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Issue Article

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ON THE IMPORTANCE OF THE PHILOSOPHICAL COMPONENT FOR A SUCCESSFUL STRATEGY FOR MANAGING THE QUALITY OF MANUFACTURING PRIORITY PRODUCTS

Abstract: *In the article, the authors analyzed the state of the market in the regions of the Southern Federal District and the North Caucasus Federal District, confirmed the presence of a significant shortage of shoes, which justifies the expediency of forming enterprises and consumers in these regions. At the same time, we were able to form the entire product range that would satisfy the needs of consumers in these regions, with the rationale that it will be in demand and competitive through the formation of innovative technological processes using a quality management system to ensure quality management, forming its advantages over other manufacturers and ensuring the realization of consumer preferences. In addition, by forming preferences among consumers in these regions, business leaders significantly improve the socio-economic situation in these regions.*

Key words: *enterprises, consumers, regions, assortment, assortment policy, competence, preference, production management, product quality, demand, competitiveness, stable financial position, stable TEP, demand, profit, innovation, quality, means, person, social factor, reasonableness, prudence , evolution, education, reality, actuality, criterion of reasonableness, criterion of reasonableness.*

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Introduction

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It is not God who lays down historical routes, they are not developed a priori, they have to be laid, mastering a new historical space. The professional traveler does not hide behind the laws of nature, exploring the unknown. And politicians should show an innovative approach, improve the legal order of things. Laws are not absolute, they reflect reality generalized in legal terms. Politics, on the other hand, is the art of managing a historically specific, time-changing reality. Situational thinking is important here. Realizing that it is impossible to build a new industry, to activate agricultural production without free access to maritime transport, the first Russian emperor resorted to extreme measures. In our time, there is no such need - thanks to Peter I - which makes the fate of politicians easier,

Russian laws regulate the market space. The market space is a legally formalized reality, built conditionally according to the formula “this is how it should be”, and this does not mean at all that it is and will be so.

Main part

The actual market reality is built as an environment of interdependent coexistence of the manufacturer, the seller (if the manufacturer does not act as such) and the buyer-consumer (the inclusion of a reseller is highly undesirable). The market liberals led by Y. Gaidar created an imaginary market, an ideal object outside the historical context, and therefore did not reform, but destroyed the country's economy. Yeltsin and the company legalized looting. The economy that did not fall victim to the shock was thrown like a bone from the master's table to ordinary bandits, thieves and swindlers. From the economic hell of the 1990s, only those who least of all considered the law and conscience emerged alive, strong and rich. That is why the economic collapse was followed by a spiritual crisis that continues to this day.

Quality, properties, measure, before the appearance of human interest in them, were just objective natural characteristics of things, the processes of their formation and transformation. The accumulation or reduction of quantity led to a critical mass - the border of "qualitative quantity". The measure that characterizes the quantitative interval - the limits of the development of quality, warned that further change is advisable only in a different qualitative expression. Of course, quantity in itself is not capable of turning into quality. The new quality emerges from the old quality. And the way to change quality is different from the way to change quantity. Quantitative changes are continuous, qualitative ones, by definition, are discrete.

The emergence of human activity has significantly changed the understanding of the quality and associated characteristics of being. Social-historical processes were added to the natural historical processes of the development of nature. Man actively began to restructure the natural prerequisites of his being, considering them as a raw material base for the struggle for his own existence. It should never be forgotten that the essence of man is practical. F. Engels was absolutely right when he asserted: man, of course, is a creative being, but before creating and surprising, he must eat, drink, dress, put on shoes and have a reliable roof over his creative head. He does not find what is necessary in ready-made form in nature, therefore the foundation of human existence and his progress will always be practical activity, material production in all its diversity of directions.

To two objective, natural dimensions of quality - natural properties and dimension, a third is added - an assessment of quality in the projection of the needs of human existence, combining objective and subjective principles. Historically, the range of quality media has changed. Today, it includes, along with the quality of objects of the material world, the quality of raw materials, semi-finished products, final forms of commercial products, software products, phenomena of spiritual culture, the most creative activity of people and ways of preparing for it - the quality of vocational education.

On the way of our knowledge, the contradictions of the world have set many traps. They are calculated both on the weaknesses of our psyche and on the “inclinations” of the intellect. In an effort to understand quality, one-sidedness and inconsistency are especially dangerous.

Figure 1. Assortment of women's shoes (models 1 - 3)

Figure 2. Assortment of women's boots

Table 1. The cost of organizing an advertising company

Name of service	Service cost
TV advertising: - video - ticker	 1500 rub/week 10 r/word (week)
Flyers	10 r/sheet
Shop sign	25000 r
Press advertising	70 rub/week

For example, let's calculate the cost of an advertising campaign and the creation of an Internet site for enterprises in the city of Shakhty (table 3).

In general, advertising costs for businesses amount to 2% of the production cost and are included in the costing item "Sales expenses". At the same time, advertising costs will pay off, because. the volume of sales of the company's products will increase by an average of 3%.

One of the effective types of advertising is outdoor advertising, which means include:

- poster advertising;
- liquid crystal screens;
- transport advertising.

The best options for outdoor advertising are a simple drawing, the use of contrasting colors and the use of sans-serif fonts.

The advantages of outdoor advertising include flexibility, a high rate of repeat contacts, low price, lack of competition.

In this regard, I would like to note an interesting fact - men always pay attention to the purple color, because they associate it with the color of war, and women to yellow - for them it is the color of the sun.

Table 3. Calculation of advertising campaign costs

Name of indicator	Amount, thousand rubles
Advertising companyfilming a video ticker printing leaflets payment for the services of leaflet distributors (5 people)	 58.8 (for 1 year) 120.0 (for 1 year) 75.0 50.0
Website creationpayment for web-designer services payment for Internet provider services monthly hosting	 8.0 10.0 6.0 (for 1 year)
TOTAL	329.14

An analysis of literary sources showed that in Russia the share of TV advertising in recent years has been about 30-40% (for comparison, TV advertising in Norway is only 1.5%). There is an assumption that it will significantly decrease due to the new Federal Law "On Advertising". In the new law, in comparison with the previous law of July 18, 1995, the concepts of unfair and false advertising are more clearly defined (both are not allowed).

An advertisement that contains information that does not correspond to reality is recognized as unreliable, for example:

- about the advantages of the advertised product over the goods in circulation, which are produced by other manufacturers or sold by other sellers;
- about any characteristics of the product, including its nature, composition, method and date of manufacture, purpose, consumer properties, conditions for the use of the product, its place of origin, the presence of a certificate of conformity or a declaration of conformity, marks of conformity and marks of circulation on the market, service life, shelf life of the goods;
- about the cost or price of the goods, the procedure for its payment, the amount of discounts, tariffs and other conditions for the acquisition of goods;
- on the results of research and testing;
- about the actual amount of demand for the advertised or other product;
- about the rules and terms of holding a stimulating lottery, contest, game or other similar event;
- about the manufacturer or seller of the advertised product, etc.

