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## Analysis of the Present Challenges in the Transformation of Chemical Industry Enterprises

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**Abstract:** The chemical industry is an important factor determining the position of some countries in the international distribution of labor, as it is a necessary condition for ensuring the competitiveness of agriculture on a global scale. In turn, the main factor determining the innovative development of the chemical industry is the level of funding of scientific research. This, in turn, creates the need to ensure the efficiency of the transformation of the chemical industry.

The article identifies current problems related to the improvement of the transformation of the chemical industry of Uzbekistan and suggests ways to solve them.

**Key words:** transformation, digital transformation, profitability, net profit, liquidity, cost, mineral fertilizers.

### Introduction

Declaration of the President of the Republic of Uzbekistan on January 28, 2022 As per Decree No. 60 of the new Uzbekistan Chemistry in the development strategy for 2022-2026, this requirement is acknowledged as a necessary condition for achieving a 1.4-fold increase in the volume of industrial product production. It is part of the ongoing industrial policy that focuses on developing the gas-chemistry sectors and raising the level of natural gas processing from 8 to 20 per cent. The objective is to generate US \$2 billion in the chemical industry, so ensuring the stability of

Critical analysis of thematic literature. The modern economic lexicon defines transformation as a modification in the structure, manifestations, techniques, and orientations of economic activity [2].

Economist scientists define the transformation of the chemical industry as encompassing six key aspects: technological transformation, economic relations transformation, property relationship transformation, digital transformation, and the transformation of the connection between science and production.

S.Cowan argues that the primary metrics that define the significance of the transformation of business operations are those that reflect the financial stability of entrepreneurs [4].

In his study, T. Kasaeva asserts that the success of business transformation is contingent upon the successful integration of innovations into their operations. The economic efficiency of these innovations is evaluated based on the following indicators:

- the level of profit generated by the implementation of innovations;
- the growth in product sales volume;
- the reduction in the cost of capital in the volume of product sales;
- the decrease in the time required to recover investments;
- the enhancement of resource utilisation;

- the increase in labour productivity;
- the acceleration of working capital rotation [5].

By Senkevich's conclusion, the viability of employing raian technologies in the chemical industry is contingent upon several factors:

- enhancing the precision and dependability of measurements in intricate technological environments;
- providing the device with a self-diagnostic capability;
- enabling the primary processing of prey data on devices;
- offering interfaces for visualising digital indicators and command symbols;
- supporting a substantial number of communication statements (Profibus, Fieldbus Foundation) [6].

E.Kulyasova's conclusion identifies the following indicators that define the operational efficiency of digitisation in chemical sector enterprises:

An escalation in the overall expenditure on research about information and communication systems; - The procurement of chemical microreactors and accompanying equipment, as well as the production of experimental copies and master models to facilitate the utilisation of 3D editions; - The proliferation and efficiency of neurodevelopmental devices that regulate the administration of technological processes [7].

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### **Literature review**

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**Table 1. The volume, composition and dynamics of mineral fertilizers produced by OJSC "Uzkiyosanoat"<sup>1</sup>**

Note sources	2018y.	2019y.	2020y.	2021y.	2022y.	Change in 2022 from 2018, %
Nitrogen, thousands of tons	848,0	896,9	859,2	1173,1	1123,9	132,5
Phosphorites, thousands of tons	140,4	115,4	111,6	139,9	163,1	116,2
Potassium, thousand tons	182,4	199,1	210,0	197,4	187,8	102,9

The data illustrated in Table 1 indicates that the quantity of nitrogen fertilisers manufactured by AJda "Uzkiyosanoat" has shown a propensity for growth from 2020 to 2022. However, this value has experienced a notable decline in 2020 as compared to the previous year, 2019. However, the growth rate of this statistic in 2022 has surpassed that of 2018.

The production volume of phosphorus fertilisers at JSC "Uzkiyosanoat" exhibited a rise trajectory from 2020 to 2022. However, there was a notable decline in 2020 on comparison to 2018. However, this number has experienced substantial growth in 2022 as compared to 2018.

