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FEATURES OF THE FORMATION OF SUSTAINABLE DEMAND FOR FASHION INDUSTRY PRODUCTS BY CONSUMERS OF SMALL AND MEDIUM-SIZED CITIES

Abstract: *in the article, the authors for the first time considered the issues of a significant improvement in the quality of domestic products, filling them with the following properties: quality ideology, quality management, fashion and technical regulation, quality system, market quality, advertising, excursion into the past - as a guarantee of quality. In the future, all these criteria will provide a quality revolution, guaranteeing manufacturers a stable success in the market, and consumers of products - its high quality.*

Key words: *quality, priority, demand, competitiveness, market, profit, demand, buyer, manufacturer, financial stability, sustainable TEP, assortment policy, economic policy.*

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Introduction

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The life cycle of any product (including a pair of shoes) is a concept that describes the sales of products, profits, consumers, competitors and marketing strategy from the moment the product enters the market until it is withdrawn from the market.

Currently, enterprises operating in a competitive environment with changing external influences are increasingly attaching importance to conducting marketing research of their products. It is also important that the information acquired in the course of such research is used in multivariate analysis and justification of management decisions on the range of manufactured products, their quantity, prices, consumer properties, etc. Underestimating the value

of the results of the marketing system at the enterprise, its production capacity, intellectual and human resources become unclaimed. The dynamics of the impact of market demand on manufactured goods should be monitored by the marketing service at all stages of their life cycle and taken into account in systems responsible for the quality and quantity of manufactured products, their price, introduction of innovations, development of new types of products. Thus, all types of products, technologies and services have a certain life cycle. The success of an enterprise depends on the degree of coordination of the various stages of the main life processes. The situation on the market changes at each stage of the life cycle and requires a corresponding change in the strategy and tactics of the company's behavior in the market, which is of particular importance.

The main types of products go through 4-5 stages before disappearing from the market:

− presentation (introduction to the market);
− growth (development);
− maturity (stabilization);
− decline (decline and renewal of products);
− dying (dying and the beginning of the product renewal cycle).

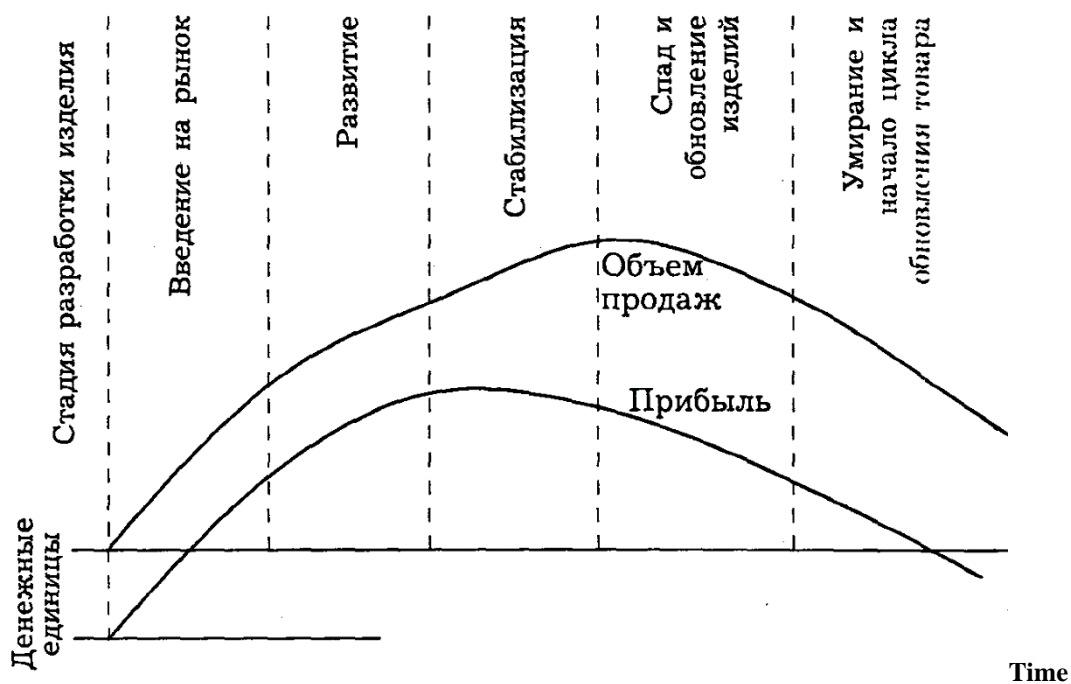Figure 1 is a graphic illustration of the life cycle of a product in the market.

Figure 1. Product life cycle in the market

The given graphic illustration is conditional. Each product has its own life cycle characteristics.

So, we can distinguish the following stages of the product life cycle.

The first stage is the presentation stage (the period of introducing the product to the market). At this stage, the demand for the product is growing slowly. This is due to the fact that the period when a new type of product is introduced to the market is not yet known to most prospective buyers.

At this stage, the company makes a small profit. Often an entrepreneur calculates losses, sometimes even very large ones. Vendors are usually very careful in replenishing their assortment with goods that are at the presentation stage. They are aware that most regular customers are not familiar with this type of product, so there is always a difficulty in selling these products. As a result, retailers may claim various benefits for themselves, including free delivery of billboards and other materials, shared advertising costs, and so on. A powerful retailer of goods may even claim exclusive distribution rights in its sales area. At this stage, prices are set to a minimum, the enterprise has little or no profit.

The second stage is the growth stage. If the product survives the first stage, it continues to evolve. At this stage, sales increase rapidly. Modified versions of the base model should be offered to meet the growing market. Relative returns are high.

The third stage is the stage of maturity. At this stage, the product has its own market and is in demand. At the stage of maturity, competition increases and reaches its maximum, as many firms enter the market. As a result, profits are reduced overall and per unit of product, since discounting is widely used.

The fourth stage is the decline stage. At this stage, a product that does not undergo any changes bothers consumers, or the need that it was designed to satisfy disappears. An unpredictable reason for a decrease in sales during a downturn can be technical obsolescence of the product. During the recession phase, industry-wide sales decline and many firms exit the market as customers shrink and the product mix concentrates on best-selling models.

The fifth stage is the stages of decline and dying, i.e., the decline and renewal of the product, as well as the dying and the beginning of the product renewal cycle, are characterized by a slow and then a sharp drop in demand. In the face of declining sales and profits, manufacturers sometimes make efforts to restore demand for a particular product. They include the following steps:

– new type of packaging;
– special advertising;
– price change.

Although it is difficult enough to abandon manufactured products, sooner or later, as sales continue to decline, entrepreneurs are forced to make such a decision. At this stage, the following steps are taken:

– withdrawal from production of this type of product;

– gradual narrowing of investments;
– development of private organizational changes in relations.

Intermediaries so that they do not suffer losses along the way, and an inventory of surpluses.

For products that are clearly in decline, sales representatives begin to reduce the number of deliveries, seek to minimize repeat orders, then gradually phase out the supply of goods. They may even lower the price of leftovers in order to abandon the product entirely.

Thus, each stage of the product life cycle is a variable that determines the marketing activities in the target market.

The life cycle of a product depends on the number of substitute products, their competitiveness, as well as on the correct adoption of managerial decisions aimed at developing support measures to optimize the structure of the product life cycle. The main measures to optimize the structure of the product life cycle include:

the correct use of various elements of marketing at various stages of the product life cycle;

production strategy of the enterprise.

Table 1 shows the main elements of marketing at different stages of the life cycle.

Table 1. The main elements of marketing at different stages of the product life cycle

Elements of Marketing	Product life cycle stages				
	performance	growth	maturity	decline	dying
Goals	Bring product to market	Win a strong position	Maintain market position	Engage all stocks	Go to a new lossless lifecycle
Price	high	High, then slowly begins to decline	Stabilizes, then decreases	Keeps on falling	Minimal (up to scanty)
Sales channels	Agents supplying trial lots of goods	Channels are used to increase sales, wholesalers are included	All possible channels are involved	The number of distribution channels is decreasing	Only those channels that provide the minimum supply are active
Advertising	On the consumer properties of the new product, its advantages, its prestige is emphasized	Reinforced advertising, focuses on a variety of shopping motives	supportive, persuasive	supportive, reminiscent	reminiscent

It is very important to maintain the optimality of the life cycle, to determine the initial price for the manufactured product and the maximum possible price reduction, while maintaining break-even production. To optimize this factor, the enterprise should develop discount systems that allow attracting various consumer segments to purchase the company's

products and thereby reduce the stock of manufactured but not yet sold products at the moment when it becomes clear that this product is losing its previously occupied market niche .

In the practice of pricing, a large number of discounts are known, which are used at various levels: enterprises, sales organizations and trade. The

following types of discounts are the most common for footwear industry enterprises:

− bonus - a price discount of up to 10%, which is provided to a large wholesale buyer for a stipulated volume of turnover during a certain period;

− seasonal - provided to the consumer when the shoes are sold outside the season of the main sale, the purpose of introducing discounts of this type is to maintain a constant level of sales throughout the year, in addition, this discount saves the manufacturer from part of the storage costs and reduces the risk of liquidity;

− dealership - provided to wholesalers and retailers, agents and intermediaries to cover their expenses;

− special - provided to regular customers;

− discount to encourage sales - a measure to reduce the sale price of shoes, which is guaranteed to resellers if they take for sale new types of shoes or vice versa types of shoes that are at the stage of decline in the life cycle;

− discount for trial batches and product orders - set by the manufacturer in order to interest the buyer in new models of shoes;

− discount for expediting payment - a measure of price reduction for each "saved" week against the period specified in the contract;

− discount for settlement with real money - a consumer who pays for deliveries on time with real money, and not with their substitutes, can achieve a discount from the base price, because. in the last price, the enterprise usually includes possible losses from non-payments;

− a discount for the regularity of orders is set by the manufacturer in order to retain a regular customer;

− advertising - a discount on the price of shoes provided by the enterprise to a retailer so that the latter can organize local advertising of shoes;

− marketing - a discount from the wholesale price provided to the supply and marketing organization for the implementation of functions for the sale of shoes in transit with participation in the calculations;

− trade - part of the retail price of shoes, remaining at the disposal of trade organizations and enterprises to cover distribution costs and generate profits;

− discount from the price - is applied in case of buying shoes of reduced quality.

In addition, an enterprise can go for an initiative price reduction in case of underutilization of production capacities, a reduction in market share under the onslaught of an aggressive competitive environment, etc.

If an enterprise uses an initiative periodic price reduction as a tool to influence consumers, taking care of its costs, developing measures to reduce them by improving equipment and technology, introducing new types of materials into production, constantly improving the quality of shoes, then one should be wary of a premature or sharp decrease product prices. Because a retail consumer of shoes may have a stereotype about the "poor quality" of the goods offered to him. And as a result, the company will not receive an increase in profits due to an increase in sales due to a decrease in prices, but a sharp drop in demand for this type of footwear and, as a result, a decrease in sales and a negative financial result for this type of product. The life cycle of shoes is significantly influenced by such phenomena of time as: style, fashion, fetish. Style is the main original form of expression that arises in a particular area of human activity. Once created, a style can exist for many generations, either gaining wide popularity or losing it. Fashion is the most popular or widespread style in a given period of time in a given field of activity. Figure 2 shows the impact of fashion on the product life cycle.
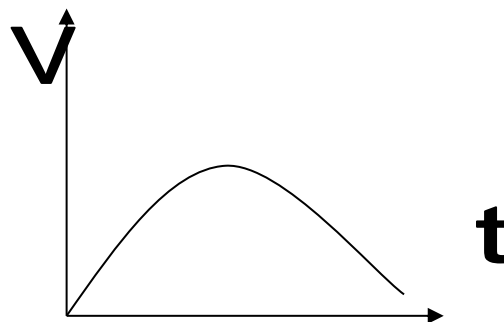

Figure 2. The impact of fashion on the product life cycle

Fetish - private manifestations of fashion that win everyone's attention, are perceived with great

enthusiasm, quickly reach the peak of popularity and very quickly move into the decline stage. The cycle of

their recognition is short and, as a rule, the number of their adherents is limited. Figure 3 shows the influence of the fetish factor on changing the life cycle of a product.
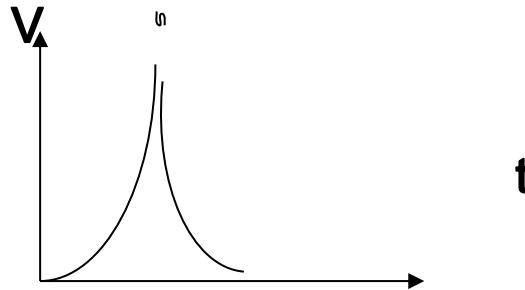

Figure 3. Fetish impact on product life cycle change

Thus, the footwear manufacturer must plan its production strategy based on the possibilities of using marketing elements to optimize the structure of the product life cycle.

