) = (x_{1j}(k) + x_{2j}(k) + ... + x_{Nj}(k) - x_{Hj}(k))/(N-1), \; j = \overline{1, n}. \quad (12)$$

Next, $x_H(k)$ is reflected through the center of gravity $x_c(k)$.

The new vertex of the $x_R(k)$ complex is located closer to the extremum than $x_H(k)$ and $x_c(k)$, etc

$$E(x_R(k)) < E(x_c(k)) < E(x_H(k)).$$

The GA reflection operator can be written in the form

$$\begin{aligned} x_R(k) &= x_c(k) + \eta_R(x_c(k) - x_H(k)) = \frac{1}{N-1} x_1(k) + ... + \frac{1}{N-1} x_{N-1}(k) + \\ &+ \frac{\eta_R}{N-1} x_1(k) + ... + \frac{\eta_R}{N-1} x_{N-1}(k) - \eta_R x_H(k) = X(k)R, \end{aligned} \quad (13)$$

where is η_R – the parameter of the reflection operator, assumed to be equal to one;

If the reflection of the vertex $x_R(k)$ is the best among all other populations of chromosomes

$$E(x_R(k)) < E(x_i(k)) < E(x_H(k)),$$
$$i = 1,2,...,N-1,$$

then the stretching operation is performed in the direction from the center of gravity $x_R(k)$ to $x_H(k)$.

When $x_E(k) = x_c(k) + \eta_E(x_R(k) - x_c(k)) = X(k)E$, where η_E is a parameter of the stretch operator, is often set equal to two, then the fitness function is defined as

$$E = \left(-\eta_E, \eta_R, \frac{1-\eta_E(1-\eta_R)}{N-1}, ..., \frac{1-\eta_E(1-\eta_R)}{N-1} \right)^T. \quad (14)$$

If $x_R(k)$ turns out to be the worst among all $x_i(k)$, then the contraction operator according to $x_S(k) = x_c(k) + \eta_S(x_R(k) - x_c(k)) = X(k)S$ will be written as

$$S = \left(-\eta_S, \eta_R, \frac{1-\eta_S(1-\eta_R)}{N-1}, ..., \frac{1-\eta_S(1-\eta_R)}{N-1} \right)^T, \quad (15)$$

where η_S –is the compression step parameter, which is usually set equal to 0.5.

In the process of its movement to the extremum, a GA with an optimized fitness function at each iteration loses one worst vertex in the graph search model. Acquires one new point so that at the $(k+1)$ th iteration, the new adjusted graph search model also has N vertex points.

Thus, the theoretical results obtained form the scientific and methodological basis of time series forecasting algorithms in automated power supply systems of a large region of the Republic of Uzbekistan, which operate on the basis of NFN and GA tools. The results are also recommended for solving problems of recognition, classification of non-stationary objects, ensuring the reliability of information in electronic document management systems.

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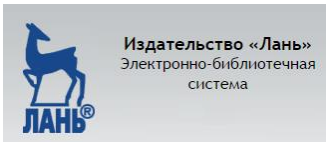

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