In the light of the events of recent years, it should be noted that the new law does not allow the use of

swear words, obscene and offensive images, comparisons and expressions in advertising, including in relation to gender, race, nationality, profession, social category, age, language person and citizen, official state symbols (flags, hymns, coats of arms), religious symbols, cultural heritage sites (monuments of history and culture) of the peoples of Russia, as well as cultural heritage sites included in the World Heritage List.

The new law "On Advertising" noticeably reduces the maximum daily amount of television air time devoted to advertising. Significantly increased administrative fines for violation of advertising legislation.

To increase the competitiveness of light industry goods, enterprises that produce it should not be afraid to use such a powerful weapon in the business world - advertising.

Leather craft is one of the oldest in Russia and in the world, but at the same time, it attracted the attention of ethnographers and archaeologists less than other ancient industries. The inhabitants of the warm regions of Africa (Akka and Bushmen) have been making furs since ancient times, and the Indians made them for 3 thousand liters. BC (used as a cover - protection from the cold). Geographically, it is almost impossible to determine the place of origin of human use of fur and leather. It is known that the descendants of the Paleolithic man, the Fuegians and Patagonians, wore undressed furs, and sewed them together with belts. Some Hyperboreans of Asia, Europe and America did the same. The Yakuts cut off the leg parts of the animal skin and, without dressing, wore it as shoes. Herodotus (V century BC) indicates that the Scythians wore furs, and Tacitus (I century AD) writes that the Germans dressed in the same way, Finns and Northern Slavs…. The 16th century was not easy for the Russian state. Serfdom, which hindered the development of productive forces in the rural peasant economy, and the growth of feudal oppression led to the beginning of the development of handicrafts, commodity production and trade. In settlements located on important trade routes for the Russian state, handicrafts and handicraft industries began to actively develop. One such example is the village of Kimry, located at the confluence of the Volga and Kimrka rivers. The first mention of it refers to 1546 (letter of John the Terrible). Being on a busy waterway, connecting it with almost any corner of the country, gave the local residents involved in shoemaking the opportunity to market their products and contributed to the development of the craft itself. The origin of the shoe industry in those parts is due to the abundance of sources of raw materials: the locals were engaged in fishing, hauling and pilotage, and such cities of the upper Volga basin as Yaroslavl, Uglich, Torzhok have been famous for centuries for the production of leather. Already in 1635, there were 6 shoemakers' yards in Kimry. An interesting fact is that in the early 16th century, when the ancient field tax was replaced by a poll tax, the payment of the poll tax for the Kimryaks was transferred either to money or to boots.

All this led to the fact that by the middle of the XVII century. more than half of the peasant families in Kimry were engaged in shoemaking. Since that time, shoemaking began to cover entire volosts of the neighboring counties surrounding Kimry, thus, a “shoe kingdom” arose, the capital of which was the village of Kimry.

By the middle of the XVIII century. handicraft production gradually develops into manufactories, and Kimry becomes a kind of center for the shoe industry of a rather vast territory. I would like to note that, unlike the typical capitalist manufactory, based on the unification of the labor of workers, the dominance of manual labor and its division within the workshop, the peasant manufactory of that time had distinctive features. Here, as it were, the features of serfdom and the emerging capitalist relations were intertwined. The workers of the manufactory were at the same time serfs. The owner himself was also a serf. The landowner, the owner of the patrimony, was considered the legal owner. Therefore, all transactions at the enterprise were concluded on behalf of the landowner. But, despite this, in the hands of those who were engaged in practical guidance. Considerable capital was accumulating.

In the 17th century in Rus', mainly shoes were made from yuft. It was applied in one piece, hood. In order for the shoes to last longer, leather soles were made of two or three layers and were lined with iron horseshoes. Similar boots were widespread in the XVIII century. Under Peter I, with the creation of a regular army, its equipment required special quality shoes. The Kimry shoemakers had to fulfill military orders. To do this, they needed to master a previously unknown technology and, in addition, learn how to sew shoes according to the samples sent. Military boots and boots were made on a hard sole with a hard back (to protect against deformation and rapid wear of the upper material) and a hard toe cap (to maintain the shape of the shoe and protect the toe). The heel appeared why the sole in the shank part was reinforced by a special part - the shank. Over time, the skill of the Kimry craftsmen improves. This was largely facilitated by otkhodnichestvo, when many shoemakers went to Moscow, St. Petersburg in search of work. The capital's craftsmen owned higher technology, fulfilling the exacting orders of clients of the wealthy classes. For centuries, the skills of skilled shoemakers have been developed.

An interesting case is described by V. Gilyarovsky in the work “Moscow and Muscovites”: “There was a police chief Luzhin in Moscow in the sixties, a passionate hunter who kept his kennel near Moscow. Boots with paper soles were handed to him on the Old Square, and he complained about this to his master .... Luzhin sent him to find out the details of this trade. Soon the hunter came and reported that

today early on the Old Square ... they brought several cartloads of shoes from Kimry.

Luzhin, taking a squad of police with him, rushed to Old Square and unexpectedly surrounded the warehouses of shoes indicated to him ... Luzhin ripened at the very time when shoes were dumped from the wagons into warehouses. Everyone was arrested: both the owners of the warehouses, and their trustees, and the buyers and sellers of shoes who arrived from Kimry with carts. Having sealed the goods and warehouses, Luzhin sent the arrested to the city police station, where the musketeers flogged both the owners of the warehouse and the Cymrian merchants who brought the goods.

The merchants swore under the rods that they would never trade such goods, and the Kimryans, after a severe flogging, vowed that not only they themselves, but their children, grandchildren and great-grandchildren, would order, under pain of a father's curse, to put paper soles.

And, indeed, the Kimryaks began to work honorably, on paper soles, until the Turkish war of 1877-1878. was not heard. But during the Turkish war, the children and grandchildren of the Kimryaks were “engaged in a bad deal,” as they explained in court, by army suppliers who gave huge orders for the manufacture of boots with paper soles. And soldiers in torn boots climbed the snows of the Balkan and Caucasian and died from a cold ... And again, since then, paper soles have gone.

By the end of the XIX century. Shoe production in Kimry reached its highest dawn. By this time, it covered 35 volosts of Kimrsky, Kashinsky and Kalyazinsky districts of the Tver province. This shoe region was called the "kingdom of shoes."

A great influence on the further development of the Kimry shoe production was made by the open at the beginning of the 20th century. Sverdlovsk railway, connecting Kimry with Moscow. In this regard, the turnover of local trade almost doubled. Gradually, capitalist manufacture began to outlive itself. The factory form of production was born.