Different companies have different approaches to determining the strategy for the production of goods and services, depending on the needs of customers, available resources, market conditions, etc. Moreover, the same company can use different strategies for different products. The choice of strategy is usually based on the competitiveness of the product.

Various approaches or methods for analyzing the portfolio of orders have also been developed, which make it possible to evaluate the range of the production range in terms of the profitability of its individual elements.

One such approach, by which the sales and marketing manager can make decisions about the strategy of the enterprise in the sale of certain goods or services, was proposed by the Boston group. This method classifies various combinations of products and services of a firm with a differentiated production program on the basis of the so-called growth matrix, or "portfolio of business development directions" (Figure 4).
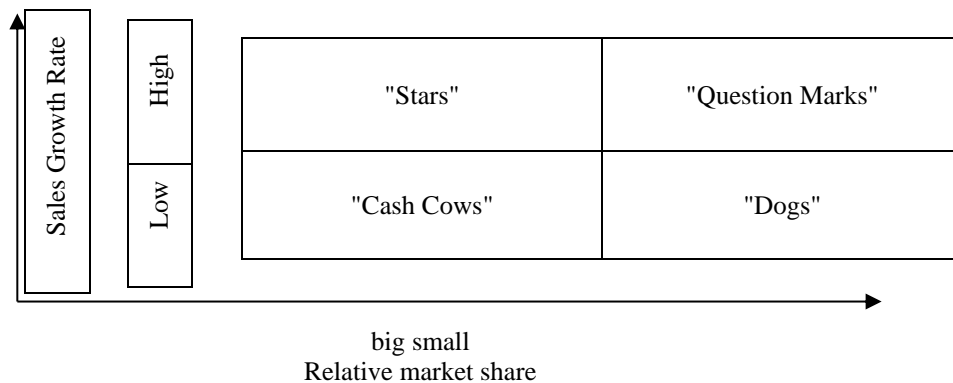

big small
Relative market share
Figure 4. Boston Advisory Group Matrix

The application of this classification requires taking into account the current and potential market segmentation, various temporal aspects of the profitability of a particular combination of goods and services, as well as the impact of competition. For example, a company may be the largest in its industry, but it may not hold a leading position in one of the market segments.

In Figure 4, star combinations of goods and services are located in the upper left quadrant. These products are characterized by rapid growth in sales, which require large amounts of working capital, but the cash flow is also large, since these combinations of goods and services are leaders in their market segments. Usually in this case, there is a balance of cash flow within the company. Sales agents willingly sell such combinations of goods and services: their production volumes are large, they lead the market and are in high demand, but, as a rule, they do not bring profit to the manufacturer. Over time, but as their life cycle develops, the sales dynamics slow down, and they turn into either "cash cows" or, if their market share decreases and they lose competitiveness, into "dogs", i.e.

Combinations of goods and services belonging to the category of "cash cows" are characterized by low dynamics of sales growth. However, their market share is usually high and they can be "milked" because they are able to generate more revenue than is required for investment in production. These product combinations are especially popular with salespeople because of their high demand and are attractive to the sales and marketing manager because they can bring in the real money needed to develop and support sales of new or upgraded products and services.

The really difficult problems pose to the management of the company, before the managers of marketing and sales, the products belonging to the category of "question mark" ("difficult children"), which are located in the upper right quadrant of the matrix. They tend to have a small market share, often need support, and lag far behind the leading products in terms of market position and customer credibility.

Those who deal with them inevitably have the following questions: will they become "stars" or "cash cows"; how much time and money it will take for them to "stand on their feet"; what are their prospects in the market? Such combinations of goods and services, as a rule, do not enjoy the sympathy of sales representatives. Small market share and weak demand, often a low degree of trust and lack of customer awareness, weak advantages over competing products make them difficult to sell. However, if they turn into "stars" or "cash cows", sales agents should direct maximum efforts to organize their sale. However, the sales and marketing manager may find it necessary to introduce a special promotional commission rate and provide personal guidance to support salespeople's efforts to market these combinations of goods and services.
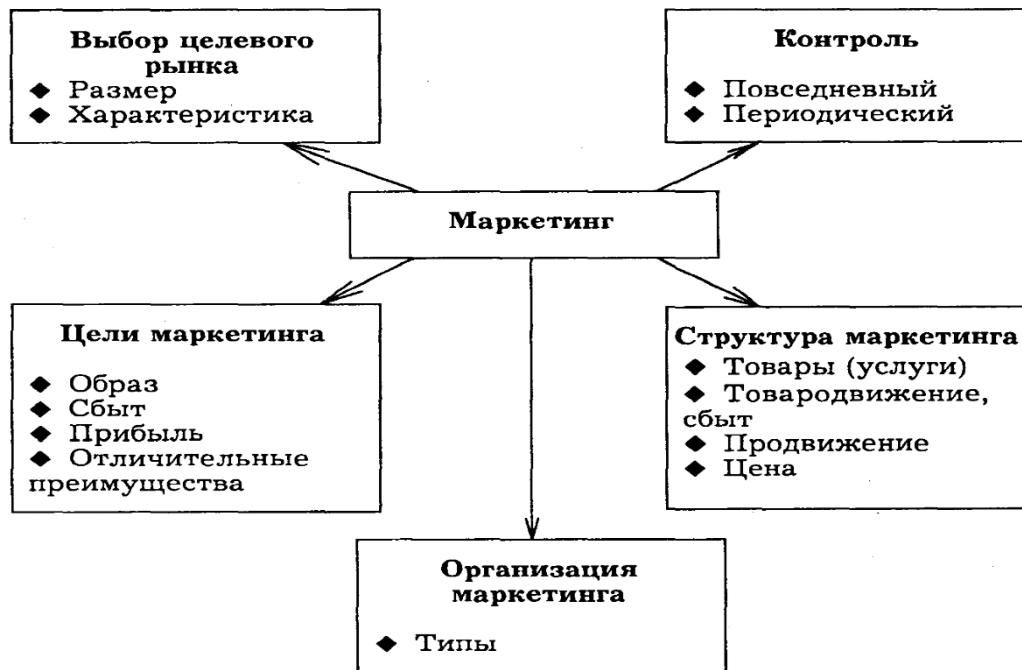

Figure 5. Factors controlled by marketing

The development of new combinations of goods and services is carried out taking into account the targets and strategies of enterprises and is accompanied by an analysis of the position of the company, the consequence of which is a decision on the possible diversification of activities. When developing a strategy, a prerequisite is to take into account factors that are controlled by marketing (Figure 5). As well as factors that are not controlled by marketing (Figure 6).

Marketing research and profitability studies of new product concepts are conducted separately from the assessment of technological possibilities, since it may be appropriate to outsource some or all of the production to a contractor. After evaluating the results of production, a decision can be made to resume it.

So, product lifecycle management is the process of managing a product from conceptual design to disposal. When this process works effectively, the company is able to drive profitable innovation—accelerate the development of new products, bring them to market quickly, and continually improve quality while reducing costs.

At the same time, in an effort to resist the competition, shoe companies are forced to constantly improve the consumer properties of their goods and expand the range of terms of supply and services, although all this is to some extent taken into account in the price and ultimately paid by the consumer.

When setting the price of a product, the company must also take into account the level of already established prices for other goods that are similar in purpose and quality and are on the market.

The presence of stages in the life cycle of shoes requires a constant change in the pricing strategy. The life cycle of a product is characterized by fluctuations in sales and profits from its implementation. Accordingly, the price will vary depending on the stage of the product's life cycle. Therefore, we can conclude that the price set by an enterprise for a product depends on production costs, supply and demand, as well as on the solvency of the population, the pricing policy and market strategy of the company, the quality of the product, additional services and services, the interchangeability of goods and their life cycle.
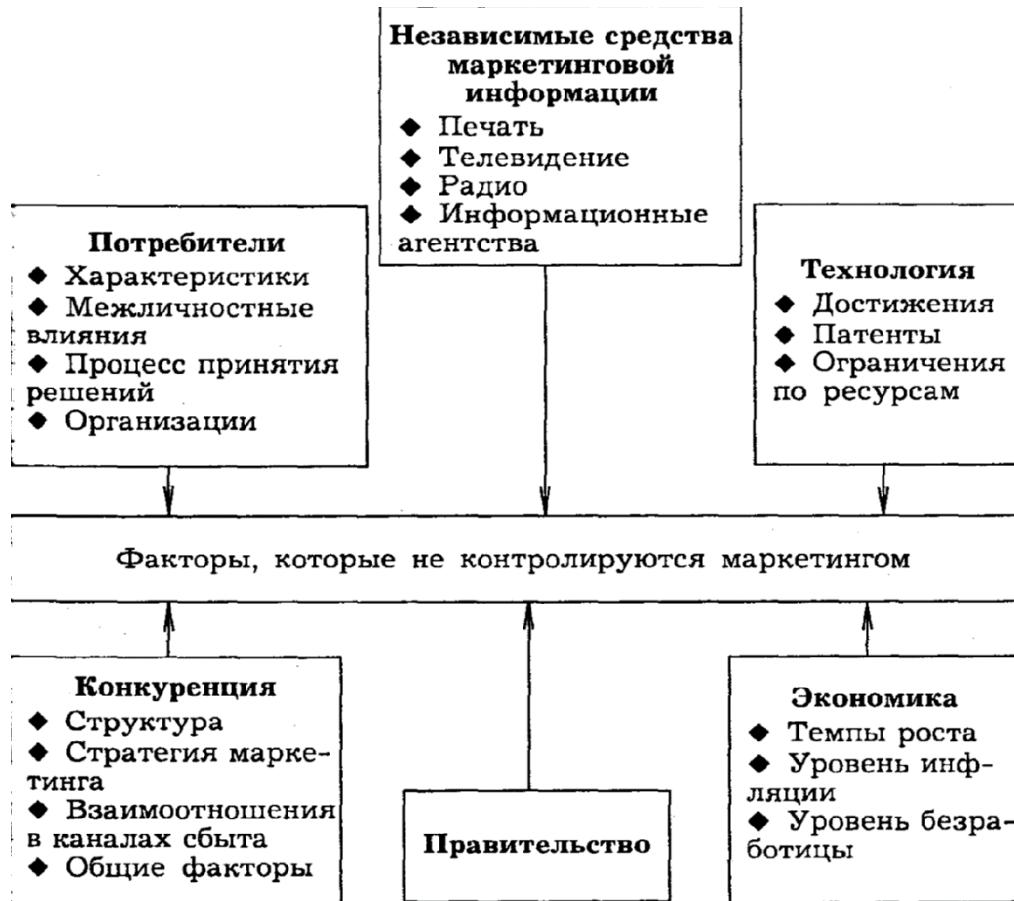

Figure 6. Factors uncontrollable by marketing

The development of a market economy sets the task of developing new approaches to the management of microeconomic systems. Usually, the functioning of any enterprise in a market economy is aimed at obtaining maximum profit, the value of which is significantly influenced by the rationality of decisions made by the management of the enterprise on the basis of taking into account external and internal factors, as well as an analysis of the economic situation that is developing in the market. Recently, the direction associated with maintaining profits at a certain level that satisfies the management of the enterprise has become relevant.

