

## Impact Factor:

ISRA (India)	= 3.117	SIS (USA)	= 0.912	ICV (Poland)	= 6.630
ISI (Dubai, UAE)	= 0.829	PIHHI (Russia)	= 0.156	PIF (India)	= 1.940
GIF (Australia)	= 0.564	ESJI (KZ)	= 5.015	IBI (India)	= 4.260
JIF	= 1.500	SJIF (Morocco)	= 5.667	OAJI (USA)	= 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

## International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2019 Issue: 01 Volume: 69

Published: 30.01.2019 <http://T-Science.org>

**SECTION 31. Economic research, finance, innovation, risk management**



**Baxtiyarjon Bulturbaevich Mullabayev**  
Senior teacher at Namangan Engineering Construction Institute, Namangan, Republic of Uzbekistan

**Elmurod Vokhidov**  
student of 8-mj-16 group, Department of "Management" department, Namangan Engineering Construction Institute, Namangan, Republic of Uzbekistan

**Dilshodbek Karimov**  
student of 8-mj-16 group, "Management" department, Namangan Engineering Construction Institute, Namangan, Republic of Uzbekistan

## THE ROLE OF VERTICAL INTEGRATED ENTERPRISES IN THE ECONOMY

**Abstract:** The article discusses the issues of economic integration development in Uzbekistan and the factors that affect it. The role of the state in expanding the integration processes, ways to enhance the effectiveness and integration of enterprises involving this process. Effective actions of entities operating under a complex market economy depend on their well-coordinated market analysis of the market and the necessary decisions. In order to make good economic analysis and make a decisive decision, it is necessary to choose regression calculations and the best, adequate regression equations and econometric modeling of economic sectors. The econometric modeling of particular economic objects, the study of the factors affecting the object and the econometric model of the question of the effectiveness of the impact, and the work on various options on the computer, make the right decisions in the development of future activities. The vertical integration of economic sectors on the basis of structural transformation is crucial not only for the development of network production, but also for the improvement of innovative activity management. In this regard, this article was thoroughly studied in detail in the state of vertical integration processes in the innovation activity of enterprises through the econometric analysis of the enterprises that are part of the Uzbek Light Industry Association "Uztukimachisanoat".

**Key words:** vertical integration, innovation, investment, production structure, econometric model, reliability criteria.

**Language:** English

**Citation:** Mullabayev, B. B., Vokhidov, E., & Karimov, D. (2019). The role of vertical integrated enterprises in the economy. *ISJ Theoretical & Applied Science*, 01 (69), 85-90.

**Soi:** <http://s-o-i.org/1.1/TAS-01-69-17> **Doi:**  <https://dx.doi.org/10.15863/TAS.2019.01.69.17>

### Introduction

According to the introduction of modern management strategies in the world, the scale of the effective use of vertical integration in innovative development of the industry is expanding. In the United States, in 1991, 51.9 percent of the total capital was vertical integrated corporations, while 83.3 percent of the corporations are currently using the system effectively. The main problem is the acceleration of foreign economic activity of the

country, its role in world markets and the effective management of corporate governance through the use of vertical integration.

To ensure the competitiveness of industrial enterprises in the global market, introduction of modern innovative management strategies into the world economy, the improvement of organizational and economic mechanisms of processes from pre-primary raw materials to finished products, assessment of the effects of exogenous and

## Impact Factor:

ISRA (India)	= 3.117	SIS (USA)	= 0.912	ICV (Poland)	= 6.630
ISI (Dubai, UAE)	= 0.829	PIHHI (Russia)	= 0.156	PIF (India)	= 1.940
GIF (Australia)	= 0.564	ESJI (KZ)	= 5.015	IBI (India)	= 4.260
JIF	= 1.500	SJIF (Morocco)	= 5.667	OAJI (USA)	= 0.350

endogenous factors affecting the production process, effective organizational- the development of the economic mechanism is becoming an urgent issue today.

The legal basis and favorable conditions for the development of industry in the Republic of Uzbekistan have been created. As a result of the adoption of industrial capacity measures, the growth of the total volume of production and the share of industry in the structure of GDP increased from 27.8% in 1995 to 32.9% in 2017. However, the introduction of modern management strategies in the industry and the imperfections of the manufacturing system do not allow for innovative development of enterprises. These circumstances require the need to increase the efficiency of vertical integration in the management of innovative activities of industrial enterprises.