In 1903-1906. merchant A.N. Stolyarov is building a brick factory building. The factory, called "Anchor", in March 1907 produces its first products. In the same 1907, the factory produced 20 thousand pairs of shoes, the number of workers was 64 people. Constantly expanding, by 1913 the output was already 121.2 thousand pairs with 286 workers.

During the First World War, orders for military footwear increased sharply. Factory "Anchor" entered into millions of contracts for the tailoring of boots and shoes. However, the war undermined the Russian economy: at the end of 1916, the country was going through an acute crisis. When news of the revolution in St. Petersburg reached Kimr in February 1917, dual power arose in the village. At the beginning of April, a branch of the trade union of tanners was organized at the Yakor factory.

Shortly after the October Revolution, on November 14, 1917, the government issues the "Regulations on Workers' Control", which must be carried out by factory committees. And in the summer of 1918, first large, then medium-sized industry of the country was nationalized. Despite the lack of raw materials, fuel, food, the enterprise continued to work even in the conditions of the civil war. In the same year, 1918, the Kimrsky Museum of Local Lore was founded - a branch of the Tver State United Museum.

In 1920, the factory received an urgent and secret order for the production of boots of a special special cut for the front. In 1923, the factory was renamed "Red Star", this name has been preserved to this day. According to the census of the small handicraft industry of 1925, the share of shoe and shoe production in terms of the number of trade farms was:

RSFSR 4.88%,

Central industrial region 16.13%,

Tver province 72.63%,

Total in the USSR 3.18%

During the Great Patriotic War, the factory supplied the Soviet Army with footwear, and in the post-war years it switched to civilian production. Gradually, the factory expanded, new production buildings were built and launched, new equipment was introduced, technology was improved .... Having survived the years of wars and perestroika, the factory continues to function at the present time.

The permanent exposition of the Kimrsky Museum of Local Lore, the area of which is 752 sq. m, introduces visitors to the history of the region from ancient times to the present day. The richest collection of Kimry shoes of the 16th-20th centuries, photographs, documents and unique wooden sculptures by I.M. Abalyaev, depicting scenes from the life of handicraftsmen-shoemakers.

The condition for the consumer to choose a product in a large assortment offered on the market is the coincidence of its technical parameters with the conditional characteristics of the forecasted demand. From this point of view, the enterprise management strategy should be built on the principle of a "tracking system" with feedback, i.e. it must provide consumers with products that meet their specific requirements for quality and related service when it is sold, while constantly monitoring the degree of such satisfaction (see figure 6).

Tracking the quality of goods and related services consists of two stages. At the first stage, the manufacturer, through marketing, studies consumer expectations in terms of the quality of products and services for its promotion. Based on this information, functional specifications for new products and service quality are determined, which will depend on the ability to determine customer expectations and the ability to adapt production technologies to changing customer expectations.

The second stage consists in the periodic "measurement" of the mismatch between the actual

and expected level of product quality and related services. In accordance with the magnitude of the mismatch, the activity of the enterprise should be aimed at developing control actions on organizational and technological units in order to reduce the discrepancy and introduce new methods for assessing quality parameters.

$$W = \langle X, P, A \rangle \quad (1)$$

where X is the set of possible solutions (objects) such that x∈*X*- an element of this set, given on X by means of some rules for the technology of manufacturing and distributing goods; P is a countable set of quality indicators and their corresponding measurement scales; A is an evaluation algorithm that implements the logic of comparative evaluation of alternatives in the form of "better-worse".

Any solution x∈X is represented by the vector P(x)(P1(x),..., Pm(x)) in the m-dimensional space of quality indicators defined as the Cartesian product P P1 ... Pm Rm, where Pj, (j=1, m) is the set of admissible values of the j-th indicator, which is a subset of the set of real numbers R.

Evaluation of product quality consists in determining the degree of compliance of the evaluated object with the purpose of its functioning. The goal can be set indirectly - with the help of a "standard" of quality. The standard of quality is the set {Pjd} of the basic values of the indicators of the quality of production and marketing of products, which to the greatest extent satisfy the expectations of consumers.

The numerical representation of the quality level can be represented by a tuple (2):

$$R = \langle \varphi\ A, P, P_{\delta} \rangle \quad (2)$$

where R is a mapping of the set PP Rm onto the set of real numbers R, i.e. A is a multidimensional scale for assessing the level of quality. Whence it follows that WX,P,P , , for any x∈X sets a number depending on the position of the point (vector) P(x) (P1(x),..., Pm (x)) in the space of quality indicators. When assessing the quality level, several types of scaling are used.

1. Relationship scaling. It consists in determining the relative quality indicators j Pj /Pj , which determine how many times the evaluated object is better or worse than the base one in terms of the j-th quality indicator (j=1,m). The scaling operation is also a normalization operation.
2. Difference scaling with normalization. It consists in presenting the assessment of the quality level according to the j-th quality indicator in the form (P Pj)/Pjδ, where the coefficient expressed as a percentage ω shows how the estimated object is better or worse than the base one.
3. Multidimensional scaling. Based on the definition of the generalized indicator W, where $\omega = (\omega_0, \dots, \omega_m)$ is a vector of relative quality indicators.

The generalized indicator characterizes the degree of compliance of the object with its purpose. Thus, we arrive at an algorithm for assessing the level of product and service quality in each specific case. The algorithm for a comprehensive assessment of the quality level is shown in Figure 7.

At the final stage when making a decision, firstly, it is necessary to decide how acceptable the result is (whether the accuracy and reliability of the assessment is acceptable). If it does not meet the requirements, a decision may be made to conduct a re-evaluation, additional studies to obtain new information, etc. If the result is objective enough, appropriate decisions are made depending on the objectives of the assessment. For example, if the goal of evaluating the quality of several possible product options is to select the one that best meets the needs of consumers, then the option that received the highest rating can be accepted for production.

Forecasting quality costs when developing a new range of shoes.

To a large extent, the reason for the non-competitiveness of domestic footwear was the erroneous methodology for measuring and evaluating its quality. The problem lies in a certain discrepancy between the assessment of the quality of footwear designed at the development stage, formed at the production stage and verified during the final control before implementation with the consumer quality assessment. The gap between real quality and consumer requirements has a significant impact on consumer preferences and, consequently, on competitiveness. The smaller this gap, the higher the competitiveness of shoes. The difficulty lies in the fact that when evaluating the quality of shoes, the consumer is guided to a large extent not by quality indicators regulated by regulatory documents, but by his own tastes and ideas about what shoes should be And sometimes the idea of quality among many consumers is superficial, at the level of mainly organoleptic indicators, which do not always fully and objectively characterize shoes.

Very often, the need to assess competitiveness arises even before the appearance of new products, i.e. at the design and development stage. Since the level of costs during the period of consumption and operation by more than 80% depends on the characteristics of footwear laid down at different stages of its development. At the stage of detailed design and development of a prototype, the designer can influence the reduction of no more than 15% of these costs, and when the product is put into production, this indicator can be changed within only 5%.