At present, many phenomena of the real economic situation can be explained with the help of economic and mathematical models. Therefore, in order to make an adequate decision based on forecasting the profit of an enterprise, it is necessary to develop an economic and mathematical model of the process of its change, which takes into account both external and internal factors. In addition, in a changing economic situation, it is useful to apply dynamic models that reflect the process of production, storage and sale of products over time. The constructed models of such processes turn out to be more complex due to the need to take into account many local factors. However, the potential scope of these models is much wider. For example, the construction of an economic and mathematical model of the process of changing the profit of an enterprise,

first of all, are necessary for management to make informed management decisions on regulating the levels of manufactured and sold products. The model will reflect not only the periods of time for increasing the volume of output and obtaining more profit, but also the periods associated with its reduction and the sale of only products stored in the warehouse. In addition, the management of the enterprise, based on the economic and mathematical model of the process of changing profits, will be able to make the right economic decisions in cases where the forecast value of the enterprise's profit is very small or completely absent. associated with its reduction and the sale of only products stored in the warehouse. In addition, the management of the enterprise, based on the economic and mathematical model of the process of changing profits, will be able to make the right economic decisions in cases where the forecast value of the enterprise's profit is very small or completely absent. associated with its reduction and the sale of only products stored in the warehouse. In addition, the management of the enterprise, based on the economic and mathematical model of the process of changing profits, will be able to make the right economic decisions in cases where the forecast value of the enterprise's profit is very small or completely absent.

The developed dynamic model makes it possible to determine the profit from the sold goods, taking into account the seasonality of demand, the current price of the product, the cost price, and to carry out regulation based on data on the quantity of goods produced and sold on the market. With the help of the constructed model, the processes taking place in the production, sale and storage of finished products, as well as in the field of its repair, are taken into account. In addition, the model can form the basis of expert decision-making systems for calculations related to determining the profit of an enterprise, which will help remove uncertainty in the process of determining the profit of an enterprise with seasonal fluctuations in demand for products in a market economy. The model constructed by the authors allows taking into account the processes occurring in the production, sale and storage of finished products, as well as in the field of its repair.

Consider an illustrated example based on the considered model. To do this, in Table 2 we present the initial data for solving this economic and mathematical model.

Table 2 uses the following conventions:

t – current time, weeks;

C - the total cost of the product (pair of shoes) rub.;

R – profitability of sales, %;

p1 – initially planned selling price of a pair of shoes, rub.;

p2 – price at the introduced discount (surcharge), under the influence of market factors, rub.;

$\Delta p1$ - the difference between the initial price p 1 and the price p 2, rub.;

S is the size of the discount (surcharge) in % of the price;

k2 - payment for storage of a unit of goods per unit of time t, in% of the cost;

Na is the amplitude value of the volume of footwear production for the period, pieces;

Nmax is the production of shoes at the maximum load of production capacities, pieces;

Nmin - the expected production of footwear to meet the most likely needs of the company's regular customers (set by the company's management based on the actual situation on the market), pieces;

t - the period of one turnover of working capital of the enterprise, weeks;

k - coefficient of repaired products;

m, n0 are constant coefficients;

$\varphi1$, $\varphi2$ are phase angles.

Suppose a shoe manufacturing company has an order for the production of 500 pairs of shoes at a price of 395 rubles per pair, 625 pairs at a price of 375 rubles per pair. The production capacity of the enterprise allows to produce 2000 pairs of shoes for a period equal to 4 months. The head of the enterprise must decide how much it is possible to "upload" the production capacity of the enterprise in order to sell the rest of the possible production of shoes on his own.

Table 2. Initial data for calculating EMM - forecasting the profit of an enterprise in conditions of unstable demand for children's shoes

t	C	p1	p2	Δp1	k2	Na	Nmin	Nmax	t	k	m	P	φ1	φ2	n0
1	305	395	350	45	0.3	112.5	100	125			-1		65	45	
2	305	395	350	45	0.3	112.5	100	125			-1		60	45	
3	305	395	350	45	0.3	112.5	100	125			-1		60	45	
4	305	395	350	45	0.3	112.5	100	125			-1		45	45	
5	305	395	350	45	0.3	112.5	100	125	12	0.01	-1	3.14	45	45	1
6	305	395	350	45	0.3	112.5	100	125			-1		45	45	
7	305	395	350	45	0.3	112.5	100	125			-1		45	45	
8	305	395	350	45	0.3	112.5	100	125			-1		45	45	
9	305	395	350	45	0.3	112.5	100	125			-1		50	50	
10	305	395	350	45	0.3	112.5	100	125			-1		55	55	

Impact Factor:

ISRA (India)	= **6.317**	**SIS** (USA)	= **0.912**	**ICV** (Poland)	= **6.630**
ISI (Dubai, UAE)	= **1.582**	**РИНЦ** (Russia)	= **3.939**	**PIF** (India)	= **1.940**
GIF (Australia)	= **0.564**	**ESJI** (KZ)	= **8.771**	**IBI** (India)	= **4.260**
JIF	= **1.500**	**SJIF** (Morocco)	= **7.184**	**OAJI** (USA)	= **0.350**

11	305	395	350	45	0.3	112.5	100	125			-1		60	60
12	305	395	350	45	0.3	112.5	100	125			-1		65	65
13	305	395	350	45	0.3	112.5	100	125			-1		70	70
14	305	395	350	45	0.3	112.5	100	125			-1		75	75
15	305	395	350	45	0.3	112.5	100	125			-1		80	80
16	305	395	350	45	0.3	112.5	100	125			-1		85	85

Suppose the management of the enterprise decided to additionally produce (in excess of orders) another 475 pairs of shoes and sell this volume on their own.

Thus, the program for the production of children's shoes for the period will total 1625 pairs.

Solving this EMM model with basic conditions: production program - 1600 pairs; the possible size of the discount to the price level for a pair of up to 350 rubles, in the MS Excel environment we will obtain the following data presented in Figure 8.
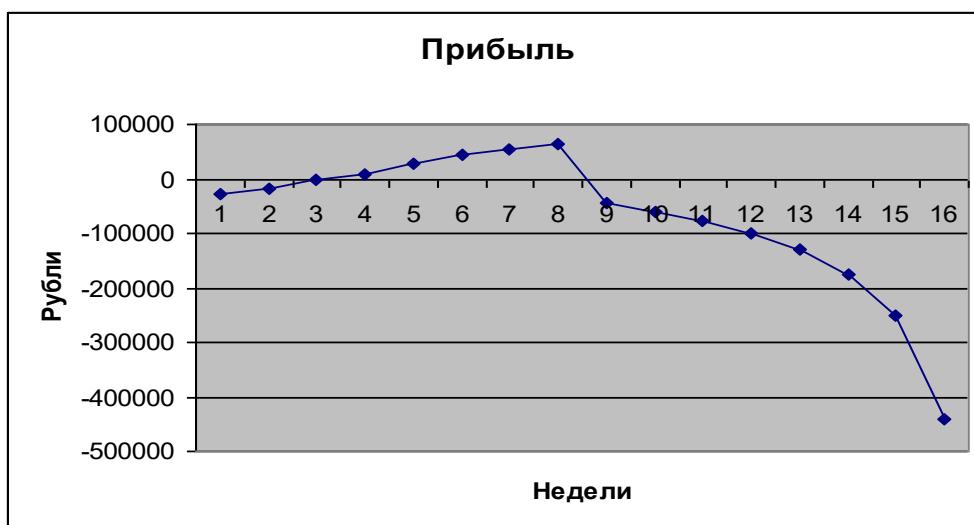

Figure 8. Dynamics of the company's profit

Thus, from Figure 8 it can be seen that the enterprise in the production of shoes under these conditions will make a profit within 5.5 weeks. Somewhere from the middle of the third week to the end of the 8th week, further production of children's shoes of this type becomes impractical. Table 3 shows the values of the profit dynamics.

Table 3. Valuesprofit dynamics, rub.

weeks	1	2	3	4	5	6	7	8	TOTAL
Profit	-28287.5	-17002.6	-1217.64	9667.719	27453.06	13956	17135.98	61241.57	82946.6

Table 3 shows that the total profit that can be achieved by the enterprise under these conditions is 82946.6 rubles.

At the same time, when selling goods at a price in the forecast period that exceeds the initial one, for

example, by 10 rubles. (405 rubles) we get a completely different character of the chart (Figure 9).
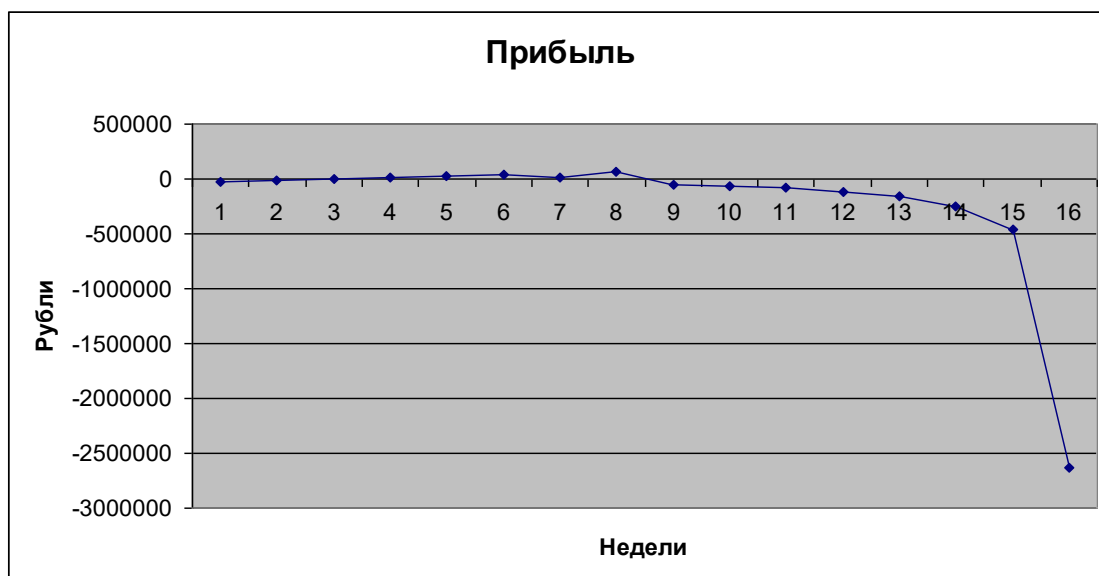
Figure 9. The dynamics of the profit of a shoe company when planning a surcharge

Figure 9 shows that the enterprise under these conditions will make a profit for only 4.5 weeks. And the amount of total profit for this period will be reduced to 80464.5 rubles. (table 4) Thus, the period of economic life of children's shoes with the introduction of the allowance will be reduced by 1 week, which will entail a decrease in the profit of the enterprise by 2482.1ruble. This is due to the fact that at a relatively high price of a product, there is a gradual drop in demand, and, accordingly, in sales volume along with profit.

Table 4. Dynamics of profit with a surcharge

weeks	Profit
1	-29116.3
2	-17881.4
3	-2158.25
4	9927.772
5	28222.75
6	11126.32
7	15034.23
8	65309.36
TOTAL	80464.5

Obviously, in this situation, one should not increase the price of the product, but a more correct solution would be to reduce the cost of production. The presented model for calculating the price optimization equation for a specific production program allows you to track the period of time for the management of the enterprise to set the maximum price for products, or not to sell products at all, since the enterprise may incur losses.