In the Strategy of Action for the Development of the Republic of Uzbekistan in five priority areas for 2017-2021, the "Further modernization of the industry through a qualitatively new level aimed at accelerated development of high-tech manufacturing sectors, first of all, on the deep processing of domestic raw resources, and diversification"<sup>1</sup>. Efficient implementation of these tasks requires the active introduction of the practice into practice, the introduction of modern vertical and horizontal integration of production, foreign economic and investment processes into a profound study of the experience of foreign companies.

### Literature review

A number of economists in scenarios on the improvement of organizational and economic aspects of management in operating enterprises, the impact on innovation processes in industrial enterprises, the main trends in attracting innovation and the development of innovation activity in their implementation, including a set of economists, including understanding, I.Assoff (1999) on adaptation pathways is the most comprehensive and optimistic method of management M. Mischon, M.Albert, F.Xedouri (2000), the ultimate controlling stakeholder of the largest corporations, about the principal principles and concepts of management, official organizations, commercial and nonprofit, small and large organizations, and their effective management La Porta R., LopezdeSilanes F., Shleifer A. (1999).

Richard N. Langlois, Paul L. Robertson (1989), discusses vertical integration between storage, transportation, distribution and processing of

agricultural products in terms of the content and significance of vertical integration, its effectiveness and car industry , and Anne Wairimu Maina and Stanley Kavale (2016) on how to effectively relate vertical integration as an organizational strategy, and the cost effectiveness of their effectiveness, BSdderder, F. Byramjee (2012), and other scientists in the field of Optimization of Functional Controls in Business Systems. Despite the considerable contribution of foreign researchers to the field of economics, they are not specific to the nature of the research, based on the network characteristics of the vertical integration of advanced methods of management in enterprises.

Yuldoshev N. and et al. (2018), Tursunov B. (2017), Khakimov Z. A. (2018) studied many aspects of textile enterprises` management. N.V.Smirnova (2017) on the importance and advantages of vertical integration in the major institutional structures of innovation ideas in the Commonwealth of Independent States as a mechanism for the production of products of high added value according to the possible signs and principles of forming vertical integrated structures of processing enterprises. Zimina A.A. (2014), the overall profitability of the vertical integration and the return on equity, as well as the sale and repayment of debt on the example of agro-industrial complex Pinkevich I.K. (2010), future successes, problems and perspectives for future development, including horizontal (West-East) and vertical (North-South) integration Naryshkin S.E. (2014) and vertical integration production to enhance the relationships between the technology and distribution chains, Ivanov Yu.V. (2000). In these research studies, factors such as efficiency in economic activity, curtailment of transaction costs, and development of corporate relationships have been studied in the use of management strategies for vertical integration, with the study of the effects of vertical integration on innovative activities of enterprises.

Although the results of the above-mentioned economists` research have been widely used today, they have been focused on the peculiarities of the use of vertical integration in the management of innovative activities related to various forms of production, the introduction and improvement of innovative development mechanisms of industrial enterprises` activities and the use of vertical integration The focus of the research is whether the subject is selected cause.

### Research Methodology

In the course of the research were used such methods as economic-statistical analysis, mathematical-statistical, correlation-regression analysis, statistical observation, grouping, econometric modeling.

<sup>1</sup> Annex 1 of the Decree of the President of the Republic of Uzbekistan "On Strategy for Action for Further Development of the Republic of Uzbekistan" of February 7, 2017, Appendix 1 "Strategy of action on five priority directions of development of the Republic of Uzbekistan for 2017-2021" Lex.uz

## Impact Factor:

<b>ISRA (India)</b> = 3.117	<b>SIS (USA)</b> = 0.912	<b>ICV (Poland)</b> = 6.630
<b>ISI (Dubai, UAE)</b> = 0.829	<b>PIHHI (Russia)</b> = 0.156	<b>PIF (India)</b> = 1.940
<b>GIF (Australia)</b> = 0.564	<b>ESJI (KZ)</b> = 5.015	<b>IBI (India)</b> = 4.260
<b>JIF</b> = 1.500	<b>SJIF (Morocco)</b> = 5.667	<b>OAJI (USA)</b> = 0.350

### Analysis and results

The vertical integration of the economic sectors of the Republic of Uzbekistan on the basis of structural transformation is crucial not only for the development of network production, but also for the improvement of innovative activity management. In this regard, it is possible to scientifically study the state of vertical integration processes in innovation activity of enterprises through econometric analysis of enterprises and non-members of the Association "Uztokimspirtsanoat" in light industry.