Therefore, at the pre-project stage of creating new products, a multi-variant forecast should be developed, which is information about the possible technical implementation and the timing of achieving the identified goal.

In this regard, the task of studying the characteristics of consumer demand for footwear is the main one for improving the quality and competitiveness of products. It is necessary to establish by what criteria the buyer evaluates the quality, because he will try to purchase shoes with a combination of properties that he desires.

In order to assess the significance of indicators of consumer quality of footwear at the stages of its design, production and sale, we used an expert method of personal assessments - ranking, which allows us to sufficiently take into account the opinion of both shoe manufacturers and potential consumers.

Experts are invited to rank the totality of factors that determine the consumer quality of footwear. The original ranks are first converted like this:

$$R_j = \sum r_{ij}, \quad (3)$$

where Rj sum of transformed ranks for all experts for factor j; rij the transformed rank assigned by the i-th expert to the j-th factor; m is the number of experts; n is the number of factors. Then the weights of the factors are calculated:

$$R_j = \sum_{i=0}^{m} r_{ij}, \quad (4)$$

$$w_j = \frac{\sum_{i=0}^{m} w_{ij}}{\sum_{i=0}^{m}\sum_{j=0}^{n} w_{ij}}, \quad (5)$$

where W j is the average weight of the j-th factor over all experts.

The group of experts, consisting of 100 people, was divided into two groups during the survey: consumers and manufacturers. A number of requirements were imposed on the candidacy of the survey participant from the group of manufacturers:

-special education;

-position held;

-seniority.

To search for experts, leading specialists from shoe enterprises in the cities of the Southern Federal District were involved: Shakhty, Rostov-on-Don, Krasnodar, Volgograd, etc. To work as experts, teachers of the Department of Technology of Leather Products, Standardization and Certification of the South Russian State University were also involved economy and service.

During the survey, the experts ranked the indicators according to the degree of importance, i.e.

According to the degree of their influence on the quality of shoes. As an object of study, women's shoes were chosen - boots of the autumn-spring assortment.

During the survey, the experts were offered a questionnaire containing factors that affect the quality and competitive advantages of footwear at the stages of design, production and sale (table 4).

Table 4. Questionnaire

Factors	Rank
1	2
Shoe design stage	
X1 - compliance with fashion trends	
X2 - the shape of the toe	
X3 - heel shape	
X4 - heel height	
X5 - sole thickness	
X6 - shoe upper blank design	
X7 - model design	
X8 - color solution	
X9 - shoe flexibility	
Shoe production stage	
X1 - type of top material	
X2 - type of bottom material	
X3 - the quality of the connection of the top parts	
X4 - the quality of the workpiece of the upper shoe	
X5 - stiffness of the toe	
X6 - back stiffness	
X7 - fastening strength of the bottom parts	
X8 - the quality of the bottom finish	

Shoe sales stage	
X1 - attractive appearance	
X2 - product novelty	
X3 - weight of shoes	
X4 - price	
X5 - brand prestige	
X6 - advertising	
X7 - services	
X8 – packaging quality	

The respondents were asked to arrange the factors in descending order of the degree of their influence on the quality and competitiveness of footwear (rank), i.e. the factor that the expert considers the most important gets a higher rank - 1, and the rest - according to the degree of reduction of their influence on the competitive advantages of footwear, those. 2, 3 seats, etc. If the expert could not make a decision on assigning a place to two or more adjacent factors, then he assigned them the same rank.

Processing of the results of the expert survey was carried out on a PC using a special program "RANG". The nature of the distribution of ranking results indicates that the opinions of consumers and manufacturers, acting as experts, agree on many points.

At the design stage, significant quality indicators were established: compliance with fashion trends - X1; toe shape - X2; heel shape - X3; heel height - X4; shoe upper blank design - X6; model design - X7. Less significant: color scheme - X8; shoe flexibility - X9; sole thickness - X5. After statistical processing of the results of the expert survey, it turned out that all of the above factors remained significant.

At the production stage for manufacturers and consumers, significant factors are: type of top material - X1; type of bottom material - X2; the quality of the connection of the top parts - X3; the quality of workmanship of the workpiece of the top of the shoe - X4; fastening strength of bottom parts - X7; back stiffness – X6; the quality of the bottom finish is X8.

At the implementation stage, significant indicators of footwear quality for all experts are: attractiveness of appearance - X1; product novelty - X2; price - X4; weight of shoes - X3; brand prestige - X5. Less significant - advertising - X6; services - X7; packaging quality - X8.

To predict the cost of quality, taking into account the requirements of consumers when developing a new range of footwear, based on the results of an expert survey at the design stage, it is necessary to determine the weights of all significant factors using formula (4).

Let us assume that the costs of improving the quality of one unit of production for each factor are known, which are determined by the vector:

$$p(p1, p2,..., pn). \quad (4)$$

Then it is possible to determine the expected costs of changing the quality of the designed product:

$$M(X)p1w1\ p2w2\ ...pnwn. \quad (5)$$

This method of estimating expected costs can also be used at the stages of production and sales of products.

The conducted studies cover the entire range of consumer and production requirements for footwear that affect its competitiveness, and also allow predicting the costs of improving quality at all stages of the product life cycle and should be taken into account by manufacturers when forming a range of footwear.

In many industries, when preparing the mass production of new samples, it becomes necessary to compare them in order to decide on the sequence of manufacture or select one from a number of designed ones, as well as for very effective advertising, presenting the technical advantages of the product to the buyer. In common practice, this problem is solved by an expert evaluation of the product by specialists using difficult-to-compare technical and economic indicators that have different levels of significance and measurement dimensions, for example, products have different weight in kilograms, cost in grams, air permeability dm3/m2s. Finding the characteristics of product evaluation is achieved through a complex compromise due to the loss of the specifics of each indicator, the introduction of criticized subjective coefficients of “importance”, etc., which is difficult to justify and prove. This part of the intellectual problem can be more convincingly solved in a human-machine system with a network architecture for product evaluation. For example, such an assessment can be obtained in the design training management system for light, food and other industries, by visualizing the total assessment of products. Then the provision of control is reduced to choosing such a trajectory in the multidimensional phase space of product properties that best satisfies the criteria of the main function of a complex system (for example, conquering the product market, manufacturing and selling all products within the specified time frame). In traditional system analysis, in such problems, a complex system is formalized by decomposing it into a selected number of subsystems. However, in this case, connections - relations between subsystems do not have a topology,

they are formally separated. This can be compensated for by such a formalization method, in which connections - relationships will be revealed using the mathematical apparatus of set theories and general topology, and in particular the model of a fluctuation capsule of parameters. The implementation of such a comparative analysis of a number of products among themselves and the identification of priority is relatively simple (Figure 5).