When analyzing and forecasting socio-economic phenomena, the researcher often encounters the multidimensionality of their description. This happens when solving the problem of market segmentation, building a typology of countries according to a sufficiently large number of indicators, predicting the market situation for individual goods, studying and

predicting economic depression, and many other problems.

Often in economic research, the task of analyzing data that is heterogeneous in a certain sense arises. In such cases, before moving on to building regression models, it is necessary to identify homogeneous groups of objects and build regression dependencies within each group. The development of this approach is a variant of classification according to several general indicators (principal components) obtained using the methods of factor and component analysis.

Methods of multivariate analysis are the most effective quantitative tool for studying socio-economic processes described by a large number of characteristics. These include cluster analysis, taxonomy, pattern recognition, and factor analysis.

Cluster analysis is one of the multidimensional methods for classifying enterprises. It is a set of methods that allow classifying multidimensional observations, each of which is described by a set of initial variables X1, X2, ..., Xm.

The task of cluster analysis is to divide the initial set of objects into groups of similar, close objects. These groups are called clusters. The results of such a classification should have a meaningful interpretation.

Cluster analysis methods allow solving the following problems:

− carrying out the classification of objects, taking into account the features that reflect the essence, nature of the objects. The solution of such a problem, as a rule, leads to a deepening of knowledge about the totality of objects being classified;

- verification of the assumptions made about the presence of a certain structure in the studied set of objects, i.e. search for an existing structure;

- construction of new classifications for poorly studied phenomena, when it is necessary to establish the presence of connections within the population and try to introduce structure into it.

Cluster analysis is a set of different algorithms for distributing objects into clusters. To date, a huge number of clustering algorithms are known.

One of the most common methods of cluster analysis is the k-means method, which refers to iterative methods of cluster analysis. It is often referred to as the reference method of cluster analysis. The number of clusters K is set by the user. The procedure is as follows. At the first step, K clusters - standards are determined. Further, each object is attached to the nearest standard. The criterion is the minimum distance within the cluster relative to the average. As soon as the object is included in the cluster, the average is recalculated. After the reference is recalculated, the objects are again distributed among the nearest clusters, and so on. The procedure ends when the process stabilizes, i.e. while stabilizing the centers of gravity.

Enterprises - standards, united in a cluster, are shown in Table 5.

Table 5. Enterprise Benchmarks

No.	Manufacturer's name	Issue 2019	Volume of sales
1	Bris-Bosphorus LLC	15064	14310.8
2	LLC "Mercury TV"	89.3	84.835
3	OOO "Mira"	175.7	166.91
4	CJSC Donobuv, Rostov region	964.7	916.47
5	SE KBR "Narbek"	43.3	41.135
6	ZAO Migrikol	212	201.4

Find the distance between all six objects. The calculation is carried out according to the formula (6):

$$\rho(x_i, x_j) \quad \sqrt{x\sum_{e=1}^{k}(x_{ie} - x_{je})^2} \qquad (6)$$

The results obtained are presented in the form of table 6.

It follows from the matrix that objects 3 and 6 are the closest d3.6=50.07 and therefore are combined into one cluster. In our case, this is the enterprise of Mira LLC and Migrikol CJSC. At the next stage, it is necessary to attach not an object to an object, but an object to the resulting cluster. So, to calculate the distance between an object and a cluster, we use the following (formula 7):

$$\rho(S_l, S_{(m,g)}) = ap_{lm} + \beta p_{1g} + \gamma p_{mg} + \delta\left(p_{lm} - p_{1g}\right) \qquad (7)$$

Table 6. Distance between objects

1	15064	89.3	175.7	964.7	43.3	212
X2	14310	84.83	166.91	916.47	41.1	201.4
		20654.23	20535.05	19446.77	20717.70	20484.98
	20654.23		119.17	1207.46	63.47	169.24
	20535.05	119.17		1088.28	182.64	50.07
	19446.77	1207.46	1088.28		1270.93	1038.21

	20717.70	63.47	182.64	1270.93		232.71
	20484.98	169.24	50.07	1038.21	232.71	
No.	1	2	3	4	5	6

After the calculations, we get table 7.

Table 7. Distance between object and cluster

#1	#2	№3,6	#4	#5
	20654.70	20485.20	19447.30	20718.20
20654.70		50.70	1207.40	63.45
20485.20	50.07		1088.20	182.40
19447.30	1207.40	1038.2		1270.90
20718.20	63.40	182.40	1270.90	

As a result of the calculation according to the model, object No. 2 was attached to the cluster, since they are the closest, d2.3.6=50.7. In our case, this is the enterprise Mercury TV LLC.

In the future, we will find the distance between clusters according to the "nearest neighbor" principle, using the recalculation formula. Distance between object and cluster.

As a result of the calculation according to the model, object No. 5 was attached to the cluster, since they are the closest, d5.2,3,6=63.4. In our case, this is the enterprise of the SE KBR "Narbek".

Table 9. Distance between object and cluster

#1	№2,3,6,5	#4
	20485.20	19447.30
20485.20		63.4
19447.30	63.4	

Let's add to the existing cluster enterprise No. 4 CJSC "Donobuv", Rostov region.

#1	№2,3,6	#4	#5
	20485.20	19447.30	20718.20
20485.20		1270.90	63.4
19447.30	1038.2		182.40
20718.20	63.4	182.40	

The results of the hierarchical classification of objects are shown in Figure 10 as a dendrogram.

Figure 10. Dendrogram

As a result of cluster analysis, we obtain groups of similar objects. They are objects numbered 2,3,6, 1,4.

In conclusion, it should be noted that various methods of cluster analysis make it possible to obtain clusters that differ in size and shape.

On a functional basis, a shoe cluster can be formed in the Southern Federal District and the North Caucasus Federal District. When using a mathematical model, it must be taken into account that it groups homogeneous groups of enterprises, uniting them according to the minimum distance criterion. Therefore, within a cluster can be allocated under clusters.

Any production of shoes or other goods must begin with a sales plan, which is developed by the sales (marketing) department. This financial forecast should include the planned sales volumes for the period, the planned selling price and the planned profit for this type of product.

For the mathematical model, such a type of product as children's shoes was chosen. In the Southern Federal District and the North Caucasus Federal District, there is no production of this type of product, and, consequently, all products are imported. Establishing production in our region is considered cost-effective and expedient.

But in industrial production, it is necessary to know the point in time when it is necessary to stop the production of this shoe model and switch to a new model or sew another model in large volumes (product diversification).

For this purpose, you can use such an indicator as price elasticity. It shows the percentage change in sales as a result of a 1% price change and can be compared across different brands. The price elasticity related to the sales function considered here has the following properties:

− its absolute value increases as the positive or negative deviations from competitors' prices increase;

− the sales function under consideration does not prescribe an unambiguous dynamics of price elasticity over time (it can increase, decrease or remain unchanged);

− since the influence of absolute prices is not significant, that is, price changes do not lead to a decrease in primary demand, but to a change in market share, direct price elasticity and cross price elasticity (percentage change in sales with a one percent change in competitors' prices) coincide in magnitude and distinguish them not necessary.

At the first stage of building the model, we will predict the ideal scheme for the sale of children's shoes by the manufacturer through the store. The firm incurs additional costs for hiring staff and renting a trading pavilion. The amount of additional costs may vary and depend on market conditions.

We summarize the initial data of the ideal model in Table 10.

Table 10. Initial data

Indicator, rub.:	Sum
variable costs	302.95
fixed costs	5598.13
Selling price	395
Units sold	2000
Sales volume at the point of sale	5000
Salesperson's salary	5000
Number of sellers	2
Sales area, sq. m	100
Rent for1 sq. m	100

Sales forecast for 1 month (25 business days).

The volume of sales increases by 5 pairs per day. The company will begin to make a profit on the 10th day of sales, when the daily sales volume reaches 65 pairs of shoes. Up to this point, the company must sell 360 pairs.

If the additional costs of the enterprise grow, then the break-even point will move to the right, therefore, the enterprise will receive a smaller amount of profit (on the graph, the profit is shown as a shaded triangle).

Let's build a break-even chart based on table 10.

When using the break-even chart in this form, keep in mind the following:

- calculation of break-even conditions and plotting charts

break-even - just tools for analyzing pricing decisions, but not an apparatus for predicting future commercial results;

- the break-even chart in the form shown in Figure 11 is built on the basis of the possibility of a linear increase in production (sales) volumes without any seasonality. Meanwhile, for many types of goods, ignoring seasonality is unlawful. For example, for production, where costs are incurred mainly at the beginning of a long production cycle, and the sale of finished products is only after its completion (this is how a shoe company can work, preparing the entire batch of products for wholesale sales to trading companies on the eve of the new season);

- Analyzing the conditions for achieving break-even, we must not forget that this is just an intermediate finish on the way to the main goal - achieving the highest profitability of sales.
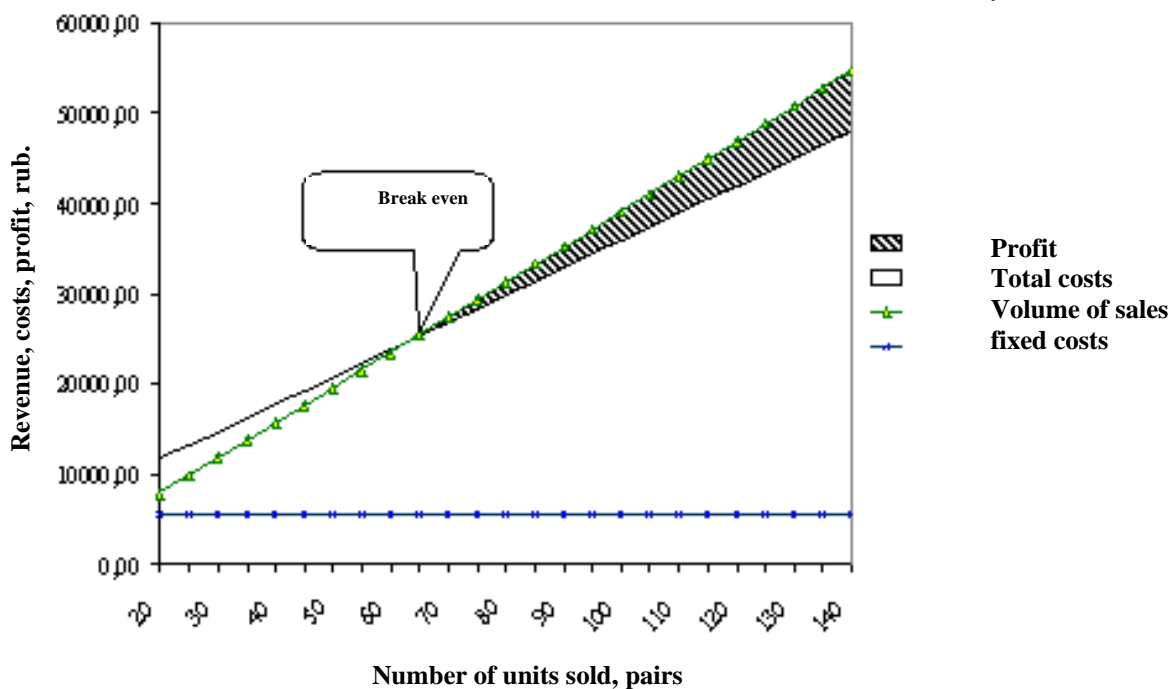
Figure 11. Break-even chart (children's shoes)

When calculating the conditions for achieving break-even or building the corresponding schedules, it is important to correctly set data on the degree of use of production capacities and the conditions for the sale

of goods. Let's say the above graph was built for the conditions of full, one hundred percent use of production capacities and full sale of all manufactured products, that is, it characterized the result of the company at all maxima: output, sales, revenue.