For this purpose, the cost of products (goods, works and services) –  $X_1$ , the net profit from the sale of products (goods, works and services) -  $X_2$ , the number of enterprises that affect the production of Y - members of the Association "Uztukimachilikanoat"  $X_3$ , the starting value of the

fixed assets -  $X_4$  and the depreciation of fixed assets - the economic indicators based on the criteria  $X_5$ . (Savitskaya G.V., 2004)

Based on selected factors, their level of interconnection can be determined through the correlation coefficient in the EXCEL program. According to the table data, there is a strong link between the selected factors and the factors that make the relationship between intense and  $|r_{x_1, x_2}| < 0,8$ , it can be determined that there is no multicollinearity between the factors and the regression equation can be created. Regression equation shows the functional relationship between the factors selected by the factor and the factors selected. (Table 1).

**Table 1. Correlation analysis of economic indicators of the member-states of the Association «Uztukimachilikanoat».**

	Y	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$
Y	1					
$X_1$	0,933385	1				
$X_2$	0,9836894	0,7681273	1			
$X_3$	0,9693652	0,7472270	0,6935444	1		
$X_4$	0,9422892	0,780038	0,7812438	0,7762072	1	
$X_5$	0,9166932	0,780446	0,6701967	0,5661216	0,7926793	1

Source: author's work on the basis of the data from the State Statistics Committee of the Republic of Uzbekistan

It is best to use the most effective Eviews software to create a regression equation. At the same time it is necessary to check the reliability and acceptability of definite regression equations on the

basis of certain criteria. The smallest squares (Gauss-Newton / Marquardt steps) were used in the data scale "Akaike", "Schwarz" and "Hannan-Quinn".

**Table 2. The results of reliability and consistency of the regression equation based on the mezzanine.**

R-squared	0.896353	Mean dependent var	108.6350
Adjusted R-squared	0.879331	S.D. dependent var	56.00613
S.E. of regression	3.682046	Akaike info criterion	9.794668
Sum squared resid	84.91895	Schwarz criterion	9.158121
Log likelihood	-28.76801	Hannan-Quinn criter.	9.724103
F-statistic	27.80241	Durbin-Watson stat	1.852415
Prob(F-statistic)	0.001270		

Source: The author's research results

The statistical criterion of this model, which allows the test of the Akaike-AIC = 9,79, Schwarz-BIC = 9,16 and Hannan-Quinn-HQ = 9,72 and the first sequence of elements to test the motor vehicle correction - The additive regression equation, determined by Durbin-Watson-DW = 1.85, is expressed as follows:

$$Y = 211,99 + 0,96 \cdot X_1 - 0,0087 \cdot X_2 + 0,079 \cdot X_3 + 0,043 \cdot X_4 - 0,064 \cdot X_5 \quad (1)$$

where: Y - Production capacity of enterprises;

- $X_1$  - number of enterprises;
- $X_2$  - the cost of the goods (goods, works and services);
- $X_3$  - net proceeds from sales (goods, works and services);
- $X_4$  - the starting value of fixed assets;
- $X_5$  - depreciation of fixed assets;

According to the established regression equation, in current conditions, the increase in the number of member-enterprises established by the Association "Uztukimachilikanoat" to 10 units would increase the volume of production by 9.6

