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Improvement of innovative activity and bases of anti-crisis management of the enterprise

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Abstract: This paper makes analyses of the Improvement of innovative activity and bases of anti-crisis management of the enterprise. On this case, research organizations of the anti-crisis management were stated in order to get better improvement on innovative activity discussed both methodologically and theoretically.

Keywords: Improvement, innovative, activity, anti-crisis, management, enterprise.

Introduction

Today, the share of exports of national textile products among the 10 largest producers of textiles and finished products in the world in 2017 is only 0.43%, finished products - 0.13% while in Uzbekistan the highest growth rates are observed in exports of textile products (5.0%) and finished products (6.0%). This situation and the intensive integration of Uzbekistan into the world economy require in-depth study and analysis of the economic nature, trends and strategies of the world textile market for the textile industry of Uzbekistan in the context of liberalization of the foreign exchange market, the ongoing crisis in the world economy and unstable world markets.

Stable population growth in the world over the past few years, as well as the continuation of this trend, the improvement of living standards and the solvency of the population lead to an increase in demand for finished and semi-finished textile products. This, in turn, requires the introduction of modern scientific research based on reducing the cost of production, along with the light industry of the country, in particular, in the textile industry, increasing the range and quality of its products. From the point of view of increasing on the basis of innovative approaches to the economic potential of the domestic textile industry today is relevant to the study of scientific, methodological and practical aspects of this problem.

At the current stage of intensive economic reforms in Uzbekistan, the improvement of mechanisms for increasing the economic potential of the textile industry, including constant monitoring of the level of economic potential of enterprises, accelerating the circulation of receivables and the development of a strategy for the modernization of enterprises, is of great importance. In the Strategy of actions for further development of the Republic of Uzbekistan in five priority areas in 2017-2021, important tasks were identified, such as "increasing the share of industry in the structure of the national economy, further modernization and diversification of industry by transferring it to a qualitatively new level, aimed at advancing the development of high-tech manufacturing industries, primarily for the production of finished products with high added value on the basis of deep processing of local raw materials"[1]. Ensuring the effective implementation of these tasks remains an important issue for the development and implementation of the main directions of increasing the economic potential of the textile industry of the Republic.

Theoretical background

The results of innovative activities are expressed in the form of innovative products, which may have a specific physical form or be in an intangible form (for example: "know-how"). Innovation involves both internal and external costs. Internal costs (current and capital) are allocated by sources of financing:

- own funds of the organization;
- budget funds;
- extra-budgetary funds;
- funds of business sector organizations.

Internal operating costs for research and development are distributed by type of work:

- fundamental study;
- applied research;
- developments.

By sector of activity:

- state;
- entrepreneurial;
- higher education sector;
- private non-profit sector.

[1] Decree of the President of the Republic of Uzbekistan №DP-4947 of February 7, 2017. About Strategy of actions for further development of the Republic of Uzbekistan // www.lex.uz.

To assess the cost-effectiveness of innovation, it is necessary to solve the problem of evaluating the results. It is necessary to distinguish between the cost-effectiveness of innovation from producers and buyers.

Main part

In accordance with the "Regulation on the composition of costs", the descents on the preparation and development of production of new types of serial and mass production, as well as technological processes, are not included in the cost of production and are reimbursed by extra-budgetary funds for financing industry and inter-industry R & d and activities for the development of new types of products. The procedure for the formation and use of sectoral and inter-sectoral extra-budgetary R & d funds is determined by the relevant decisions of the government of the Republic of Uzbekistan.

The costs associated with the invention include:

- costs of experimental work;
- production costs of models and samples;
- expenses for the organization of exhibitions, competitions and other marketing activities;
- payment of royalties.