In practice, it is simply dangerous to adhere to such an overly optimistic approach, and all conditions must be adjusted downward. So the use of production capacity should be taken at the level of 75-80%. It should be taken into account in the calculations and the possibility of settling of part of the manufactured products in stocks due to the slow implementation process.

Table 11. Sales volume of children's shoes

Number	Qty. Steam	Volume of sales	Fast. costs	Variable costs	Total costs	Profit	Add. Cost
1	twenty	7820.00	5598.13	6059	11657.13	-3837.13	80
2	25	9775.00	5598.13	7573.75	13171.88	-3396.88	100
3	thirty	11730.00	5598.13	9088.5	14686.63	-2956.63	120
4	35	13685.00	5598.13	10603.25	16201.38	-2516.38	140
5	40	15640.00	5598.13	12118	17716.13	-2076.13	160
6	45	17595.00	5598.13	13632.75	19230.88	-1635.88	180
7	fifty	19550.00	5598.13	15147.5	20745.63	-1195.63	200
8	55	21505.00	5598.13	16662.25	22260.38	-755.38	220
9	60	23460.00	5598.13	18177	23775.13	-315.13	240
10	65	25415.00	5598.13	19691.75	25289.88	125.12	260
11	70	27370.00	5598.13	21206.5	26804.63	565.37	280
12	75	29325.00	5598.13	22721.25	28319.38	1005.62	300
13	80	31280.00	5598.13	24236	29834.13	1445.87	320
14	85	33235.00	5598.13	25750.75	31348.88	1886.12	340
15	90	35190.00	5598.13	27265.5	32863.63	2326.37	360
16	95	37145.00	5598.13	28780.25	34378.38	2766.62	380
17	100	39100.00	5598.13	30295	35893.13	3206.87	400
18	105	41055.00	5598.13	31809.75	37407.88	3647.12	420
19	110	43010.00	5598.13	33324.5	38922.63	4087.37	440
20	115	44965.00	5598.13	34839.25	40437.38	4527.62	460
21	120	46920.00	5598.13	36354	41952.13	4967.87	480
22	125	48875.00	5598.13	37868.75	43466.88	5408.12	500
23	130	50830.00	5598.13	39383.5	44981.63	5848.37	520
24	135	52785.00	5598.13	40898.25	46496.38	6288.62	540
25	140	54740.00	5598.13	42413	48011.13	6728.87	560
∑	2000	782000		605900	745853.25	36146.75	8000

Downward adjustments are also desirable in order to take into account possible disruptions in the process of production, transportation or organization of sales of goods.

Let's take the constructed ideal model as the forecast presented by the company's marketers. Let's see how the amount of profit will change depending on the influence of seasonality.

The volume of footwear sales grows disproportionately (faster) than in the model considered earlier (table 12).

With an increased growth in sales, by the end of the month the company will have to produce about 4,000 pairs of children's shoes of this model, but the production program is designed for 2,000 pairs. To reach a new level of production and sales, investments are needed in the purchase of additional equipment and the construction of a new workshop.

Table 12. Sales growth

Day	Qty. unit, steam	price, rub.	Volume of sales	Add. costs	Fast. costs	Variable costs	Total costs	Profit
1	20	395	7820	80	5598.13	6059	11657.13	-3837.13
2	25	395	9775	100	5598.13	7573.75	13171.88	-3396.88

3	30	395	11730	120	5598.13	9088.5	14686.63	-2956.63
4	35	395	13685	140	5598.13	10603.25	16201.38	-2516.38
5	40	395	15640	160	5598.13	12118	17716.13	-2076.13
6	46	395	17986	184	5598.13	13935.7	19533.83	-1547.83
7	53	395	20723	212	5598.13	16056.35	21654.48	-931.48
8	61	395	23851	244	5598.13	18479.95	24078.08	-227.08
9	71	395	27761	284	5598.13	21509.45	27107.58	653.42

Therefore, the management of the firm should consider raising the price by 10% instead of increasing the scale of output in order to reduce the amount of demand to the level provided by the current capacity of the firm. Naturally, in this case, the company's management hopes to gain profit by selling at prices with a higher unit gain (sales price minus variable costs). As it is easy to calculate, it will increase accordingly by 39.5 rubles, that is, it reaches the value of 131.55 rubles. or 30.28% of the new price. It is required to check the conditions for the successful implementation of such a policy.

First, we determine the extent of the break-even reduction in sales after the price increase. The relative break-even change in sales will be (%):

$BSCp = -\Delta P/(CM + \Delta P) \cdot 100 = -39.5/(92.05 + 39.5) \cdot 100 = -30$,

where BSCp is the break-even increase in sales as a result of price changes, %;

ΔP - price change;

SM - specific gain.

Determining the break-even change in sales in absolute terms, in this case we take as a starting point not the already achieved, but the expected sales volume (after all, it is its achievement that we want to prevent). Then the break-even change in sales is (pairs):

$BSCa = 4000 \cdot (-0.3) = 1200$.

Thus, if, after the increase in the price of shoes, the volume of its sales decreases by less than 1200 pairs, then the company will receive a larger profit than before. If sales fall by more than 1200 pairs, then the firm will face a reduction in sales profits (the price effect will be smaller than the volume effect).

We must also take into account the benefit of avoiding fixed cost increases. According to the engineering service of the enterprise, the purchase of equipment that would allow the enterprise to produce up to 4,000 pairs of shoes per month would require expenses in the amount of 100,000 rubles. Therefore,

given the averted need to incur such costs, the firm will not lose when the price rises even if its sales are reduced by even more than 30%, namely by 30% plus that break-even reduction in sales that nullifies the firm's gain from prevented increase in fixed costs. The calculation of such a complex break-even reduction in sales (in which we show the amount of costs for equipment not purchased, respectively, with a minus sign) gives us the following result:

$BSCp = -30 + (-100000) / (131.55 \cdot 4000) \cdot 100 = -30 - 19 = -49\%$;

$BSCa = -0.49 \cdot 4000 = -1960$ (pairs of shoes).

To make the economic boundaries of the decision to reduce the price more obvious to us, we summarize them in Table 13.

Let us first of all pay attention to options 3, 6 and 8. Option 3 corresponds to a situation where a decline in sales after a price increase allows the company to produce the same volume of products, that is, investing in additional equipment is unnecessary. From this point on, the company begins to receive additional profit due to savings on semi-fixed costs. Therefore, from this level of sales reduction in column G, the value of the cost of purchasing equipment equal to 100,000 rubles appears. Since these are saved costs, we show them with a minus sign.

Option 6 corresponds to the situation when the price effect and the scale effect balance each other and the gain gain becomes zero. In other words, the increase in winnings after the price increase (39.5 rubles), multiplied by the entire volume of possible future sales (4000 pairs), turns out to be equal to the reduction in winnings, defined as the product of the new absolute value of the winnings (131.55 rubles) by the reduction sales volume compared to the possible future level $(1200 = 4000 \cdot 0.3)$.

But since the firm also saves semi-fixed costs, in fact, at this moment, its change in profit has not yet become zero. She still receives an increase in profit in the amount of the amount of saved fixed costs (100,000 rubles).

Table 13. Determination of break-even volume of sales when the price increases

Options	Scales possible cuts sales volumes		Change in the total amount of the company's gain from sales, rub.			Prevented increase in fixed costs, rub.	Change in total profit after price change (E-W)
	%	couples (4000*%)/100	Increase in the calculation of the possible future sales volume (39.5 * 4000)	Decrease per reduction in sales (131.55*B)	TOTAL (Y+D)		
BUT	B	AT	G	D	E	AND	W
1	0	0	158000	0	158000	0	158000
2	10	400	158000	-52620	105380	0	105380
3	15	600	158000	-78930	79070	0	79070
4	20	800	158000	-105240	52760	-100000	152760
5	25	1000	158000	-131550	26450	-100000	126450
6	30	1201	158000	-158000	0	-100000	100000
7	40	1600	158000	-210480	-52480	-100000	47520
8	49	1961	158000	-258000	-100000	-100000	0
9	50	2000	158000	-263100	-105100	-100000	-5100
10	60	2400	158000	-315720	-157720	-100000	-57720

And only in option 8 does the increase in the firm's profit really become zero. Only with such a drop in sales volumes - by 1961 pairs against a possible future level of 4000 pairs - does the volume effect fully balance both the price effect and the savings in fixed costs.

So, if a price increase of 10% causes a drop in the number of sales by 50% or more, then the company needs to look for another option for pricing.

This can be seen even more clearly in Figure 12.

As we can see, with a reduction in sales in the range of 0-800 pairs, the company receives additional profit (+ΔP) due to the fact that for each unit sold he receives a larger gain than at the previous price, and its amount exceeds the loss of gain as a result of reduced sales. When the decline in sales reaches 800 pairs, the situation changes: the company's profit growth is also affected by savings on unrealized semi-fixed costs. Therefore, the break-even point actually shifts from the position of 1201 pairs to the position of 1961 pairs of sales reduction. At this point, the losses due to the volume effect cancel out all the gains from the price effect and avoiding the growth of semi-fixed costs.

If, however, the drop in sales exceeds this limit, then the company will begin to incur direct losses (-ΔP).

As a result of the price increase of 10%, sales of children's shoes increased by 15% from the previously planned sales of 2,000 pairs to 2,300 units. Since the company had a reserve of production capacity, it was able to increase production without additional semi-fixed costs.
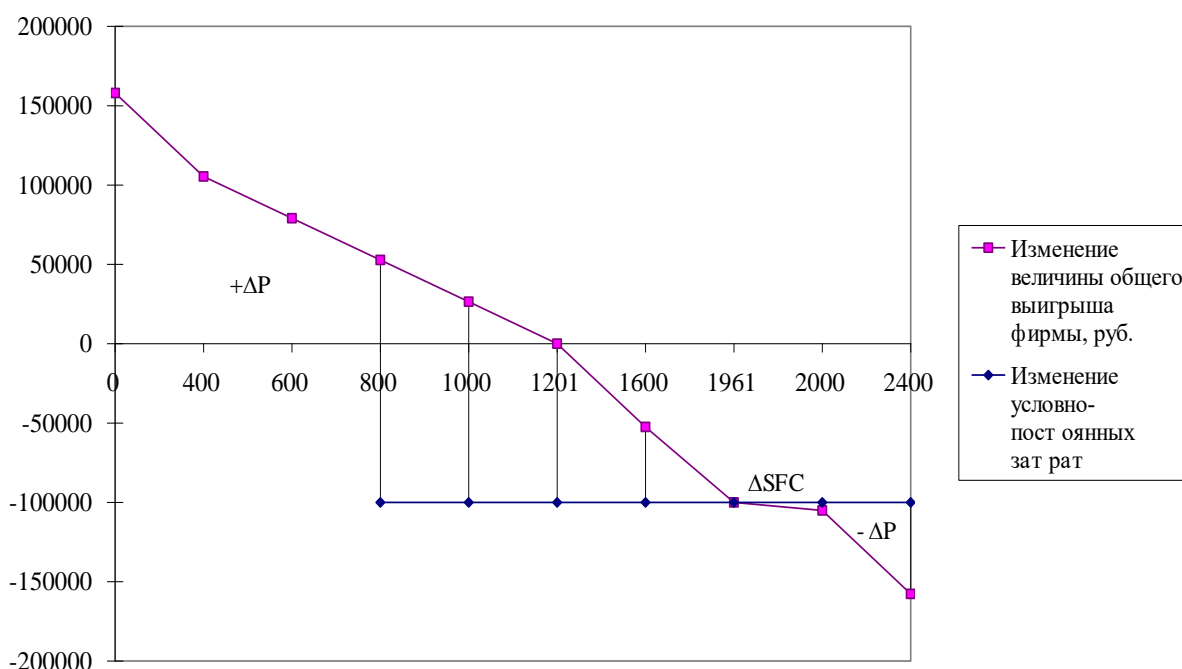
Figure 12. Economic impact of price increase and avoidance of investment in capacity expansion: +ΔP,-ΔP - respectively, the increase and decrease in the company's profit;ΔSFC - change in semi-fixed costs

Now consider a situation where the company is forced to reduce the price of shoes, as well as incur additional semi-fixed costs.