The entire information field is divided into planes by four lines, forming 8 vectors and 8 zones (there may be another number). Information about each of the eight properties selected in our example is applied to the line. In this case, to characterize shoes, demand is the cost price, weight and flexibility, vapor permeability and moisture capacity, aesthetic properties (points) - environmental (sanitary) pollution by non-natural materials. The obtained experimental numerical data are plotted on the rays of the graph, if available in natural units of measurement, for example, the cost in hryvnia, weight in grams, and the demand and aesthetic properties in points assigned to them by specialists. Obtained in the form of a polygon, a visual visualization of a complex system allows the designer or the buyer to make the right decision on the comparative evaluation of different models of products.

In addition to visual information, this figure contains a number of other information. For example, the values of the areas of the figures enclosed between the beams, their sums reveal the advantage of the areas of "positive" indicators of high aesthetic properties and demand for flexible shoes over a product with a large weight, cost, and less environmentally friendly artificial parts. So, in the example shown in Figure 4, N1 has an advantage in terms of the combination of indicators of two samples, which has a large total area in the “positive” sectors of properties. This is an effective method of visual advertising, helping to choose a sample with higher "total" properties that are difficult to compare with each other.

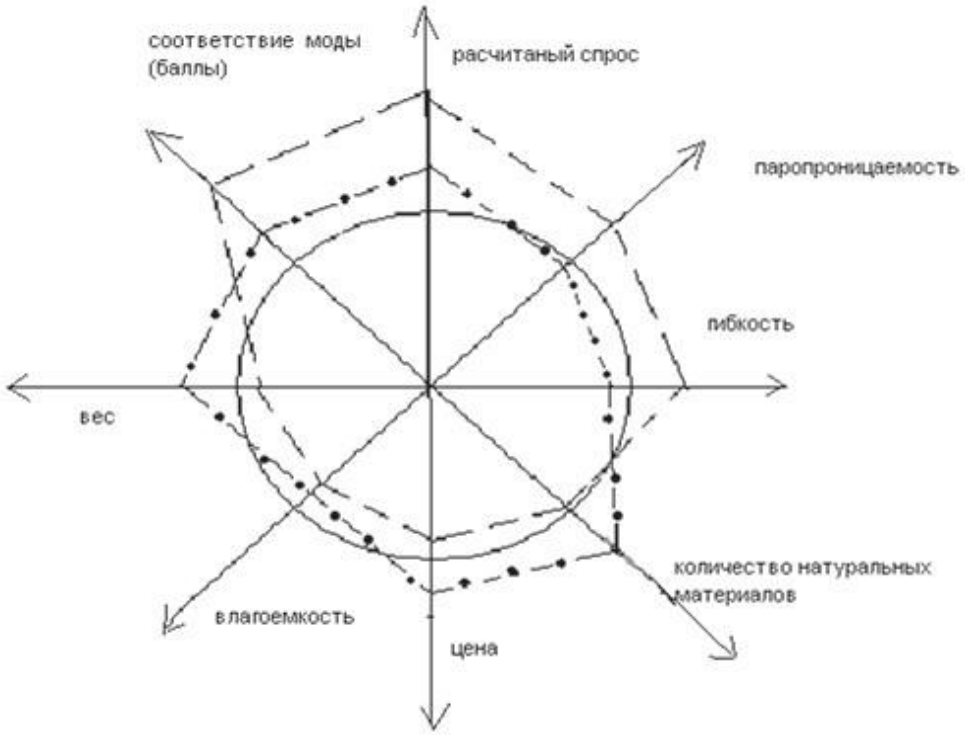

Figure 5. Total properties for a combination of indicators of shoe samples

This method of choosing the “best” product is relatively simple and clear, which allows you to make the right decision. This method can be used for technical and business evaluation of various products of industries - light, food, electronics (for example, INFINITE, shown at the CEBIT - 2006 exhibition), etc.

At the level of intersection of the circle and the axes, the values of eight indicators are normalized (if any) or average for the assortment in their units, the data of each sample N1 ..., N2 ..., etc. are connected by straight lines. applied to the axles.

Improving the quality and competitiveness of domestic special. Shoes.

The development of scientific and technological progress in the production of special. footwear is connected not only with the improvement of technology, the creation of promising materials and automated equipment, but also with the giving of new useful properties to it, as well as with the development

of modern methods for assessing the quality of footwear and testing equipment.

The creation of products with a higher level of quality, approaching and even surpassing the Western one, should be considered as the main direction in the development of domestic shoe production. It is necessary to develop safety footwear designs with an extended set of properties and characteristics, which must be strictly marked and metro logically controlled.

To improve the efficiency of metrological quality assurance of safety footwear in the near future, it is necessary to combine with international standards (ISO) in force in the EU (European Union):

nomenclature of measuring instruments and measurement accuracy standards; methods for performing measurements, tests and control;

metrological certification and calibration of instrumentation and testing equipment.

In recent years, many domestic industry standards have ceased to meet modern requirements and need to be radically revised so that the normalized and regulated characteristics of footwear correspond to the achieved world level of science and technology and take into account the development trend of standardized objects.

The globalization of the world economy makes it necessary to bring domestic standards, in particular for safety shoes, to international standards (ISO), the indicators of which are more stringent and expanded in terms of nomenclature. This is necessary for enterprises interested in foreign investment, seeking to attract foreign customers and, thus, enter the Western market and adequately resist South Asian competitors.

For the successful implementation of domestic regulatory and technical documentation for special. shoes that reflect generalized data on the quality of shoes, providing comprehensive evaluation methods that guarantee a high level of product. First of all, it is necessary to change the mentality of the customer and bring it closer to the Western one.

Philosophy of the western customer spec. shoes for employees of their company is as follows. If an employee of the company feels comfortable when wearing shoes, does not have unpleasant and irritating effects when the foot contacts the shoes, he is not distracted by these factors, respectively, his attention is not scattered, he makes fewer mistakes in his work, gets less tired, his productivity and quality work is on the rise. Unfortunately, the view of our entrepreneurs on spec. footwear for employees is radically different. They prefer to minimize this item of expenditure to the detriment of quality, forgetting that of all costs, the greatest return is given by investments directed directly to the staff, to improve their working conditions.

A modern approach to creating shoes used abroad are characterized by three indispensable conditions under which shoes must:

ensure the declared safety of the carrier; to be reliable (good); be comfortable.

The latest conditions in the domestic special. shoes are practically not respected, and the methods of testing for ensuring safety should be significantly expanded in our country.

The aesthetic component is missing here, the need for which is dictated by the requirement - the creation of an attractive appearance of the special. shoes, which is especially important for female staff, otherwise it will be a negative irritant for the wearer.

The difference in approaches to the creation of special. shoes clearly demonstrates the comparison of the standards of international ISO and the Russian Federation (ISO, 20344: 2004 and domestic "Special footwear and materials for the top and bottom of special footwear").

