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## Trend analytical procedure for strategic management of the oil and gas industry

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### Abstract

**Relevance.** Modern trends set high requirements for the development of the oil and gas industry. Compliance with these requirements has ensured the survival of Kazakhstan's oil companies and the accumulation of extensive experience in recent decades. The necessity to find optimal methods of strategic realignment is crucial for the successful implementation of oil companies' strategies, aimed at meeting long-term goals, objectives, and external environment requirements, considering the deteriorating quality and high price risks of the resource base.

**Purpose.** The main goal of this study is to develop comprehensive organisational and methodological support for strategic transformations in oil companies. This support is intended to optimize resource allocation and improve the implementation of strategies, addressing the identified gaps in current methods and corrective actions.

**Methodology.** The study evaluates the effectiveness of specific indicators used in existing methods and designs improved organisational and methodological support tailored to the industry's needs.

**Results.** The results indicate that the developed organisational and methodological support creates a mix of management remedies aimed at the strategic transformation of oil companies. This support is ready for practical application and can be used both by oil companies and other enterprises, considering the specific characteristics of each industry.

**Conclusions.** The study concludes that existing methods for strategic realignment in oil companies are inadequate for optimal resource allocation and effective strategy implementation. The proposed comprehensive organisational and

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methodological support addresses these gaps, enhancing the ability of oil companies to meet long-term goals and adapt to external environmental requirements.

**Keywords:** financial analysis; well; long-term assets; enterprise.

## Introduction

Strategic financial and managerial analysis and corrective measures require organisational and methodological approaches. It will allow justifying organisational changes based on companies' strategy and a benchmark system, which determine the relevance of this study. Strategic analysis of the external and internal environment of an entity is carried out to assess the internal potential of the entity and identify opportunities and threats from the external environment, thereby considering factors affecting both the present and the future of the entity [1; 2]. The internal environment of an entity includes many different factors that are in a certain relationship, so the analysis of the internal environment should be systematic, and the mutual influence of various factors should be taken into account. A set of methods ensures the consistency and complexity of the internal environment analysis and this set may include:

- 1) financial analysis;
- 2) analysis of key success factors (KSFs);
- 3) value chain analysis.

The financial analysis is carried out to assess the extent to which an organisation is provided with financial resources for carrying out current activities and financing investment programmes. In this regard, it is important to assess not only the current state of the organisation but also the dynamics of its financial indicators. As part of the strategic analysis of the business lines of an oil company, this study examines the factors affecting them, including both internal and external ones. The purpose of the strategic analysis of the external and internal environment of the company is to identify its strengths and weaknesses, as well as opportunities and threats (real and potential) from the external environment. This analysis is proposed to be used to adjust the strategy [3; 4].

Further growth of oil production is the main strategic task of the company's management for the coming years, after reaching the historical production level of over 500 thousand tons per year. In this regard, the company must strictly adhere to the investment programme provided for by the project decisions for reservoir engineering. First of all, this concerns the timely commissioning of new drilling wells [5; 6]. The second, no less important task facing the company's management includes the rational use of existing assets, maintaining them in working condition, as well as the expansion of assets, which allows ensuring annual oil production at the level indicated in the company's strategy for the coming years. Additional field exploration is a separate area of the company's production activity, which allows for increasing the resource base and introducing new technologies into the production and drilling of wells [7; 8].

The volume of oil production amounted to 537.343 tons in 2020 which was 61% more than the previous year. The increase in oil production was achieved by drilling new wells. Despite the unstable economic situation in the world, the company has fulfilled the drilling investment programme in full. In fact, 22 wells were drilled in 2020,

including 19 production wells and 3 evaluation ones. Thus, the company fulfilled the assigned deposit exploration and development tasks for the reporting year. In addition, during the year, the necessary technical measures were carried out to maintain the flow rates of the old well fund. The change in oil prices compared to previous years was the main macroeconomic factor that affected the company's financial performance during the reporting period. The average selling price was \$ 61.5 per barrel of oil for export in 2020, while it was \$ 48.5 in 2019 [9; 10]. It should be noted that the current state of scientific views is characterized by the presence of methods that, despite their long evolution, pay special attention to certain aspects of strategic transformations. The design and implementation of corrective actions also require improvement. In this regard, it is necessary to develop comprehensive organisational and methodological support for strategic transformations, which are the main goal of the study.