First, consider the option when the demand for shoes has an elasticity equal to one, and therefore the sales volume increases exactly by as many percent as the price decreases by percent (table 14).

Table 14. Conditions for a firm to break even with a 5% price cut

Indicators of changes in the operating environment of the firm	Meaning	
	Initial	After price reduction
Price for a pair, rub.	434.5	412.8
Price change, %	-	5%
Specific gain of the company, rub.	131.55	109.8
Win, % of the price	30.28%	26.61%
Break-even change in sales volume, %	-	19.8%
Break-even change in sales volume, pairs	-	455
Total sales, pairs	2300	2755
The total gain of the company, rub.	302565	302565

The break-even change in sales volume is equal to:

BSCp = - (-21.7) / (131.55+(-21.7)100 = 18.9%

Thus, a price reduction of 5% will pay off for the company only if the number of pairs of shoes sold increases by 18.9% or 455 pairs.

Let's simulate several scenarios for the development of events, laying in them different levels of elasticity of demand - both less and more than one (Table 15). This will help us analyze the financial implications for the firm of the combined decision of lowering the price and purchasing additional equipment to increase shoe production to meet the increase in demand after the price reduction.

To make the logic of its construction more understandable, let's consider option 3 as an example, in which the increase in the number of pairs of shoes sold (after a 5% price reduction for all the analyzed options) will be 15%. Without calculations, we would estimate such an elastic change in demand as a very favorable scenario. But we'll do the math.

So, a 15% increase in the number of sales would mean that the firm would be able to sell 345 more pairs of shoes per month, that is, the number of sales would increase to 2645 pairs. But since they will now be sold at 21.7 rubles. cheaper (not at 434.5 rubles, but only at 412.8 rubles), then, based on the previous sales volume (2300), the loss of the company (price effect)

will be - 49967.5 rubles. Obviously, this value is the same for all considered options.

Table 15. Modeling the financial impact of lowering the price and purchasing additional equipment

Options	The scale of the possible changes in sales volumes, %	Increase in the number of goods sold, pairs, 2300*B/100	Change in the total amount of the company's gain from sales, rub.			incremental fixed costs per month, rub.	Change in total profit after price change, rub. (HEDGEHOG)
			Reduction based on the previous sales volume (21.7 * 2300)	Increase in calculation for sales growth (109.8*V)	TOTAL (Y+D)		
BUT	B	AT	G	D	E	AND	W
1	0	0	-49967.5	0	-49967.5	0	-49967.5
2	10	230	-49967.5	25259.75	-24707.8	10000	-34707.75
3	15	345	-49967.5	37889.63	-12077.9	10000	-22077.88
4	19.8	455	-49967.5	49967.5	0	10000	-10000
5	23.7	546	-49967.5	59967.5	10000	10000	0
6	30	690	-49967.5	75779.25	25811.75	10000	15811.75
7	40	920	-49967.5	101039	51071.5	20000	31071.5

But the increase in sales will bring to the firm an increase in winnings. Since variable costs are not affected by price changes in any way and remain at the same level - 302.95 rubles, the new value of the specific gain after the price reduction will be 109.8 rubles. (412.8-302.95). Multiplying it by the increase in the number of pairs of shoes sold, we get the increase in the profit of the firm (the volume effect). It for this option will be 37889.63 rubles. (109.8345).

The total resulting change in the size of the company's gain under the influence of the price effect and economies of scale will be - 12077.9 rubles. (-49967.5 +37889.63).

Since the company could not provide such an increase in output on the existing fleet of equipment, it purchased additional equipment, which led to an increase in the amount of its fixed costs per month by 10,000 rubles. This, accordingly, leads to an even greater reduction in the value of its gain. It for this option will be -22077.88 rubles.

Therefore, this option, despite a 15% increase in the number of pairs of shoes sold, will be unsuccessful for the company. Her monthly winnings will be reduced by -22077.88 rubles.

The company will be able to receive an increase in winnings only if the increase in the number of sales is more than 23.7%.

But let's pay attention to option 7, where we simulated the most favorable development of the situation - an increase in the number of sales by 40%, or by 920 pairs of shoes. Such an increase in volume by the enterprise can be achieved with additional fixed costs in the amount of 20,000 rubles. But the gain in this case will turn out to be the largest of all the options considered, which will be ensured by an extremely large value of the volume effect - it will bring the company an increase in gain in the amount of 31,071.5 rubles.

Let's go back to our sales forecast. As a result of a price reduction of 5%, sales increased by 39.1% and amounted to 3,200 pairs of shoes per month. Also, the company was forced to purchase additional equipment (10,000 rubles) in order to ensure sales growth.

Consider another situation where the variable costs of a product (a pair of shoes) change. Let's turn to the above BSCp formula. To do this, we need to simply subtract the change in variable costs from the price change before calculating the break-even sales change (%). Let us also pay attention to the fact that, in contrast to the calculation that we carried out for an isolated price change, in this case the values used for the calculation must necessarily be expressed in absolute monetary units (in rubles or another

currency). And then the equation will take the following form:

$$BSCp = - (\Delta P - \Delta VC) / (CM0 + (\Delta P - \Delta VC))100,$$

where BSCp is the value of the break-even increase in sales, %;

ΔP - price change;

CM0 is the previous absolute value of the specific gain;

ΔVC - change in the value of variable costs.

Returning to the problems of our enterprise, we use this formula to calculate the break-even increase in sales it needs. Suppose changes in variable costs amounted to 15 rubles. Therefore, the change in the specific gain for her will be equal to:

$\Delta CM = (\Delta P - \Delta VC) = -21.7 - (-15) = -6.7.$

Since we previously established that the specific gain before the price change was 131.55 rubles, now nothing prevents us from calculating the break-even change in sales volume.

$BSCp = - (-6.7) / (131.55 + (-6.7))100 = 4.85\%.$

In physical terms, this will be respectively:

$23000.0485 = 111$ pairs

Now let's turn to the analysis of the impact on the break-even increase in sales of possible changes in fixed costs. The formula for calculating this effect is as follows:

$$BSV = \Delta FC / CMa,$$

where BSV is the breakeven sales volume, nat. units;

ΔFC - increase in the amount of fixed costs, rub.;

CMa – specific absolute gain, rub.

Since we remember that unit gain is equal to price minus variable costs, we can easily find for this example that the break-even increase in sales volume required to compensate for such an increase in fixed costs is equal to:

BSV = 10,000 rubles / (412.8 rubles / pair - 302.95 rubles / pair) = 91 pairs

Now the managers of the enterprise will be able to make a decision, which will depend on the following conditions:

1. How likely, given the current market situation, is it possible to sell the required volume of products every month?

2. How big is the danger that the volume of sales will be less and the company will begin to incur losses?

3. Is it possible to abandon the chosen pricing strategy and how quickly can this be done?

These are the questions that marketers need to address.

Let's look at the model again. On the 60th day of shoe sales, the price effect ceases and sales begin to decline. The company again decides to reduce the price of products, but demand is less and less responsive to such a change. Here, the firm must increase sales through marketing promotions, brand development, retail merchandising, and so on. These activities will increase the maturity stage of the footwear life cycle and generate additional profit. But when the demand for shoes stops responding to price changes and other non-price factors, the company needs to stop producing this model. At this point, the elasticity of demand will begin to increase and the maturity stage will move into the decline stage (Figure 13). The trend line drawn by the elasticity of demand showed that this brand of children's shoes was in the growth stage from day 1 to day 49.

Figure 13. Elasticity of demand

Let's analyze the change in profits during the life cycle of shoes (Figure 14).

Figure 14. Sales of shoes during the life cycle of shoes

As can be seen from Figure 14, the company received a maximum of profit at the stage of growth and a minimum at the stage of decline.

Let's compare the obtained results with the profitability of 1 pair of shoes throughout the life cycle of a children's shoe model (Figure 15).
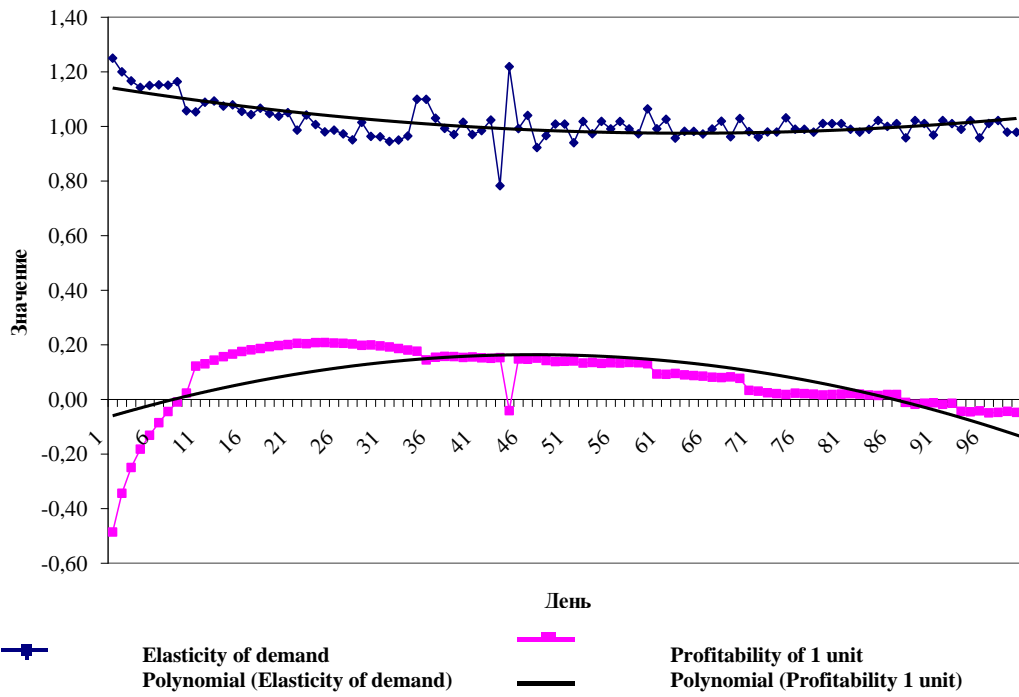
Figure 15. Elasticity of demand and profitability of 1 pair of shoes depending on the stage of the life cycle

At the stage of growth, the profitability of 1 unit (pair) reaches its maximum value (about 20%), at the stage of maturity it decreases to 15%, and by the stage of decline it reaches its minimum values.

Let's compare the elasticity of demand and the daily sales volume divided by the average sales volume for the period (Figure 16).

The average sales volume for the life cycle was 105 pairs. The maximum excess over the average level is observed at the growth stage. Slightly above average at maturity and below average at decline. At the stage of maturity, the enterprise had to apply one of the above recommendations to increase sales in order not to receive losses in the future.

Let's add to the graph shown in Figure 17 the break-even sales volume per each day of the life cycle of a shoe brand.

The break-even sales chart intersects with the average sales chart at the stage of transition from the maturity stage to the decline stage. Thus, when the following facts occur at the enterprise for a separate category (brand) of products:

1. The elasticity of demand increases;
2. The profitability of 1 unit of production is reduced;
3. Decreased sales volume
4. Sales are approaching break-even sales it is necessary to stop producing this brand of footwear or modernize it, that is, give additional properties necessary for consumers.