The diagram (Figure 6) shows systematized quality indicators of special. shoes, where the plus sign (+) marks the indicators, the testing of which is provided for by the relevant ISO standard, and the Russian Federation and the minus sign (-) - not included in the testing procedures of the standards.

Consider the test methods carried out according to the ISO standard, but absent in domestic standards for special. shoes.

1. The ISO 20344 - 2004 standard provides special methods for evaluating the ergonomic characteristics of spec. shoes.

Three socks, shod in a properly selected special. shoes, perform the following tests:

- walk normally for 5 minutes at a speed of approximately 6 km/h; - go up and down stairs number 17 ± 3 in 1 min;
- kneel, squatting

After completing all the tasks, each shoe tester fills out the questionnaire given in table 5.

Carrying out this kind of simple tests gives a fairly objective idea of the ergonomic performance of the tested footwear and can serve as a barrier preventing the penetration of uncomfortable special equipment into the production shoes.

2. The ISO standard includes tests to determine the energy absorption of the heel part spec. shoes. This is a very important indicator that characterizes the shock-absorbing properties of shoes. Such devices reduce shock and quasi-shock loads that occur when the heel of the shoe comes into contact with a rigid support, such as a concrete floor. With insufficient depreciation, a significant reaction force arises, which is transmitted through the human musculoskeletal system, causing negative consequences.

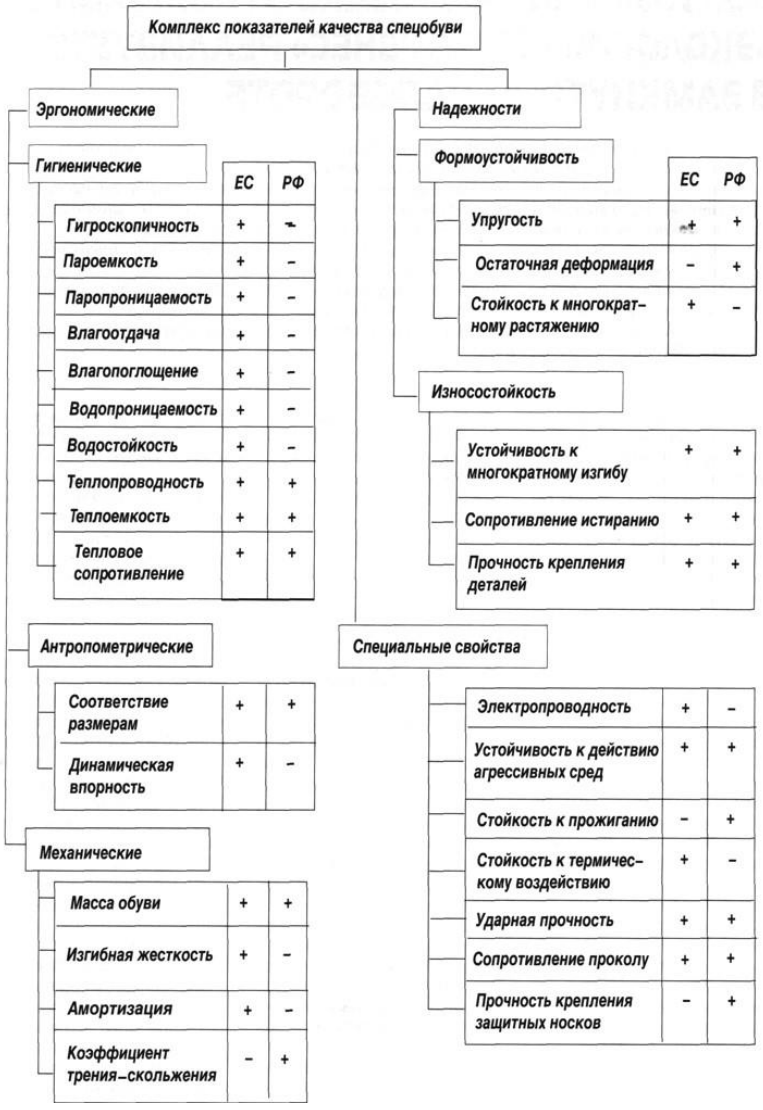

Figure 6. Safety footwear quality indicators

Table 5. Questions for evaluating ergonomic characteristics spec. shoes

1. Is the inside of the shoe free of rough edges, sharp protrusions, or hard spots that cause irritation or injury?	Yes	Not
2. Is the toe box or toe edge pinching or pinching?	Yes	Not
3. Does the shoe have any features that make it dangerous to wear?	Yes	Not
4. Is it possible to fasten the clasp on safety shoes conveniently and correctly?	Yes	Not
5. Is it possible to freely perform the following actions: walk, climb stairs, bend your knees, squat?	Yes	Not

3. The domestic standard (GOST 12.4.151–85) provides for the determination of the impact strength of only protective socks for special footwear.

In the ISO standards, special tests are established. shoes for impact strength not only of the toe part, but also of other areas of the shoe, which, when worn in production conditions, are subject to force effects that can cause injury to the foot if protection is not installed. So, in the ISO standard, the impact strength of the protective device for lifting the foot (between the metatarsal and shank parts) is determined.

4. The ISO standard provides for the determination of the impact absorption capacity of the ankle protection device connected to the top of the special. shoes.

The article voiced only some of the test methods according to the ISO 20344 - 2004 standard, but even from them you can see what attention manufacturers need to pay to the ergonomic and protective properties of the special. shoes.

About indicators for evaluating the quality of shoes

In modern conditions, with the general saturation of the market with consumer goods, the most acute problem is to ensure that the quality of the products offered meets consumer requirements. Among the consumer requirements for shoes, the group of ergonomic ones, defined by the concept of "comfort", is put forward in the first place in importance by the majority.

Certification tests of shoes are built on the basis of the current regulatory documentation, which sets out the technical requirements, methods for testing it to determine the main quality indicators. In support of the above, below are the quality indicators and test methods for their determination.

What is the Russian Quality Program? From the advertising materials of the organization it follows that it “reveals high quality products and services presented on the Russian market and informs consumers about them; gives the company the opportunity to prove to consumers that the quality of its products or services is significantly higher than the standard level; enables governments to purchase high quality products and services. The sign "Russian quality", the right to use which the company receives upon successful participation in the Program, becomes the most authoritative evidence of such quality. Based on the results of participation in the Program, the enterprise can present to interested parties as documents indicating high quality, not only a diploma, but also an assessment program and a report on its results.

The results of successful participation in the Program can be used when conducting marketing and advertising campaigns, when demonstrating your capabilities to clients and customers at exhibitions and fairs, as well as when participating in competitive bidding and tenders. To inform about products with the “Russian Quality” mark and diploma-winning enterprises of the Program, the following is provided:

holding all-Russian, regional and industry presentations

products awarded with the sign "Russian quality";

issue of all-Russian and industry catalogs "Russian Quality";

issue of the Russian Quality Program Bulletin;

placement on preferential terms of information about the company-diplomate and products on the website of the Program **www.roskachestvo.en** and other Internet resources;

participation on preferential terms of program diplomats in exhibitions and fairs held with the participation of the All-Russian Organization for Quality;

publications in industry, regional and all-Russian mass media”.