In 2018-2020, the volume of potash fertilisers produced by JSC "uzkiyosanoat" exhibited a growing tendency. However, from 2020 to 2022, this indicator has shown a declining trend.

Crucially, several significant investment projects must be executed within the chemical and technological cluster of OJSC "Uzkiyosanoat". Among these, the following can be identified as the primary ones:

A groundbreaking collaboration initiative in the chemical sector with Saudi Arabia is now in progress - the investment project known as "green hydrogen production". This initiative was among the pioneering programmes in Uzbekistan, involving a total investment of 90.0 million. It included the installation of 52 MW wind turbines and 20 MW electrolyzers, as well as the production of 3.0 thousand tonnes of green hydrogen, 17.8 thousand tonnes of green ammonia, and 30.0 thousand tonnes of green urea.

Using the JSC "Navoiyazot" as a foundation, applications were presented by prominent licensees in the industry, including especially, Haldor Topsoe (Denmark), Air Liquide (UK), Lummus technologies (Germany), Casale (Switzerland), CCR (USA), and other firms. An initial phase of the concept was created by. The completion of the project in 2028 will enable the production of acrylonitrile from methanol, polypropylene Kaba high value-added goods, ammonia, and urea products using high energy technologies in Uzbekistan for the first time.

**Table 2. The level and dynamics of the profitability indicator of enterprises in the JSC system "Uzkimiyosanoat", in percentage <sup>1</sup>**

Businesses	2018y	2019y	2020y.	2021y.	2022y	Change in 2022 from 2018, %
Navoiyazot	0,4	2,7	1,6	17,0	25,5	25,1
Maksam-Chirchik	13,2	10,1	14,0	16,5	20,0	6,8
Ferganaazot	0,9	13,4	19,2	17,4	12,9	12,0
Ammophos-Maksam	8,2	1,9	4,0	16,6	32,6	24,4
Kongirot soda plant	0,3	0,6	0,9	11,1	8,4	8,1
Dehkanabad potash fertilizer plant	1,0	1,5	0,3	8,6	32,2	31,2

The analysis of the data in Table 2 reveals a consistent upward trajectory in the profitability of the Maxam-Chirchik firm from 2019 to 2022. Furthermore, the rate of this indicator has shown a substantial increase in 2022 as compared to 2018.

The profitability of the Fargonazot firm exhibited a notable decline in 2018, followed by a substantial gain in 2019. However, in 2021, it decreased dramatically in comparison to the previous year.

The Ammofos-Maxam firm saw a notable decline in profitability over the year 2018-2020 but exhibited comparatively strong performance in the following years of 2020 and 2021.

The profitability of the Kongirot Soda plant showed a notable decline in the years 2018-2020. However, in 2021, it saw a substantial gain in comparison to preceding years. However, in 2022, it displayed a substantial decrease in comparison to 2021.

The profitability of the peasant potash fertiliser factory exhibited a notable decline in the years 2018-2020. However, in 2021, there was a substantial increase in profitability when compared to the preceding years. However, in 2022, it continued to decline dramatically in comparison to the previous year.

An essential project conducted within the context of transformative processes is the marking project. To digitise the packaging, transportation and accounting of mineral fertiliser products manufactured by Network Enterprises, a bag marking project is now underway utilising radio wave identification (RFID) technology. Consequently, it enables precise management of data regarding product turnover and facilitates the identification of counterfeiting processes. The limited degree of automation in production and other operations at Network Enterprises was impeding the implementation of operational and strategic management choices because of delays and insufficient data on the progress of processes in the company's activities. To avoid these issues, efforts are now being made to implement an ERP system inside the community. At Navoiyazot JSC, a technical project was undertaken to implement the first ERP system. The protocol for this installation was devised in collaboration with the cyber security department of SUE. Loiha's passport and sepsis registration on restr.uz were added to the portal, and the SUE evaluated and authorised the "Centre for the management of electronic projects." The SUE Centre

<sup>1</sup> The table is compiled by the author based on the data of JSC "Uzkimiyosanoat".

for Comprehensive Examination of Projects and Import Contracts has been incorporated to analyse competition papers related to this technical assignment.