## Materials and Methods

There are many methods of financial analysis of an entity, the comprehensive use of which allows getting a detailed description of the financial condition of the entity. The following can be used for financial analysis:

- 1) horizontal analysis (comparison of indicators with similar ones from a previous period);
- 2) vertical analysis (determining the structure of indicators);
- 3) trend analysis (identification of indicator trends);
- 4) comparative analysis (analysis of a company's indicators, its structural divisions, as well as competitors);
- 5) financial ratio analysis (calculation of relative indicators that characterise the structure and relationships of various financial parameters);
- 6) factor analysis (analysis of the influence of various factors on the final indicator).

Balance sheet trend analysis. Trend analysis compares each reporting position with some previous periods and determines the trend, i.e., the main trend in the dynamics of an indicator to predict its future values. This is the easiest way to predict. In Western practice, horizontal and trend analysis do not differ. This is easily explained. It doesn't make much sense to evaluate a company's performance based on the indicators of one year or even two years. There is not enough data for one year to create an internal benchmark for comparison. The literature recommends analysing based on data for five years. At the same time, it should be taken into account that the number increases of elements that complicate the comparison during the considered time interval.

Financial ratio method. This is a simple tool that allows focussing on the most important areas of an enterprise's activity and compares activities of various enterprises. Financial ratios are calculated based on balance sheets and income statements. Each ratio compares one balance sheet item with another or a balance sheet item with a profit and loss statement [11; 12]. Financial ratios allow the

administration of an enterprise, as well as its shareholders, investors and creditors to assess the financial position of the enterprise at the current time and in dynamics [13-15]. To assess the current state, a set of ratios is compared with the standards or with the average performance indicators of other comparable enterprises. The ratios that go beyond the recommended limits indicate "soft spots". To assess the dynamics, sets of ratios are calculated for consecutive periods of time and conclusions are drawn about the nature of changes in the financial condition of the enterprise. Financial ratios are used by:

- financial managers to obtain information about the effectiveness of management decisions made;
- shareholders and investors to make forecasts about future profits and dividends;
- creditors to assess credit risks.

Financial ratios are grouped to describe various aspects of financial circumstances:

1. Liquidity ratios. They characterise the current solvency of an enterprise.

2. Profitability ratios. They characterise the efficiency of the enterprise.

3. Capital structure ratios. They characterise financial stability.

Capital turnover ratios. They characterise the effectiveness of financial management.