In accordance with the documents: “Regulations on the program “Russian Quality” of the CEP VOK No. RK-01-02 and “Regulations on the quality assessment programs used in the program“ Russian Quality ”CEP VOK No. RK-06-02, the Work Program No. RK- PR-CEP-47-02-05, which included the following points:

- product being valued;
- nomenclature of estimated product quality indicators, their acceptable and optimal values and scores corresponding to them;
- determination of the actual values of quality indicators;
- assessment of the ability of production to ensure the stability of product quality;
- conclusion on the conformity of product quality to the highest level.

The quality of the declared models of casual men's shoes was assessed in four groups: functional indicators (1),

characterizing the durability of products;

ergonomic indicators (2);

aesthetic indicators (3);

packaging and labeling quality indicators (4).

The first group includes such single indicators as:

- strength of thread fastenings of shoe upper blanks, N/cm with one line;
- strength of thread fastenings of shoe upper blanks, N/cm with two lines;
- sole fastening strength, N/cm;
- residual deformation of the toe, mm;
- residual deformation of the back, mm;

in the second group:

half-pair mass, g;

shoe flexibility, N/cm;

thermal resistance of the shoe top, m2 0C/W (for winter shoes);

thermal resistance of the bottom of footwear, m^2 0C/W (for winter footwear);

in the third:

silhouette, points;

appearance, points;

interior decoration, points;

in the fourth:

quality of marking;

packaging quality, points.

Permissible values of indicators, as well as their list itself, are established in accordance with GOST, indicated in table 7.

Table 7. Quality indicators and test methods for their determination

Quality indicator name	Test method (GOST, norm, etc.)
1	2
1. Shoes. Method for determining the total and permanent deformation of the toe and heel	GOST 9135–73
2. Shoes. Method for determining the strength of fastening soles in shoes of chemical fastening methods	GOST 9292–82
3. Shoes. Method for determining the strength of thread seams for connecting upper parts	GOST 9290–76
4. Shoes. Flexibility Method	GOST 9718–88
5. Shoes. Method for determining the strength of fastening parts of the bottom	GOST 9134–78
6. Shoes. Weight determination method	GOST 28735–90
7. Shoes. Method for determining the total thermal resistance of shoes	GOST 12.4.104–81
8. Shoes. Acceptance rules	GOST 9289–78
9. Shoes. Marking, packaging, transportation and storage	GOST 7296–81 GOST 16534–71
10. Shoes. Determination of grade	GOST 28371–89
11. System of quality indicators. Shoes. Nomenclature of indicators	GOST 4.12–81
12. Shoes. Terms and Definitions	GOST 23251–83
13. Shoes. Methods for determining linear dimensions	GOST 9133–78
14. Shoe lasts. Specifications	GOST 3927–88
15. Workshop on the technology of leather products. Ed. V.L. Rayackas. M., 1981.	
16. System for the development and production of products. Light industry products. Basic provisions	GOST15.007–88
17. Casual shoes. Specifications	GOST 26167–84
18. Shoes. Strength standards	GOST 21463–87
19. Shoemaker's Handbook. Technology. Moscow: Legprombytizdat, 1989.	

Let's turn to the second group of indicators. Obviously, such indicators do not provide an assessment of the complex characteristics of footwear (comfort) that interests the consumer, most of which are established empirically. Comfort depends on numerous factors, but the most significant are the design characteristics of shoe models and the properties of the materials used. The prospect of assessing the quality of shoes for the development of methods for assessing the quality of shoes should be associated with the use of CAD. Thus, the physical and mechanical properties of materials determine the force interaction of the foot with footwear, provide protection of the foot from the effects of the external environment and determine its microclimate. In this formulation of the question, the method of automated assessment of the comfort of shoes in terms of the physical and mechanical properties of upper material packages, developed at the Russian State University named after A.I. A.N. Kosygin.

The technique is implemented within the framework of the complex, the scheme of the software operation of which is shown in Figure 7.

Therefore, along with the selected groups of indicators, it seems appropriate to include another group "Comfort", the criteria of which, in our opinion, are the temperature and relative humidity of the internal space, the pressure of the upper shoe on the foot. The factors influencing the magnitude of shoe pressure on the foot are relative elongation, relative humidity and stiffness of material packages, for which we have established levels of variation and rational values based on the operating conditions and production of products.

The created instrumental system implements methods for automated assessment of shoe comfort and the formation of the most rational top packages in terms of physical and mechanical properties of materials and an express method for selecting shoe designs of a certain level of quality and purpose. The practical significance of the system lies in the reduction of the subjective factor in the selection, collection and ordering.