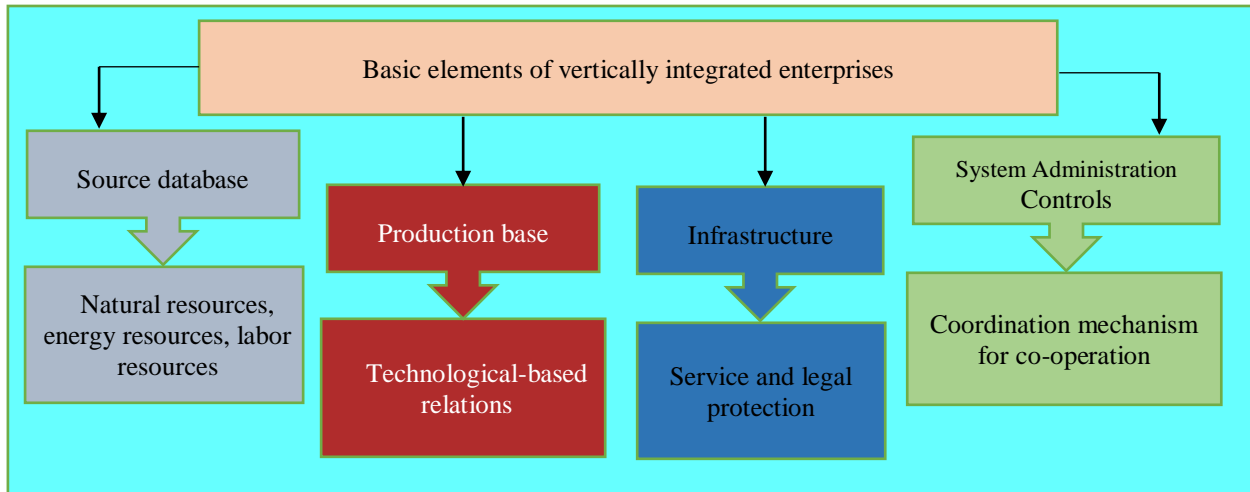
**Impact Factor:**

<b>ISRA (India)</b> = 3.117	<b>SIS (USA)</b> = 0.912	<b>ICV (Poland)</b> = 6.630
<b>ISI (Dubai, UAE)</b> = 0.829	<b>PIHHI (Russia)</b> = 0.156	<b>PIF (India)</b> = 1.940
<b>GIF (Australia)</b> = 0.564	<b>ESJI (KZ)</b> = 5.015	<b>IBI (India)</b> = 4.260
<b>JIF</b> = 1.500	<b>SJIF (Morocco)</b> = 5.667	<b>OAJI (USA)</b> = 0.350

units, net sales of products (goods, works and services) - 0.8 units and fixed assets the initial value was found to increase by 0.4 unit increments.

However, it will increase the production of goods at the enterprises by 0.9 and 6.4 units, respectively, due to the reduction of the cost of goods (goods, works and services) and the depreciation of fixed assets by 100 units.

Based on the above-mentioned methods, we conduct an econometric analysis of the enterprises operating in the Namangan region by the members of the Association "Uztakimachilikanoat". It is important to note that the main elements of vertical integrated enterprises are divided into 4 groups (Figure 1).



Source: Author's development

**Fig.1. Basic elements of vertically integrated enterprises.**

The mechanism of vertical integrated system management and its individual elements, as well as the coordination mechanism of the business system, is of the greatest importance for the system, and it is most difficult to analyze and describe. To analyze the development of vertical integrated systems, it is necessary to take into account the dynamics of internal and external relations.

Internal relationships include production and delivery, distribution, participation in certain stages of production, technological redistribution and other economic relationships, first of all between individual technological steps and individual elements of subsystems.

External and external counterparts are vertical integrated structures interacting with the state, describing the elements of the first and second groups (elements of the resource and production base), geographical distribution of resources and production base, economic indicators (external and

internal resources) price dynamics, and the most important element of the analysis is to form the objective function of a vertical integrated structure.

First of all, objective function should have criteria and quality indicators reflecting the effectiveness of a vertical integrated system based on the system's stability, the performance of the processes and system elements. This results in the presence of a qualitative component that performs complicated objective functions.

$X_1$ , the cost of products (goods, work and services) -  $X_2$ , the product (goods, works and services), as a result of the production of the enterprises of the "Uztishmashanoat" Association -  $Y$  and the factors influencing it, net gains  $X_3$  and the starting value of fixed assets -  $X_4$  and depreciation of fixed assets -  $X_5$  were selected. According to the results of Table 39, the selected factors were strongly correlated with the factor factor, and multicollinearity was not observed among the factors.

**Table 3. Coefficient of Correlation Coefficients of the Member of the Association "Uztukimachilikanoat" of Namangan region.**

	$Y$	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$
$Y$	1					
$X_1$	0,933385	1				
$X_2$	0,9836894	0,7681273	1			
$X_3$	0,9693652	0,7472270	0,6935444	1		
$X_4$	0,9422892	0,780038	0,7812438	0,7762072	1	

## Impact Factor:

ISRA (India)	= 3.117	SIS (USA)	= 0.912	ICV (Poland)	= 6.630
ISI (Dubai, UAE)	= 0.829	PIHHI (Russia)	= 0.156	PIF (India)	= 1.940
GIF (Australia)	= 0.564	ESJI (KZ)	= 5.015	IBI (India)	= 4.260
JIF	= 1.500	SJIF (Morocco)	= 5.667	OAJI (USA)	= 0.350