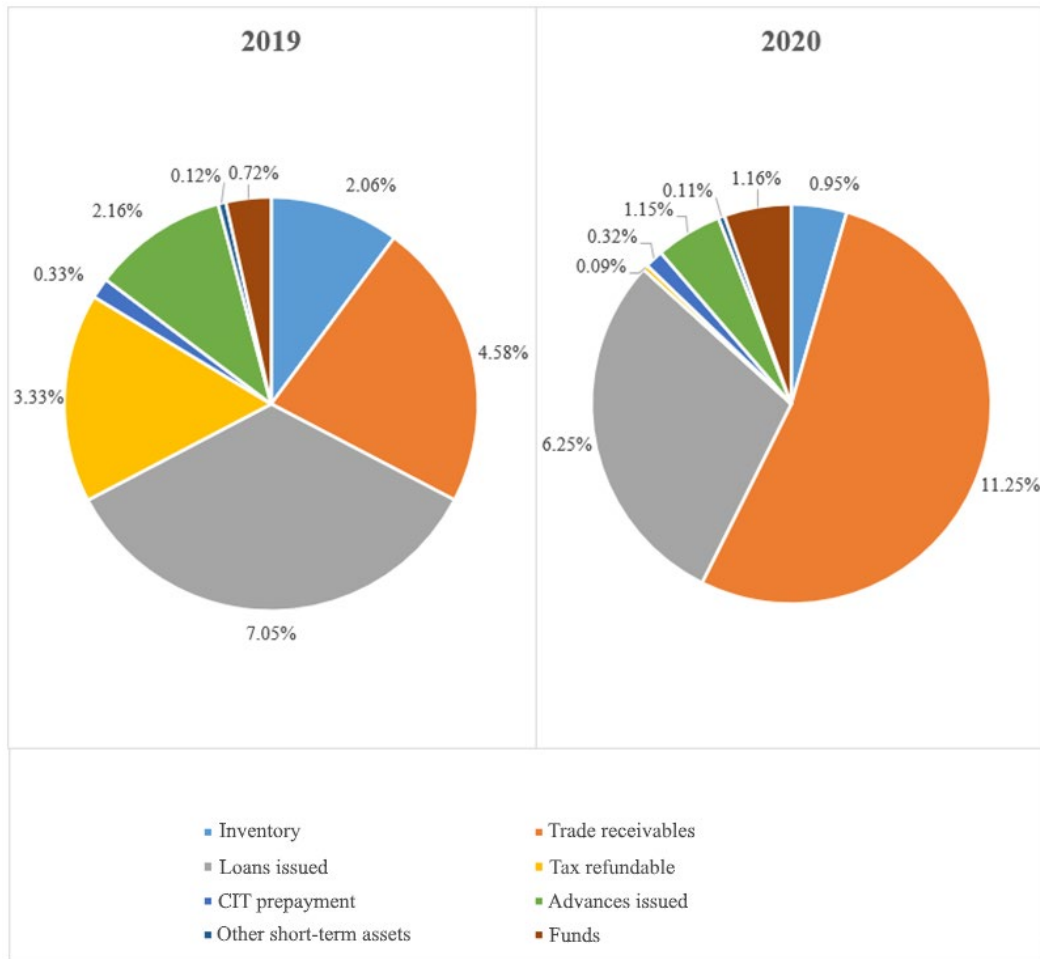
## **Results and Discussion**

When used comprehensively the financial analysis methods, allow obtaining a detailed description of the financial circumstances of any organisation. To analyse the financial circumstances, we use a horizontal analysis (comparison of indicators with similar ones from a previous period). The following conclusions can be drawn using the horizontal analysis, according to an aggregated balance sheet: assets increased by 15.483,024 thousand tenges during the year, which is 35.11% of the relative change. The year dynamics is good, it is necessary to consider in the context of assets, current assets increased

by 3.703,331 thousand tenges (41.28%), but we are concerned about the fact that cash increased by 372.900 thousand tenges (118.26%) and this indicates the availability of free cash (the most immediately available) funds in the company. This means that the money is a dead weight on the current account – it does not work and need to be invested in some projects, securities, as well as should bring income [16]. Inventories decreased by 340.274 thousand tenges (-37.43%). Trade Receivables increased by 4.680,272 thousand tenges (231.48%) during the year. These two indicators are related to each other and speak about not very good dynamics, the wrong policy when working with customers since accounts receivable has increased more than 2 times.

Now let us consider the obligation and capital, they also increased by 15.483,024 thousand tenges (35.11%). Let us consider in the context of items: thus, current liabilities decreased by 6.571,421 thousand tenges (-44.45%), including short-term loans decreased by 1.095 thousand tenges (-100%). At the moment, the company has completely closed its short-term obligations, which, of course, is a positive factor. Accounts payable decreased by 9.123,076 thousand tenges (-77.93%). Only long-term liabilities increased by 7.928 thousand tenges, which is 0.23%, the changes are insignificant.

The item Retained Earnings showed a positive trend during the year, which increased significantly by 22.046,517 thousand tenges (145.49%). In general, the horizontal analysis showed a stable position with positive dynamics during the year in terms of financial circumstances. Now, according to the plan, we will consider the vertical analysis and determine the structures of indicators. The vertical analysis shows that current assets make up 21.27% in 2020 against 20.34% in 2019. The increase is insignificant of current assets in comparison with the previous period. The proportion of long-term assets was 78.73% in 2020, and 79.66% in 2019. Let us compare the structure of current assets in 2019 and 2020, which is shown in Figure 1.



**Figure 1.** Composition and structure of current assets

According to the data in Figure 1, it can be seen that there is a significant change in Trade Receivables in the structure of current assets. Its proportion increased from 7.05% in 2019 to 11.25% in 2020. Trade Receivables also occupy the largest part of the current assets and are 11.5%, Loans Issued are the next and comprise 6.5%, then Cash and Advances Made. A high proportion of Trade Receivables as part of current assets is dangerous for the financial stability of the company. In addition, Trade Receivables increased almost 2 times compared to last year. In the following years, such an increase in this item may significantly endanger the financial stability of the company.