Legend:
- Elasticity of demand
- Average sales value
- Polynomial (Profitability 1 unit)
- Profitability of 1 unit
- Polynomial (Elasticity of demand)

Figure 16. Daily sales divided by average sales

The company needs to stop the production of shoes of this model in the interval between the 60th and 70th day of sales. Further production will bring losses, as the demand for this model becomes inelastic.

Pr \u003d V (C - Zperm.) - Zpost.

The amount of profit depends on the number of pairs of shoes sold, the difference between the price of a pair of shoes and the amount of variable costs attributable to it, i.e. the amount allocated to cover fixed costs, and the amount of fixed costs.

When applying operating leverage, business leaders have the opportunity to influence three main elements: fixed costs, variable costs and prices, each of which is to some extent related to sales volume. Let's consider the effect of changes in each of these elements on the example of Donlbuv LLC during the release Expenses for the preparation and development of production - 0.71 rubles;

‒ expenses for the maintenance and operation of equipment - 18.65 rubles;

overhead costs - 10.26 rubles;

‒ raw materials;

‒ general business expenses - 114.95 rubles;

‒ commercial expenses - 14.84 rubles.

Thus, fixed costs amount to - 159.41 rubles. (21.06%).

The value of fixed costs in the amount of the entire volume of production is 2486796 rubles, respectively, the amount of revenue minus variable costs (i.e. the sum of fixed costs and profits) per one pair of shoes is 292.61 rubles. 2238116.4 rub. ceteris paribus will cause a reduction in volume.

Legend:
- ◆ Elasticity of demand
- ▲ Average sales value
- ▬ Polynomial (Elasticity of demand)
- ■ Profitability of 1 unit
- ✦ Break even sales volume
- ▬ Polynomial (Profitability 1 unit)
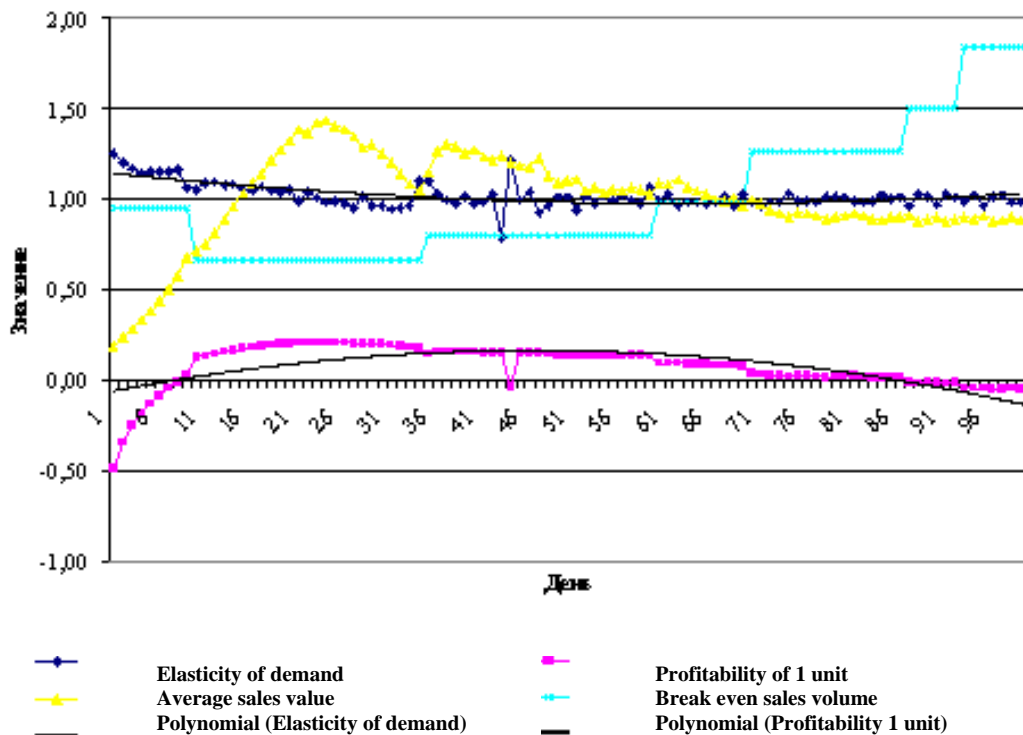
Figure 17. Break-even sales volume

The processes of globalization, the strengthening of international competition, which characterize the world economy, were an objective prerequisite for changing the paradigm of competitiveness management, which consists in the rejection of traditional industrial policy and the transition to a new industrial policy based on clusters (cluster policy). As a result of globalization, factors of production become mobile, competition between countries intensifies, therefore, not only innovations and education, but also the relationship between enterprises are important for development and maintaining superiority over competitors, which led to the creation of network structures - clusters.

The cluster is considered as a network organization of territorially interconnected and complementary enterprises (including specialized suppliers, including services, as well as manufacturers and buyers), united around a scientific and educational center, which is connected by vertical links with local institutions and authorities in order to increase the competitiveness of enterprises, regions and national economy.

In the studies performed, the issues of the formation of a regional shoe cluster in the Southern Federal District were considered. As a result of the work carried out, the prerequisites for creating a cluster were identified, such as:
- a large concentration of skilled labor;
- clear specialization of manufacturers;
- long-term traditions of shoe craft;
- availability of local suppliers of quality raw materials;
- high demand in the region for quality footwear.

We believe that for the development of the shoe cluster in the Southern Federal District it is necessary to:
- legalization of preferential taxation of producers;
- creation of an effective system for marketing products;
- improving the quality and design of shoes;
- increase in assortment;
- uniting the efforts of the players to promote the shoes of the region.

In the course of the work, it was proved that the cluster is a socio-economic system and belongs to the class of organizational systems.

An organizational system (organization) is a system, i.e. a set of interrelated elements, but this is not just a set of elements, but it exists or is created artificially to achieve certain goals, that is, the system is a means to achieve goals.

An economic and mathematical model for creating a cluster in the Southern Federal District is also given. Calculations were made by the method of multivariate classification and cluster analysis. As a result of the calculation according to the model, enterprises were united into a cluster.

The calculated technical and economic indicators can serve as the result of the performed research. Thus, the estimated output of pairs of shoes at the end of the fifth year of the cluster's operation will be 190,156,000 pairs, which will ensure economic stability for the cluster by that time.

Estimated gross profit at the end of the fifth year of the cluster will be 26928568.4 thousand rubles. rub., the total cost of production, respectively, 162921748.2 thousand rubles. It is planned to create 76268 jobs. The average monthly salary of one worker in the production of men's shoes will be 11,761.94 rubles, in the production of women's and children's shoes 10,504.46 rubles. and 10425.8 rubles. respectively. The most profitable is the production of women's shoes - 18.8%, the profitability of the production of men's shoes will be 16.6%. Less profitable is the production of children's shoes - 9.31%, and this is not surprising, since the production of shoes for children requires the highest costs. The average profitability will be 16.64%.

We also considered various options. sales of shoes within a month, for example, 100% sales of manufactured shoes, 80% and 50%. Calculations show that with 100% of the sale of shoes in the specified period of time, not only the costs of production and sale of shoes are covered, but also a fairly significant profit is obtained. This indicates the effective operation of the shoe cluster, as well as the correct marketing and assortment policy, it is also possible to make a profit when selling 80% of the manufactured children's, men's and women's shoes.

If only 50% of all footwear is sold, the activity of the cluster will not bring income, which allows us to assert that such cases are unacceptable when the sale of manufactured shoes is less than 50% within a month. If such a situation arises, it is necessary to attract borrowed funds to cover the costs and subsequent output, which provokes the possibility of the cluster becoming bankrupt.

To ensure 100% sales of manufactured shoes, a competitive assortment of men's, women's and children's shoes has been developed, taking into account factors affecting consumer demand: compliance with the main fashion trends, economic, social and climatic characteristics of the regions of the Southern Federal District, as well as national characteristics of residents of the regions of the Southern Federal District. The cluster provides for the production of footwear using both mechanized innovative technical processes and manual labor, which should meet the demand of both the elite consumer and the mass consumer, creating the prerequisites for the sale of all footwear.

The developed innovative technological processes for the production of men's, women's and children's shoes using modern technological equipment manufactured by leading companies in the world will allow the production of shoes in a wide range not only by type, but also by fastening methods, which is also a guarantee of sustainable demand for the proposed range of shoes .

The proposed technological equipment, on the basis of which it is possible to form a technological process for the production of men's and women's, as well as children's shoes, allows, taking into account the available production areaschoose the optimal volume of manufacturing shoes with high TEC.

Justified is the decision to create a center for standardization, certification and quality management. Such a center will ensure the preparation of certificates of conformity and declarations of conformity for the entire range of footwear that will be manufactured within the footwear cluster. The presence of such documents will form the confidence of the buyer, create an image, and therefore a high demand, which, from our point of view, is a determining factor for the competitiveness of the proposed range of footwear.

Based on the current state of affairs in the country's economy, in our opinion, the most significant problem in the development of the regional consumer market is the lack of a full-fledged legal framework that ensures the functioning of the mechanism of state regulation of the regional consumer market. Thus, it is the intervention of the state that should correct the situation in the shoe market in the Southern Federal District and the North Caucasus Federal District, and provide an opportunity for the development of the domestic shoe industry.

From the analysis performed, we note the following trends in the development of the shoe industry in the Southern Federal District and the North Caucasus Federal District are characterized by a high level of migration of the working population to developing industries. The leather and footwear industry for the two districts can definitely be called developing. The Southern Federal District and the North Caucasus Federal District rank first among the regions of the Russian Federation in terms of shoe production.

1. On the territory of the region there are unused sectoral fixed assets suitable for restoration.

2. In the Southern Federal District and the North Caucasus Federal District there are many specialized educational institutions for training personnel in the field of the leather and footwear industry.

It is also necessary to increase the investment attractiveness of the industry and create conditions for increasing its competitiveness. An important measure is the protection of the domestic market from illegal import and circulation of light industry goods, the creation of conditions for increasing its transparency and ensuring non-discriminatory access of manufacturers of goods in the industry to trade organizations. To do this, it is necessary to introduce high duties on the import of finished shoes and low on

the import of basic and auxiliary materials and equipment. We have to repeat again about the need to regulate the level of prices and tariffs, which would guarantee both the producer and trade not only the reimbursement of justified costs, but also the accumulation of funds for the development of production.

It is necessary to allocate funds to finance the development of technical regulations for light industry products and provide consulting assistance for their implementation.

I would like to note that there is a historically developed adaptability of the peoples living on the territory to manual production, the presence of their own national technologies and the design of manufactured shoes adapted to the climatic conditions and landscape of the region. The prerequisites for the development of shoe production in the region are very significant.

We offer the following set of measures:

1. Creation of a regional development and maintenance program

domestic shoe production in the region.

2. Taking measures to reduce the import of imported shoes into the region. These measures should include, first of all, the suppression of the trade

in footwear smuggled in and without permission for its sale in local markets.

3. Assistance in employment of young professionals, university graduates, for existing and newly created shoe enterprises.

4. Assistance to enterprises in the process of promoting domestic footwear brands in local markets. First of all, it is necessary to develop a competent marketing strategy for regional shoe companies.

5. Creation of a special lending program for light industry enterprises in the region, taking into account the specifics of production: the seasonal nature of products sold and the peculiarity of the turnover of working capital of enterprises in the industry.

In our opinion, for the successful implementation of all these measures, the interest of the regional authorities in the formation and development of the shoe cluster, their reduction in prices for components and energy costs, and for a convenient transport interchange is necessary. All this together will allow such a formation a long life and stable positions not only in domestic, but also in foreign markets. All that is needed is the good will and support of all participants in the municipal, regional and federal branches of government.