The cost of creating new products on modern technology depends on the start and completion of the relevant work. Therefore, in the year of completion of R & d, this year's costs are taken into account, including the costs of previous years, the total cost of creating new products. The total cost (C) of a new product can be represented as the product of the average cost per sample (C_i) per number of samples created:

$$C = \sum_{i=1}^{n} C_i * n_i \qquad (2.2.1)$$

We show some methods of analysis of the impact of new innovative technologies on the change in total costs on the example of weaving production. For an example of the effectiveness of new innovative technologies, consider the difference in the cost of production of homogeneous products on different types of looms, the characteristics of which are listed in the table below:

Influence of efficiency of new innovative technologies on production of homogeneous production at use of various types of looms

Table 1

№	The name of indicators	**Types of looms**		
		СТБ-180	**PICONOL**	**JAT- 810**

1	Working width of the loom, cm	180	190	190
2	The frequency of rotation of the main shaft, rpm	260	600	900
3	Theoretical productivity of the loom, m / h	7,09	16,36	24,55
4	CPV	0,865	0,848	0,841
5	Actual loom productivity, m / h	6,13	13,87	20,64
6	Number of looms in the gas station, units	120	36	60
7	The volume of production, thousand m	2913,68	1977,78	4905,25

Suppose that the average cost of production of one sample of fabric class Calico, on average, in 2017 is 5340,76 sum, in 2018-5749,34 sum (per running meter). The amount of produced samples on looms STB-180, PICANOL, JET-810 was 2913,68; 1977,78; 4905,25 thousand meters respectively.

Then:

$$C_o = 4891{,}46 * 5300{,}0 = 26237702{,}96 \text{ thousand sum}$$

1 variant

$$C_1 = 5479{,}76 * 5806{,}79 = 32186751{,}07 \text{ thousand sum}$$

$$C_o = 4905{,}25 * 5317{,}6 = 26084157{,}4 \text{ thousand sum}$$

2 variant

$$C_1 = 5542{,}14 * 5688{,}22 = 31524911{,}59 \text{ thousand sum}$$

The expression (2.2.1) is a two-factor multiplicative model in which C_i is a qualitative indicator and n_i is a volumetric (quantitative) one. Determine how these factors have affected the change in the total cost of creating samples. In the theory of index analysis, the change in the qualitative indicator is considered while maintaining the volume indicator at the level of the

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reporting period, and the change in the volume indicator - while maintaining the quality indicator at the level of the base period.

In our example, the overall cost index for sample development:

$$I_c = \frac{C_1}{C_0}, \text{ or } \quad I_c = \frac{\sum_{i=0}^{n} C_{i1} * n_{i1}}{\sum_{i=0}^{n} C_{io} * n_{io}} \qquad (2.2.2.)$$

1 variant $$I = \frac{6111{,}45 \cdot 3342{,}12 + 5502{,}12 \cdot 2137{,}64}{5634{,}4 \cdot 2913{,}68 + 4965{,}6 \cdot 1977{,}78} = 1{,}23$$

2 variant $$I = \frac{5688{,}22 \cdot 5542{,}14}{5317{,}6 \cdot 4905{,}25} = 1{,}21$$

$$\Delta C = C_1 - C_0, \quad \text{or} \quad \Delta C = \sum_{i=1}^{n} C_i n_i * \sum_{i=1}^{n} C_{io} n_{io}$$

The total cost of creating samples increased by:

1 variant $$\Delta 3 = (32186751{,}07 - 26237702{,}96) = 5949048{,}11 \text{ thousand sum}$$

2 variant $$\Delta 3 = (31524911{,}59 - 26084157{,}4) = 5440754{,}19 \text{ thousand sum}$$

The average cost of creating one sample (the qualitative indicator is taken per unit) increased by 506.79 sum in the first version and by 370.62 sum. Under the influence of this factor, the total costs have changed as follows:

$$I_{Ci} = \frac{\sum_{i=1}^{n} C_{i1} * n_{i1}}{\sum_{i=1}^{n} C_{io} * n_{i1}}, \text{ (cost index per sample)}$$

1 variant $$I_{Ci} = \frac{6111{,}45 * 3342{,}12 + 5502{,}12 * 2137{,}64}{5634{,}4 * 3342{,}12 + 4965{,}6 * 2137{,}64} = 1{,}09$$

2 variant $$I_{Ci} = \frac{5688{,}22 * 5542{,}14}{5317{,}6 * 4905{,}25} = 1{,}21$$

$$\Delta\overline{Ci} = (C_{i1} - C_{io}) n_{i1} \qquad (2.2.3)$$

Are the difference between the samples:

1 variant (5806,79 − 5300,0) *5479,76 = 2777087,57 thousand sum

2 variant (5688,22 − 5317,6) *5542,14 = 2054027,93 thousand sum

The number of generated samples (quantitative and volumetric factor always reflects some combination of) increased in the first embodiment, on 588,3 thousand soums and 636,89 thousand soums in the second.