The company's management needs to work more effectively with debtors to reduce this proportion in current assets [17; 18]. In general, there is a decrease in the proportion of the items in current assets, which indicates positive results according to other indicators. The next step is to consider the structure of long-term assets in 2019 and 2020? which is shown in Figure 2. According to Figure 2, Oil and Gas Assets occupy the first place in the structure of long-term assets in 2020 and comprise 48.96%, Works in Progress place second and comprise 19.27%, and Exploration and Evaluation Assets are third comprising 3.68%. All other items comprise 2.0% in the structure of long-term assets.

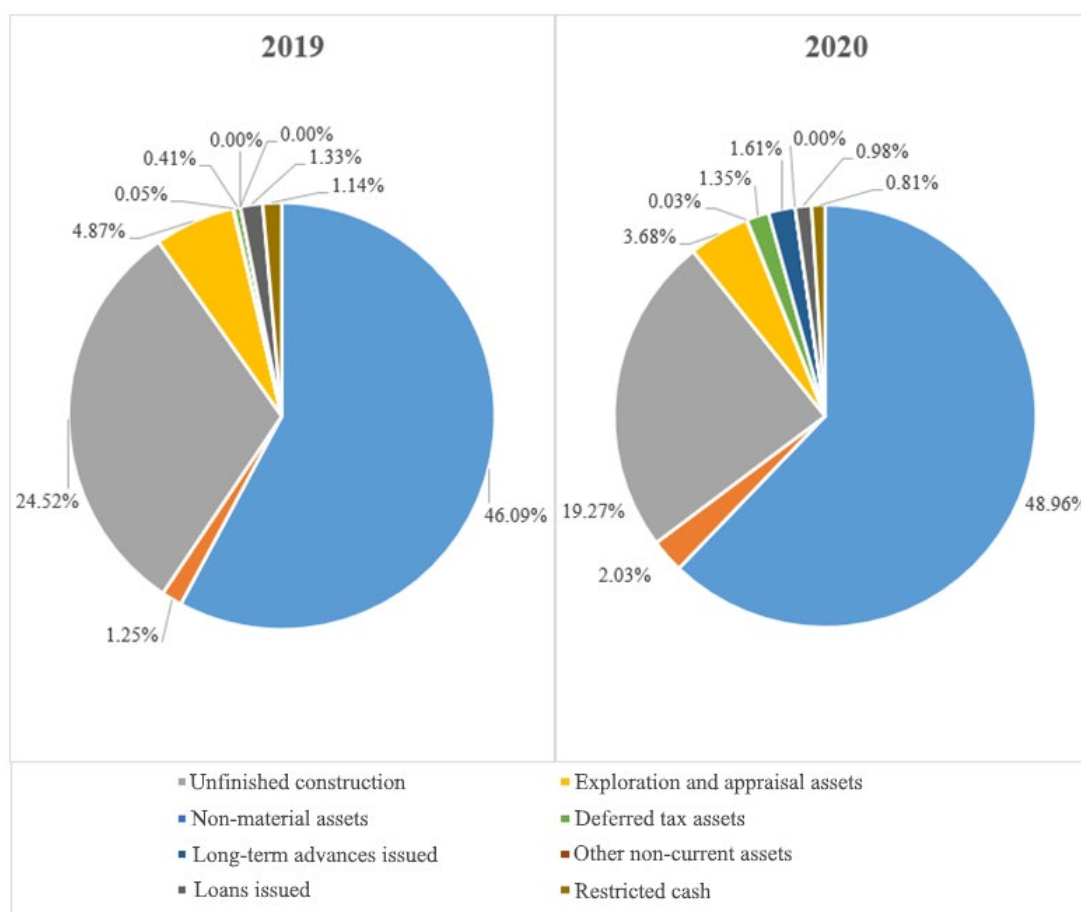


Figure 2. Composition and structure of long-term assets

Schematically, of course, it can be seen that Oil and Gas Assets and Subsurface Rights increased from 46.09% to 48.96% compared to 2019. Other items underwent small changes in the structure of long-term assets. Construction in Progress decreased from 24.52% in 2019 to 19.27% in 2020. Deferred Tax Assets increased to 1.35%, which is almost 3.5 times. Restricted Cash decreased to 0.81%, as well as Exploration and Evaluation Assets. The long-term assets dynamics were positive as a whole, the increase in

Oil and Gas Assets was the first positive factor of the company's growth. The growth of Fixed Assets is the second factor, which increased from 1.25% in 2019 to 2.03% in 2020. Recurring Advances Made is the third factor to grow. A balance sheet was forecast for 2021 in Excel, using a horizontal analysis for the periods from 2012 to 2020. Thus, the forecast balance sheet for 2021 is shown in Table 1.