PARIS COUTIRE WEEK 2022

Collections/Fashion
28January 2022
Paris Couture Fashion Week 2022 has come to an end, which means it's time to take stock. We decided to tell you about the mostbright shows recent days and note what we remember them most of all.

Fendi

Couture Paris Fashion Week 2022: the most spectacular shows of recent days

Fendi dedicated their couture show at Palais Brongniart to the love of Rome. Brand creative director Kim Jones showed off embroidered capes, beaded dresses with long thin lines inspired by Roman modernity, as well as all sorts of Italian-inspired capes. The most significant hits of the collection were hand-painted monastic faces and statues, which were printed on luxurious velvet fabrics in full size. Following the trend for drapery, Fendi also showed us royal dresses in scarlet rose and cloudless night sky, complemented by sequins and shimmering threads.

Charles de Vilmorin

For the Spring/Summer 2022 couture collection, Charles de Vilmorin turned to the work of the great science fiction director Tim Burton. The Charles de Vilmorin dance of death is an allegory that reminds us that in the end, no one can escape the Grim Reaper, but fashion will help us all heal.

In the video presentation of the collection, we see a young man who, in the darkness of the night, begins to sew luxurious clothes in the style of the 80s. The dresses he created are decorated with fabric miniatures of skeletons dancing with real people, sequins, feathers and even naive black and white drawings from childhood.
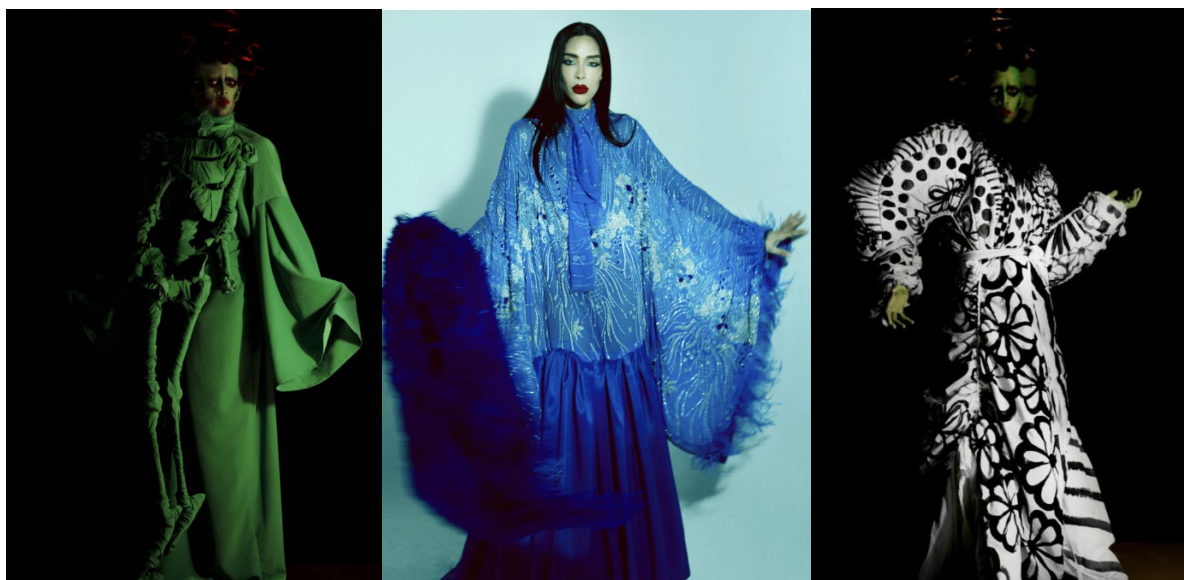
Clarivate Analytics indexed

Menswear-inspired styling cues we spotted in ralph laurent's fall/winter 2022 collection **collections**/**fashion**

24March 2022

Two years after their last offline show, Ralph Laurent is back in New York to show us that there are things that only get better with age. And in this case we are talking about the exceptional sense of classical style and the unsurpassed taste of its creators.

From the classic three-piece suit to the cute teddy bear pullover, Ralph Laurent's fall collection is full of recognizable brand codes, reminiscent of American aristocrats and British dandies. But there are also new combinations that, with the light hand of Jack Becht, migrated from the men's wardrobe, becomingbasis of women's.

1. Pullover and dress shirt

2. Black monochrome and plaid double-breasted coat

3. Basic trio: jet black, milky and light gray

4. Combination of houndstooth and classic check glenchek

5. Pullover with a high neck, worn under a matching shirt

6. Multi-texture

7. Repetition of print colors in the outfit itself

8. Jabot and the classic two-piece striped

9. Nothing superfluous: only a white shirt and black trousers with arrows

10. Multi-faceted stripes and a scarf instead of a tie

11. Tie worn with a dress

12. **Large contrast cage and butterfly for a tuxedo**

Clarivate
Analytics **indexed**

13. Quilted jacket instead of a jacket

14. Bloomers tucked into over the knee boots and a jacket resembling a tunic

Clarivate
Analytics **indexed**

15. Tuxedo coat and velvet skinnies

16. A down jacket that has become the main focus of a classic look

Clarivate Analytics **indexed**

The current situation in the world has shown that everyone has the right to express their position in the way they can best do it. Journalists shoot reports, citizens go to peaceful rallies, and designerscreate clothesdedicated to certain high-profile events. Speaking of the latter, we note that catwalks have long become not just a place to showcase clothes and promote new trends, but a real platform where fashion and politics, intertwined, become a single organism.

It all started back in the second half of the 20th century, when youth subcultures, like hippies and punks, actively indicated their agreement or disagreement with certain foundations and laws of society. Remember the loud slogans of Vivienne Westwood, who since the beginning of her design career has been openly talking to the public on the topics of environmental protection, climate change and even Brexit. And luckily, she's not the only one. History remembers a lot of examples when fashion and politics met in order to be heard (and in this case, seen) by everyone.

Conclusion

Thus, solving the problem of increasing the efficiency and competitiveness of the economy, and ultimately the quality of life, is impossible without the implementation of a well-thought-out and competent industrial policy, in which innovation based on digital production and quality should become priority areas of the state's economic policy. The problems of improving the quality, competitiveness of materials and products at the present stage of development of the Russian economy are becoming increasingly important. As the experience of advanced countries that at one time emerged from such crises (the United States in the 1930s, Japan, Germany in the post-war period, later South Korea and some other countries) shows, in all cases the basis for industrial policy and the rise economy, a strategy was put in place to improve the quality, competitiveness of products, which would be able to conquer both domestic and foreign markets. All other components of the reform - economic, financial and credit, administrative were subordinated to this main goal.

The developed software for the formation of the technological process for the production of priority products and the determination of specific reduced costs, which are the sum of current costs (cost) and capital investments, measured using the standard efficiency coefficient, taking into account the production program, makes it possible to calculate the static parameters of the technological process for the production of priority products at various forms of organization of production.The developed software for calculating cash receipts from the operating activities of light industry enterprises based on assessing the degree of implementation and dynamics of production and sales of products, determining the influence of factors on the change in the value of these indicators, identifying on-farm reserves and developing measures for their development, which are aimed at accelerating turnover products and reduce losses, which guarantees light industry enterprises to obtain stable TEP and prevents them from bankruptcy.

Models for the sale of products within a month at 100%, 80%, 50% are proposed. Calculations show that with 100% of the sale of footwear, compensation is provided not only for the production and sale of footwear, but also a net profit of 1900.54 thousand rubles remains, which indicates the effective operation of the enterprise, as well as the correct marketing assortment enterprise policy. It also provides a profit when selling 80% of men's, women's and children's shoes. When selling less than 50% of shoes from the volume of production, the company will incur losses. To solve this problem, the conditions for the sale of shoes within a specified period of time and the volume of sales of at least 50% are necessary.

Based on the current situation in the economy of our country, in our opinion, an equally significant problem in the development of the regional consumer market is the lack of a full-fledged legal framework that ensures the functioning of the mechanism of state regulation of the consumer market in the regions. Based on this, it is the state and regional intervention that should correct the situation on the market for domestic products of light industry enterprises in the regions, and thus there will be an opportunity for the development of competitive and priority products.

The implementation of the planned measures will lead to covering the deficit for all types of products, increase labor mobility in the Southern Federal District and the North Caucasus Federal District and reduce negative processes in the labor market, as well as a stable balance of interests of consumers, employers and municipal, regional and federal branches of government. For the successful implementation of all of the above activities, the interest of the regional authorities in the development of production of competitive and priority products, lower prices for components, energy costs and benefits for the transportation of manufactured products by enterprises of the regions of the Southern Federal District and the North Caucasus Federal District are most necessary.

Therefore, only the emphasis on innovation, quality, competitiveness of products and services should be the basis of the industrial policy pursued at all levels yesterday, today and, especially, tomorrow.

Othe economic effect of the results of work is limited, which consists in increasing labor productivity, the level of mechanization of production, lowering work in progress and the cost of digital production. An accessible tool for digital production technologists to rationalize the design of technological processes is proposed, which allows the enterprise to form a competitive assortment and

predict the maximum income from the production of priority products.

An assortment policy has been developed for the formation of competitive products, taking into account factors affecting consumer demand: compliance with the main fashion trends, taking into account the economic, social and climatic characteristics of the regions of the Southern Federal District and the North Caucasus Federal District, the production of which using modern innovative technical processes, as well as to meet the demand of an elite consumer, with the use of manual labor create the basis for meeting the demand for shoes for buyers in these regions.

Innovative technological processes have been developed for the production of import-substituting products using modern technological equipment with advanced nanotechnologies, which form the basis for reducing the cost of priority products and providing them with increased competitiveness with the products of leading foreign companies, with the possibility of a wide range of products not only by type, but also by gender and age groups, which guarantees its demand in full.

Layouts of technological equipment are proposed, on the basis of which it is possible to form a technological process for the production of priority products with an optimal output volume, taking into account the production area and the form of organization of digital production.

Software has been developed for calculating cash receipts from the operating activities of light industry enterprises based on assessing the degree of implementation and dynamics of production and sales of products, determining the influence of factors on the change in the value of these indicators, identifying on-farm reserves and developing measures for their development, which are aimed at accelerating turnover. products and reduce losses, which guarantees enterprises a stable TEP and prevents them from bankruptcy.

Complex indicators of the effectiveness of innovative technological processes for the manufacture of footwear, similar to other types of priority products, have been calculated. Taking into account the production program, promising options for technology and equipment have been formed, the most effective one has been selected; the possibilities of streamlining the flow were identified, allowing to eliminate bottlenecks, to minimize equipment downtime, which is one of the conditions for designing innovative technological processes. The reliability of the calculations carried out to assess the effectiveness of technological processes using methods of targeted programming for various technological and organizational solutions is confirmed by calculations of economic efficiency indicators: cost, profit and profitability and other indicators.

The proposed technique allows to reduce the duration of technological preparation of digital production and reduce the time for expert work while maintaining the required depth and validity of engineering conclusions. The economic effect of the conducted research is expressed in the intellectualization of the work of a technologist with a reduction in time spent on developing a range of priority products and evaluating the effectiveness of technological processes in comparison with a typical economic calculation of the full cost of manufacturing such products.

The analysis of the influence of forms of organization of digital production and manufacturing technology on the cost of priority products is carried out using the example of the technological process of manufacturing children's, women's and men's shoes, taking into account the shift program. Theoretical dependencies are obtained to assess the influence of the factor "organization of production" on individual costing items in general and other technical and economic indicators in order to prevent enterprises from bankruptcy.

Thus, all this together will provide light industry enterprises of the regions of the Southern Federal District and the North Caucasus Federal District with a stable position both in the domestic and in the markets of near and far abroad. All that is needed is their good will.

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