As a result, the total cost of creating samples has changed as follows:

$$I_{ni} = \frac{\sum_{i=1}^{n} C_{i0} * n_{i1}}{\sum_{i=1}^{n} C_{i0} * n_{i0}} \text{(index of the number of samples created)}, \quad (2.2.4.)$$

1 variant $$I_{Ci} = \frac{5634,4 * 3342,12 + 4965,6 * 2137,64}{5634,4 * 2913,68 + 4965,6 * 1977,78} = 1,12$$

2 variant $$I_{Ci} = \frac{5317,6 * 5542,14}{5317,6 * 4905,25} = 1,13$$

You can use this example to determine the average cost of creating samples:

$$\Delta n_i = C_0(n_{i1} - n_{i0})$$

1 variant $(5479,76 - 4891,46) * 5300,0 = 3117990,0$ thousand sum

2 variant $(5542,14 - 4905,25) * 5317,6 = 3386726,26$ thousand sum

Note that,

$$I_c = I_{ci} * I_{ni} \qquad (2.2.5)$$

$$\Delta C = \Delta C_i * \Delta n_i$$

In our example, the total cost of generating samples increased in comparison with the base year in the first embodiment, on 5949048,11 thousand sums and 5440754,19 thousand sums in the second. The increase in the cost of creating one sample for 506.79 sum and 370.62 sum led to an increase in the total cost of 2777087.57 thousand sum and 2054027.93 thousand sum respectively. However, the increase of 588,3 and 636,89 thousand meters in the amount of generated samples contributed to raising the total cost of 3117990,0 thousand sums and 3386726,26 thousand sums. Therefore, the overall change:

1 variant (2777087,57 − 2054027,93) = 723059,64 thousand sum

2 variant (3386726,26 − 3117990,0) = 268736,26 thousand sum

Now let's see why there was a change in the average cost of creating a single sample. To do this, consider the data in the table № 2

Table 2

Calculation of average costs of manufacturing a tissue sample, thousand sums.:

Examples	Base period			Current period		
	The number of manufactured samples, n_0	total costs for the manufacture of samples, $З_0$	the cost of manufacturing one sample, $З_{io} = \frac{З_0}{n_0}$	The number of samples made n_1	The total cost of sample production, $З_1$	the cost of manufacturing one sample, $З_{io} = \frac{З_1}{n_1}$
Instrument Art.150 (СТБ-180)	2913,68	16416838,59	5634,4	3342,12	20425199,27	6111,45
Instrument. 150 (PICONOL-190)	1977,78	9820864,37	4965,6	2137,64	11761551,80	5502,12
Total	4891,46	26237702,96	5300,0	5479,76	32186751,07	5806,79
instrument. 150 (JAT 810)	4905,25	26084157,4	5317,6	5542,14	31524911,59	5688,22
Total	4905,25	26084157,4	5317,6	5542,14	31524911,59	5688,22

Index of average costs for the production of one sample:

$$X_1 = \frac{O_a - O_{sh}}{A}, \qquad (2.2.5)$$

Where the average cost increased by 506.79 sum, i.e. by 8.7% in the first version and by 370.62 sum, i.e. by 6.5% in the second. This result could be affected by the cost of manufacturing a particular sample and the proportion of manufactured samples of the *i* type in the total number of manufactured samples. Consequently, the change in the average cost of manufacturing one sample is influenced by intra-production and structural factors.