Table 1. Forecast Balance Sheet of Joint Stock Company (JSC) "XXX" for 2021, (thousand tenges)

	2020 fact	2021 forecast
<b>Non-Current Assets</b>		
Oil and Gas Assets		
Exploration and Evaluation Assets		
Fixed Assets		
Construction in Progress		
Intangible Assets		
Deferred Tax Asset		
Advances Made		
Restricted Cash		
Recurring Advances Made		
Other Non-Current Assets		
<b>Current Assets</b>		
Stocks		
Trade Receivables		
Advances Made		
Tax Receivable		

Advances Made		
Income Tax Prepayment		
Other Current Assets		
Cash Resources		
<b>Total Assets</b>		
<b>Capital</b>		
Share Capital		
Retained Earnings		
<b>Long-Term Liabilities</b>		
Reserve for liquidation and restoration of deposits		
Other Long-Term Liabilities		
<b>Current Liabilities</b>		
Trade Payables		
Other Accounts Payable		
Advances Received		
Other Tax and Payment Liabilities		
<b>Total Equity and Liabilities</b>		

The 2021 Forecast Balance Sheet demonstrates that JSC “XXX” will also have a dynamic growth if other external factors do not affect it. In general, there were no significant economic and financial shocks in 2021 that were able to negatively affect the financial position of JSC “XXX” [19; 20]. Having analysed the previous years, we saw that, in general, the main items of the balance sheet of

JSC “XXX” were constantly growing during the period under study. Thus, we can assume that the 2021 balance sheet has been forecast, and it can be considered adequate. We can build a trend line to find out how adequate the forecast is. We will build a trend line in Excel to verify the reliability of the forecast calculations (Figure 3).

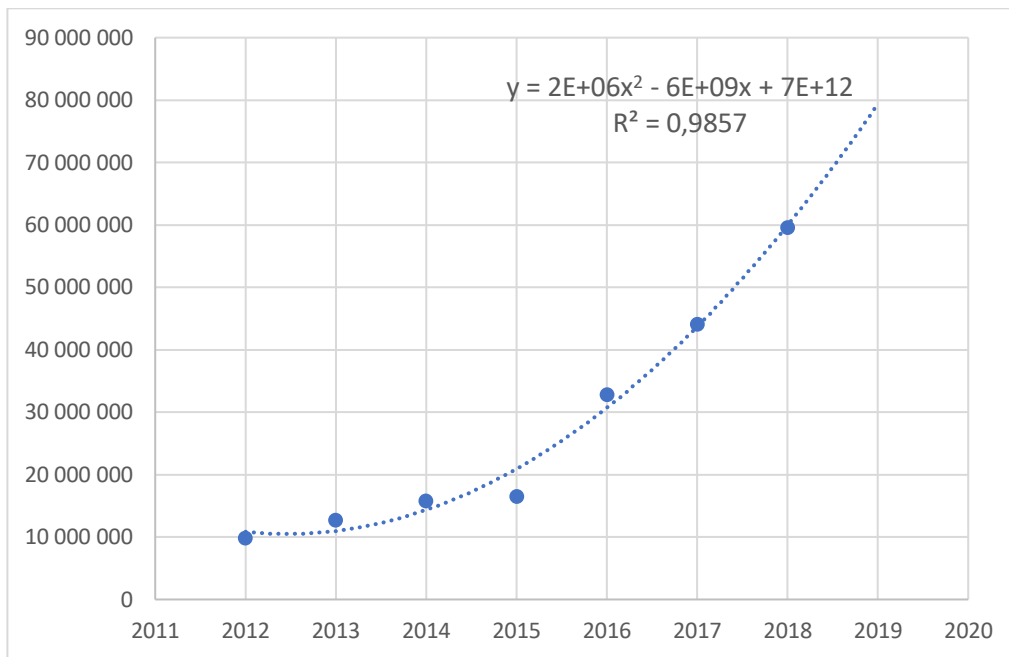


Figure 3. Forecasting in Excel using a trend line (polynomial)

The R-squared value  $R^2 = 0.9857$  shows that the trend line is adequate by 98.57%. Also, Figure 3 shows that the balance sheet is equal to 80.000,000 thousand tenge, which corresponds to the data of the horizontal analysis for the period from 2012 to 2020 equal to 86.061,196 thousand tenge. From the two calculation methods, it can be concluded that the calculations practically coincided,

respectively, the forecast of the balance sheet values can be considered adequate by 98%. Financial ratios are relative indicators that allow analysing the financial circumstances of an enterprise from different points of view. The calculation of the financial ratios of JSC "XXX" is presented in Table 2.