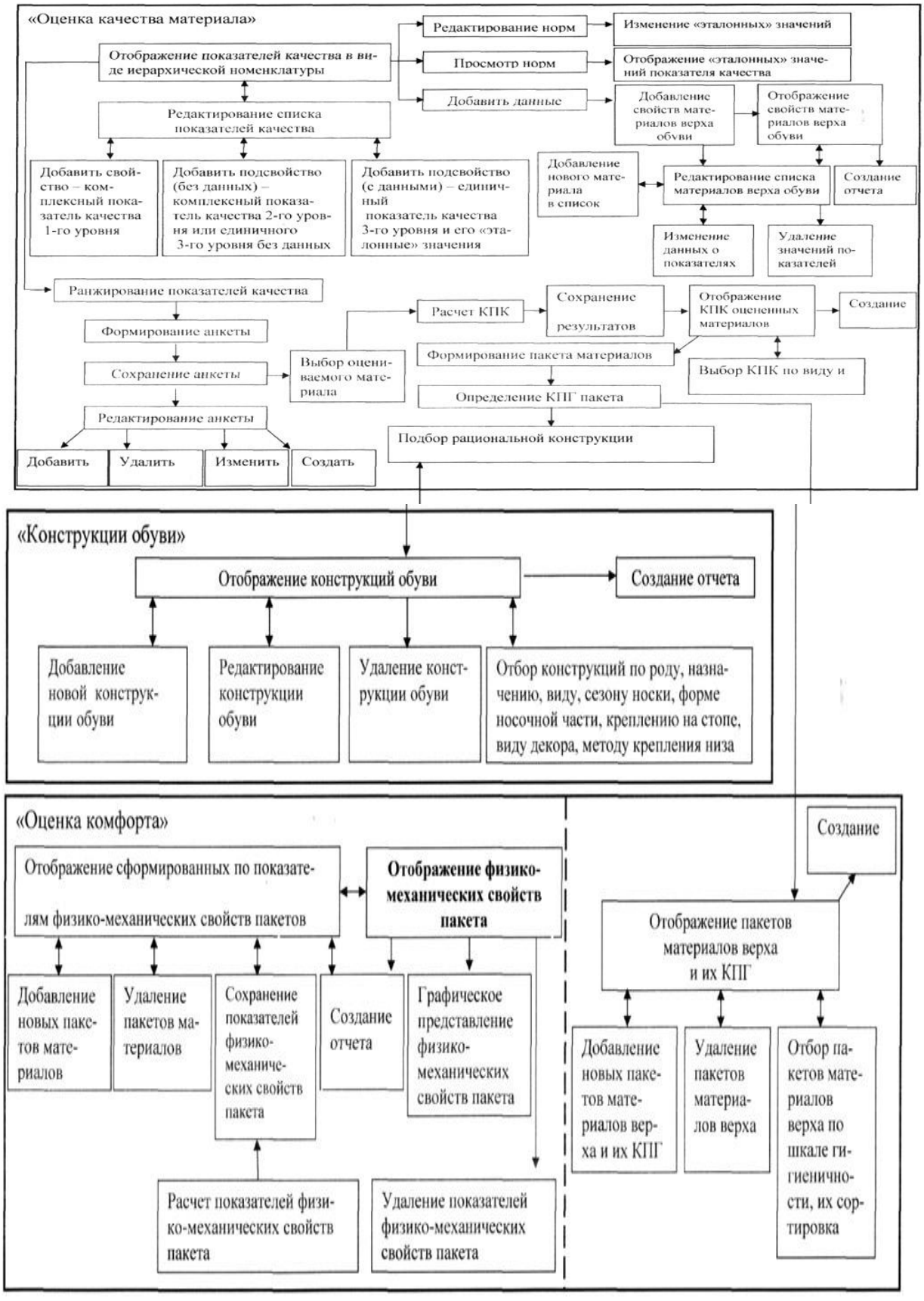

Figure 7. Scheme of work of the software of empirical indicators for evaluating the quality of products

Conclusion

The notion that takes place in management practice that inequality pushes people to increase performance results, that the state of equality demotivates people to achieve great results, is fundamentally wrong. As stated in the theory of equality based on empirical research, a person experiences a sense of satisfaction if equality is observed. Therefore, he strives to maintain this state.

Equality is bad when the overall level of performance is low. In this case, equality will lead to the preservation of this level. If the overall level of performance is high, equality is an important motivating factor for the success of the members of the organization.

In the event that an individual believes that he is not sufficiently or excessively rewarded, he has a feeling of dissatisfaction (in the second case, this feeling is less pronounced). Considering an unfair and unequal assessment of his work, a person loses motivation for active creative actions, in terms of the goals of the organization, which leads to many negative consequences.

The theory of equality allows us to draw several very important conclusions for the practice of managing people in an organization. Since perception is subjective, it is very important that information be widely available about who, how, for what and how much is rewarded. It is especially important that there is a clear system of payment that answers the question of what factors determine the amount of payment. An important conclusion from the theory of equality is that people are guided by a complex assessment of remuneration. Wages play an important role in this comprehensive assessment, but far from being the only and not necessarily decisive. Therefore, managers should take this into account if they are trying to create an atmosphere of equality in the team.

As repeatedly emphasized, the perception of equality and fairness is highly subjective. To successfully manage people, a manager must not only strive to be fair, create an atmosphere of equality, but also know well whether employees believe that remuneration is built on an equal and fair basis. To do this, management should regularly conduct research to find out how employees evaluate remuneration, whether they consider it equal or not.

A person in an organization manifests himself not only as a performer of a certain job or a certain function. He shows interest in how his work is organized, in what conditions he works, in how his work affects the activities of the organization. That is, he has a natural desire to participate in the processes taking place in the organization that are related to his activities in the organization, but at the same time go beyond his competence, beyond the scope of his work and the tasks he solves.

The concept of participatory management proceeds from the fact that if a person in an organization is interested in participating in various intra-organizational activities, then he thereby, receiving satisfaction from this, works with greater efficiency, better, more efficiently and productively, namely:

firstly, it is believed that participatory management, opening the employee access to decision-making about issues related to his functioning in the organization, motivates a person to do his job better;

Secondly, participatory management not only contributes to the fact that the employee is better at his job, but also leads to greater returns, a greater contribution of the individual employee to the life of the organization, i.e. there is a fuller use of the potential of the human resources of the organization.

Initially, the spread of participatory management was associated only with improving the motivation of workers. Recently, participatory management is increasingly associated with improving the use of the full potential of the organization's human resources. Therefore, the concept of participatory management can no longer be associated only with the process of motivation, but should be considered as one of the general approaches to managing a person in an organization. Participatory management can be implemented in the following areas, namely:

firstly,workers are given the right to make their own decisions about how they carry out their activities. Autonomy may concern, for example, such aspects of their activities as the mode of operation or the choice of means for carrying out work;

Secondly, workers may be involved in making decisions about the work they perform. In this case, the manager consults with the employee about what to do and how to perform the tasks assigned to him. That is, in other words, the employee is involved in setting goals that he has to achieve, determining the tasks that he will have to solve;

third, employees are given the right to control the quality and quantity of their work and, accordingly, responsibility for the final result is established;

fourth, participatory management involves the broad participation of employees in rationalization activities, in making proposals for improving their own work and the work of the organization as a whole, as well as its individual divisions;

fifth, a possible direction for the implementation of participatory management is to give employees the right to form working groups from those members of the organization with whom they would like to work together. In this case, the right to make a decision is given not only about the member's own work, but also about with whom to cooperate in group activities.

In real practice, all these areas of participatory management are usually used in a certain combination, since they are very closely related to each other and complement each other very well.

Moreover, it is in combination with each other that these separate directions can effectively manifest themselves, and it is precisely the individual well-established combinations of these directions that are used as specific forms of participatory management. The most obvious example of this is the quality circles widely used in the management of Japanese firms.

A person performs certain actions in accordance with the pressure on him of a combination of internal and external forces in relation to him. The totality of these forces, called motivation, evokes far from the same reaction in people. Therefore, it is impossible to unambiguously describe the process of motivation. At the same time, on the basis of empirical research, several concepts have been developed that describe the factors influencing motivation and the content of the motivation process.

So-called content theories of motivation focus on how different groups of needs affect human behavior. The widely accepted concepts of this group are Maslow's hierarchy of needs theory, Alderfer's ERG theory, Herzberg's two-factor theory, and McClelland's acquired needs theory. Despite the fundamental differences between these concepts, they nevertheless have something in common at their core, which reflects a certain commonality in the motivation of a person to act.

The process of motivation is revealed in theories that try to explain why people are willing to perform certain actions, spending more or less effort. Expectancy theory, goal setting theory, equality theory and participatory management theory, explaining how people should be influenced in order to encourage them to perform effectively, give managers the key to building an effective system of motivating people to effective results of their activities.

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