Furthermore, prior to implementing the ERP system, the required steps, user count, implementation timeframe, projected budget, project research, and potential hazards were determined based on the current IT infrastructure. A completion date for the ERP system adoption is set for the first quarter of 2024.

Within the project implementation idea, a competition was initiated to establish a methodology. A contract was then signed with the winning business Ernst & Young, and it has now progressed to the active stage.

The implementation of the ERP system in OJSC "Uzkimyosanoat" and Network Enterprises has resulted in savings of 535 million Euros. This includes an increase in production efficiency by 5% (180 million Euros), a reduction in total costs by 10% (310 million Euros), a decrease in current repair costs by up to 15% (20 million Euros), and an increase in labour productivity by 40% (25 million Euros).

Significantly, as part of the digital transformation in the OECD system, Sharepoint and online office programs are implemented to plan, accelerate, and digitise the business environment of management apparatus and enterprises. The goal is to eliminate bureaucratic barriers in activity and ensure transparency. These programs also include the complete digitisation of the document circulation system and the process of executive control. The project is scheduled to achieve full operational status by the conclusion of 2022. Consequently, departmental and administrative procedures are mechanised, enabling the management of work, coordination of meetings, verification of documents with an electronic signature, efficient organisation of data exchange and storage, and concurrent modification of reports by employees through online platforms.

### **Summary and recommendations**

Within our nation, there exist several challenges about enhancing the industrialisation of the chemical sector, among which is the issue linked to the enhancement of cost control practices.

The existence of these issues is apparent in the low margin of profitability of assets and the comparatively high cost in terms of revenue volume.

In the fiscal year 2018-2021, JSC "Uzkimyosanoat" had a comparatively modest return on assets, however, its balance sheet in terms of revenue volume was more robust.

Asset profitability is a measure of the net profit rate of Bruto assets and is directly influenced by the net profit amount. Conversely, the net profit is directly determined by the proportion of product costs in the total revenue generated.

High credit interest rates at the current stage of economic development in the Republic of Uzbekistan hinder the increase in the rate of receivables circulation among chemical sector businesses.

In our view, to address the urgent issues related to enhancing the transformation of the chemical sector, it is imperative to implement the following actions:

1. To enhance the liquidity and solvency of chemical industry enterprises, it is imperative to establish short-term investments and ensure that these investments do not significantly reduce the available funds, so promoting a high growth rate. Secondly, it is essential to enhance their ability to attract loans and borrowed funds. Lastly, it is necessary to curb the growth rate of current assets.

2. To enhance the profitability of state-owned enterprises during transformation, two key measures are required. Firstly, by enhancing cost management practices, it is essential to decrease the revenue generated from product costs. Secondly, by broadening the use of futures contracts, it is fundamental to guarantee the stability of purchase prices for imported raw materials. Furthermore,

To enhance the practice of cost management, it is essential to use the cost management option that relies on problem grouping and decision-making based on the analysis of the Coordinating Council. Additionally, it is indispensable to maintain a consistent level of cost discounting and net discounted income. Lastly, in the establishment of

To facilitate the innovation of chemical industry enterprises, it is essential to align the priorities of the enterprise digitisation strategy with the priorities of the transformational policy. Additionally, it is crucial to establish a well-defined plan of actions that will enable the creation of the required conditions for the implementation of digital technologies. Furthermore, it is necessary to select the most suitable approach. Fourthly, it is essential to establish adaptable operational models that enable the planning, operation, and management of the resources needed for digital activities. Lastly, it is necessary to establish an educational system that ensures the continuous generation of new innovative ideas.

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