The average cost of making samples can be expressed as follows:

$$C_i = \sum_{t=1}^{n} C_i * d_i , \qquad (2.2.6)$$

For further analysis, we will use the index system:

• variable composition

$$I_{vc} = \frac{C_{i1}}{C_{i0}} = \frac{\sum C_{i1} * d_{i1}}{\sum C_{i0} * d_{i0}}$$

• fixed composition

$$fc = \frac{\sum C_{i0} * d_{i0}}{\sum C_{i0} * d_{i0}}$$

• the impact of structural changes

$$I_{sc} = \frac{\sum C_{i0} * d_{i1}}{\sum C_{i0} * d_{i0}}$$

Calculation of indices for the production of one sample

Table 3

№	examples	Base period		Current period		indexes		
		averag cost per sample, $З_{io}$	share of anufacture samples in the total number, d_{ni0}	average cost per sample, $З_{i1}$	the roportion of anufacture amples in he total number, d_{ni1}	$З_{i0}$* d_{ni0}	$З_{i1}$*d_{i1}	$З_{i0}$*d_{ni1}
1	150 (СТБ-180)	5634.4	0,625	6111.45	0,635	3521,5	3880,77	3577,84
2	150 (PICONOL -190)	4965.6	0,375	5502.12	0,365	1862,1	2008,27	1812,44
3	Total	5300.0	1.0	5806.79	1.0	5383,6	5889.04	5390,28

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4	150 (JAT 810)	53 17.6	1.0	568 8.22	1.0	5 317.6	5 688.22	5 317.6
5	Total	53 17.6	1.0	568 8.22	1.0	5 317.6	5 688.22	5 317.6

It is easy to make sure that the results of graphs 1 and 3 correspond to the results of graphs 5 and 6, that is, the result of the index of variable composition with decomposition into internal production and structural factors coincides with the calculation according to the above method.

The index of the fixed part will show the impact of changes in costs on individual samples on the change in the total average cost:

1 variant $$I_{fp} = \frac{\sum_{i=1}^{n} C_{i1} * d_{i1}}{\sum_{i=1}^{n} \sum C_{i0} * d_{i1}} = \frac{5806.79}{5300.0} = 1{,}096 \text{ or } 109{,}6\ \%$$

2 variant $$I_{fp} = \frac{\sum_{i=1}^{n} C_{i1} * d_{i1}}{\sum_{i=1}^{n} \sum C_{i0} * d_{i1}} = \frac{5688.22}{5317.6} = 1{,}069 \text{ or } 106{,}9\ \%$$

The application of the cost of one sample at the level of the reporting period could lead to an increase in the total average cost of 370.62 UZS. However, in the current period the share of samples with higher costs for the production of one sample has decreased.

The change in the structure of the number of manufactured samples affected the production of total average costs:

1 variant $$I_{str} = \frac{\sum_{i=1}^{n} C_{i0} * d_{i1}}{\sum_{i=1}^{n} \sum C_{i0} * d_{i0}} = \frac{5390{,}28}{5383{,}6} = 1{,}001 \text{ or } 100{,}1\ \%$$

2 variant $$I_{str} = \frac{\sum_{i=1}^{n} C_{i0} * d_{i1}}{\sum_{i=1}^{n} \sum C_{i0} * d_{i0}} = \frac{5317.6}{5317.6} = 1{,}00 \text{ or } 100{,}0\ \%$$

This means that due to structural shifts, total average costs increased by 1.01 soums. Thus, the change in the total average cost of manufacturing one sample is:

(+370,62) + (1,01) = 371,63 sum

The buyer, acquiring innovative technologies, improves the material and technical base, production technology and management. It bears the costs associated with the purchase of innovations, their transportation, development, etc. the cost Effectiveness of the use of innovative technologies can be controlled through the following indicators:

• costs of development of innovative technologies;

• total production and sales costs;

• revenue from sales of products produced with the use of innovative technologies;

• profit from the sale of products produced with the use of innovative technologies;

• revenue from sales of all products;

• value of intangible assets;

• value of fixed assets;

• net profit;

• average headcount.