$X_5$	0,9166932	0,7804460	0,670197	0,5661216	0,7926793	1
-------	-----------	-----------	----------	-----------	-----------	---

Source: the author's note based on the data from the State Statistics Committee of the Republic of Uzbekistan

On the basis of the correlation coefficients,  $Y = f(x)$  is defined by the functional dependence of the regression equation of the volume of production of the enterprises of the "Uztukimachilik sanoat" Association in Namangan region:

$$Y_{nam.member} = 24,4 + 0,87 \cdot X_1 - 0,35 \cdot X_2 + 0,63 \cdot X_3 + 0,45 \cdot X_4 - 0,3 \cdot X_5 \quad (2)$$

where: Y - Production capacity of enterprises;

$X_1$  - Number of organizations in the Association;

$X_2$  - cost of sold goods (goods, works and services);

$X_3$  - net proceeds from sales (goods, works and services);

$X_4$  - the starting value of fixed assets;

$X_5$  - depreciation of fixed assets.

(2), according to the equation of the equation, the volume of output produced by increasing the number of member-enterprises, the net value of the net sales of the product and the cost of the fixed assets by 10 units, respectively; 6.3 and 4.5 units have been added. In modern conditions, it is desirable to develop measures to reduce the prime cost of the goods (goods, works and services) sold and the depreciation of fixed assets. This is due to the fact that an increase in the cost of goods sold at a per cent (goods, works and services) will result in a 0.35% reduction in the volume of goods and 0.3% due to depreciation of fixed assets. (2) - The reliability and acceptability of the regression equation is given in Table 2.10.

**Table 4. Reliability criteria of the regression equation of the enterprises of the "Uztukimachilik sanoat" association of Namangan region.**

R-squared	0.996353	Mean dependent var	106.4250
Adjusted R-squared	0.993313	S.D. dependent var	46.00613
S.E. of regression	3.762068	Akaike info criterion	8.794668
Sum squared resid	84.91895	Schwarz criterion	9.037121
Log likelihood	-28.76801	Hannan-Quinn criter.	8.704903
F-statistic	327.8036	Durbin-Watson stat	1.947515
Prob(F-statistic)	0.000000		

Source: Author's development

According to the table data, (2) the reliability and equivalence of the equation of the equation can be seen. Table t-criterion for the Student's distribution  $\alpha = 0,05$  value ratio and  $df = 11$  the value of freedom levels by number  $t_{table} = 2,20$  e,  $t_{X_1} = 2,79$   $t_{X_3} = 5,38$  and  $t_{X_4} = 2,33$  equality  $t_{account} > t_{table}$  since x and y are correlated. But this is the place  $t_{X_1} = -0,43$   $t_{X_3} = -1,82$  and  $t_{X_5} = -3,15$  we use the criteria for determining the quality of the prognostic model of the significance of the equation that is determined by the equation.

According to him, MAPE = 1.935465% and TIC = 0.011549, the  $X_1$ ,  $X_3$  and  $X_5$ , which are negligible in terms of the t-criterion of Student's distribution, are also expressed in the regression equation to ensure that the enterprises of "Uztukimachilik sanoat" Association clearly reflect the change in the size of the product.

### Conclusion/Recommendations

Vertical integration for modern businesses is a promising aspect of increasing its efficiency in a constantly changing environment in line with the vertical integration principle. This integrated

approach, based on the technological principle, allows the local industry enterprises to solve important tasks for all members at the stage of final product sales, centralize marketing and legal services, provide consulting services in tax and entrepreneurship, and targeted use of bank loans - increasing competitiveness.

In conclusion, it is desirable for the enterprises of the "Uztukimachilik sanoat" Association to increase the volume of production, first of all it is desirable to attract the operating enterprises to the association, and currently there are 18 enterprises in the association. If you look at the results of the survey, 201.6 billion will be invested in 201.6 billion dollars. It could produce up to 12 products (actually 18 in 2017). It should be noted that, according to the volume of production made in 2016, the number of the members of the association is within the limits of 12 < 18 < 23. The profitability of the members of the Association is 11.1 per cent, which is 4.1 per cent more than the profitability of non-member associations.

According to the cost analysis of the products sold at the Association's enterprises, the limit was 167.3 < Quantitative < 270.0, and the actual value of the product sold in 2017 amounted to 201.6 billion

## Impact Factor:

ISRA (India) = 3.117	SIS (USA) = 0.912	ICV (Poland) = 6.630
ISI (Dubai, UAE) = 0.829	PIHHI (Russia) = 0.156	PIF (India) = 1.940
GIF (Australia) = 0.564	ESJI (KZ) = 5.015	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 5.667	

soums. soums. If these indicators were compared to the size of the product compared to the members and non-member associations, the cost of the unit product was 0.01 and 0.014 per cent, respectively.

Source(s):

Annex 1 of the Decree of the President of the Republic of Uzbekistan "On Strategy for Action for Further Development of the Republic of Uzbekistan" of February 7, 2017, Appendix 1 "Strategy of action on five priority directions of development of the Republic of Uzbekistan for 2017-2021" Lex.uz

## References:

1. Ansoff, I. (1999). *New corporate strategy*. (p.416). SPb: Piter Publishing House.
2. Meskon, M., Albert, M., & Hedouri, F. (2000). *Fundamentals of Management*. (p.564). M.: Business.
3. La Porta, R., LopezdeSilanes, F., & Shleifer A. (1999). Corporate ownership around the world. *Journal of Finance* 54(2), 471–517.
4. Maina, A. W., & Kavale, S. (2016). Effect of Vertical Integration on the Performance of Agricultural Commodity Business. Case Study of Export Trading Company Ltd. *Elixir Agriculture* 94, 40621-40628.
5. Scudder, B., & Byramjee, F. (2012). The Vertical Integration Strategies Approach for Organizational Risk Reduction GSTF. *Journal on Business Review (GBR) Vol.2 No.2*, DOI: 10.5176/2010-4804\_2.2.209.
6. Langlois, R. N., & Robertson, P. L. (1989). Explaining Vertical Integration: Lessons from the American Automobile Industry *Journal of Economic History, Volume 49, Issue 2, The Tasks of Economic History*, 361-375.
7. Smirnova, N. V. (2017). On the role of vertical integration of enterprises of machine-building industry in the Russian economy. *Bulletin of VSU. SERIES: Economics and Management. № 4*, 35-43.
8. Savitskaya, G. V. (2004). *Analysis of the economic activity of the enterprise*. Textbook. 3rd ed. (p.225). M.: INFRA-M.
9. Zimina, A. A. (2014). Basic prerequisites and benefits of vertical integration. *Electronic scientific publication "Scientists notes PNU" Volume 5, No. 4*, 967 - 973.
10. Pinkevich, I. K. (2010). Types and features of integration processes in the agro-industrial complex of Russia. *Problems of modern economy, N 1 (33)*, <http://www.m-economy.ru>
11. Naryshkin, S. E. (2014). Experience and prospects of Eurasian economic integration. *Problems of modern economy, N 4 (52), BBK U9 (2) 80.3, 7-8*.
12. Ivanov, Y. V. (2000). Enterprise Integration. *Russian Entrepreneurship. Volume 1, № 10*, 30-36.
13. Acemoglu, D., Griffith, R., Aghion, P., & Zilibotti, F. (2010). Vertical integration and technology: theory and evidence. *Journal of the European Economic Association September 8(5)*, 989–1033; 989-1033 p.
14. Blier, M. M. (2005). *Vertically Integrated Structures in the Modern Economy*. Dis. ... Cand. econ Sciences: 08.00.01: M., (p.147).
15. Petukhov, R. M. (2005). *Evaluate the effectiveness of industrial produce*. Methods and indicators. M.: Economy.
16. Abchuk, V. A. (2002). *Management*. (pp.358-365). St. Petersburg, publishing house "Union".
17. Yuldoshev, N., Tursunov, B., & Qozoqov, S. (2018). Use of artificial intelligence methods in operational planning of textile production. *Journal of Process Management. New Technologies*, 6(2), 41-51.
18. Khakimov, Z. A., Tursunov, B. O., & Krivyakin, K. S. (2018). Methodology for assessing the competitiveness of products of textile enterprises. *Naukoviy visnik Polissya, 2(2 (14))*, 71-77. DOI:10.25140/2410-9576-2018-2-2(14)-71-77
19. Tursunov, B. (2017). Ways of increasing the efficiency of usage the production capacity of textile enterprises. *Byulleten' nauki i praktiki*, (8), 232-242.
20. Zaynutdinov, S. N., & Shermukhamedov, A. T. (2014). *Theory Management*. (pp.244-246). T.: Economist.