To assess the impact of factors on the performance indicator in the above models, we use interrelated factor indices and use the methodology of their application on the example of the following model:

$$\Pi = \frac{P_p}{S_p} * \frac{S_p}{N_A} * \frac{N_A}{C_{fa}} * C \quad (2.2.7)$$

where:

P_p/S_p - product profitability or sales profitability;

S_p/N_A – turnover ratio intangible assets;

N_A/C_{fa} – ratio of intangible assets to the value of fixed assets;

F - average annual cost of fixed assets.

The essence of the method of interrelated factor indices is that the influence of each individual factor on the performance indicator is considered in interaction with other factors. For example, we have a three-factor model in which factors are conventionally a,b,c.

$$y = a,b,c.$$

The index of the effective index (I_y):

$$I_y = \frac{a_1 * b_1 * c_1}{a_o * b_o * c_o}$$

The absolute change in the effective indicator is equal to the difference between the numerator and the denominator:

$$\Delta y = a_1 * b_1 * c_1 - a_o * b_o * c_o$$

In this instance:

1. We assess the impact of factor a on the performance indicator. The change of the factor occurs in interaction with the factors *b* and *c*, etc.:

2. When building each of the following factor index, from the studied factor, obstreperous later. Thus, when constructing the index of factor *b* we have:

$$I_б = \frac{a_0 * b_1 * c_1}{a_0 * b_0 * c_1}, \quad \Delta b = a_o(b_1 - ab_o)c_1$$

therefore,

$$I_в = \frac{a_0 * b_1 * c_1}{a_0 * b_0 * c_1} \quad , \quad \Delta c = a_o b_o (c_1 - c_o)$$

The interaction of index:

$$Iy = I_a \cdot I_b \cdot I_c$$

Overall change in the performance indicator taking into account the influence of factors:

$$\Delta y = \Delta a \quad + \Delta b \quad + \Delta c$$

Table 4

Indicators of LLC "APITEX" for 2017 (thousand soums)

№	The name of indicators	organization	prognosis
1	Sales revenue (excluding VAT and excise taxes)	12 766 106	14 011 224
2	The average annual value of fixed assets	863 788	796 889
3	The average annual value of intangible assets	539 772	415 256
4	Net profit	352 461	490 393

According to the table №4 calculate the profitability of products, the use of fixed assets and intangible assets.

Calculation of profitability of products, use of fixed assets and intangible assets

Table №5

№	Indicators	Symbol	organization	prognosis	Absolute change	Dynamic coefficient
1	Product profitability, sum / sum	a	0,024	0,027	+ 0,003	1,125
2	Return on intangible assets	б	20,71	26,92	+ 6,21	1,3

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3	ratio of intangible assets and fixed assets	в	0,624	0,477	- 0,148	0,763
4	Return on fixed assets	$Р_ф$=аба	0,311	0,346	+0,035	1,113
5	The average annual value of fixed assets	г	863 788	796 889	- 66899	7,7
6	Net profit	П=абвг	268638	275724	- 7086	2,6

The index of changes in net profit shows that the increase in this indicator was due to a decrease in the ratio of intangible assets to fixed assets, and due to the latter - to the greatest extent. Of course, foreign investments are of great economic interest in this case for the development of innovative processes and technologies. In turn, their attraction can be facilitated by the provision of relatively cheap but skilled labor and stable markets. However, to date, these benefits have been neutralized by a number of factors. First of all, it is necessary to strengthen the real guarantees of safety and return of foreign loans and investments, which should provide the domestic market insurance companies.

Conclusion

As material support for foreign loans and investments, it is advisable to use Republican holdings in foreign banks, as well as to expand foreign holdings and invest currency in joint production. In addition, the implementation of innovative technologies in practice requires the participation of foreign partners in the restructuring of industry and, in particular, the creation of competitive innovations, it is necessary to keep in mind the fact that they will pursue, first of all, their goals.

However, the restructuring of industry, despite the scientific and technological achievements of enterprises, can't be implemented only by economic entities, so the need for further organizational and material support of the state.

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