**Table 2.** Calculation of the financial ratios of JSC “XXX”

Name	Formula	Standard	Value		E d.
			2020	2019	
Liquidity ratios					
Absolute liquidity ratio	$\frac{\text{Funds} + \text{Short term investments}}{\text{Current liabilities}}$	>0.5	0.5	0.2	↑
Acid test ratio	$\frac{\text{Funds} + \text{Short term investments} + \text{Receivables}}{\text{Current liabilities}}$	>1	1.4	0.4	↑
Current liquidity ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	>1	1.5	0.6	↑
Net working capital	NWC = Current assets – Current liabilities.	>0	4.459,558	-5.815,194	↑
Profit ratio					
Return on sales ratio	$\frac{\text{Net profit}}{\text{Proceeds}} \times 100\%$		34.7%	34.6%	↑
Return on equity ratio	$\frac{\text{Net profit}}{\text{Capital structure}} \times 100\%$		46.0%	38.5%	↑
Current assets profitability ratio	$\frac{\text{Net profit}}{\text{Current assets}} \times 100\%$		174.0%	111.3%	↑
Return on investment ratio	$\frac{\text{Net profit}}{\text{Capital structure} + \text{Long term liabilities}} \times 100\%$		42.9%	34.1%	↑
Capital structure ratio					
Equity to Total Assets	$\frac{\text{Capital structure}}{\text{Assets}}$	Closer to 1	0.8	0.6	↑
Debts to Total Assets	$\frac{\text{Long term liabilities} + \text{current liabilities}}{\text{Assets}}$	Closer to 0	0.2	0.4	↑
Turnover ratios					
Working capital turnover ratio	$\frac{\text{Proceeds}}{\text{Floating capital}}$		14.2	-5.0	↑
Fixed asset turnover ratio	$\frac{\text{Proceeds}}{\text{Long term assets}}$		1.4	0.8	↑
Asset turnover ratio	$\frac{\text{Proceeds}}{\text{Assets}}$		1.1	0.7	↑

According to the data in Table 2, it can be seen that, in general, the financial ratios show good dynamics and most of them have a positive value. But still, a certain number of calculated ratios do not reach the regulatory values, which may indicate possible losses or threats to the financial stability of the company. Next, we will consider the calculation results of each ratio separately in 2020. The absolute liquidity ratio is 0.5 and shows that the entire proportion of short-term liabilities can be covered by cash and cash equivalents [21-23]. The acid test ratio is 1.4 and indicates that it will be possible to repay current liabilities if the company's situation becomes critical.

The current liquidity ratio is 1.5 indicating that the company will not have any difficulties with the repayment of short-term liabilities [24]. The net working capital ratio indicates that the working capital exceeds the short-term liabilities by 4.459,558 thousand tenges, and accordingly, the company can not only repay its short-term liabilities, but also has reserves for expanding its activities. The return on sales ratio indicates that the net profit comprises 34.7% in the company's sales volume. The return on equity ratio of 46.0% shows that the company effectively uses its capital invested by the owners of the company.

The current assets profitability ratio of 174.0% shows that the company uses its working capital effectively. The return-on-investment ratio of 42.9% shows that the company needed 0.429 tenge to receive 1.0 tenge of profit. The equity to total assets ratio of 0.8 shows that the company has some dependence on loans, and has a low risk of insolvency. The debts liabilities to total assets ratio of 0.2 shows that 20% of the company's assets are financed by loans. The working capital turnover ratio of 14.2 shows that the working capital makes more than 14 turns during the period, respectively, the company effectively uses its net working capital. The fixed asset turnover ratio of 1.4 demonstrates that the company uses the available fixed assets quite effectively. A high level of return on funds indicates a sufficient volume of sales or a low level of capital investments [25-27]. The asset turnover ratio of 1.1 shows that the company manages to complete a full production cycle in a year, bringing a corresponding effect in the form of profit. The analysis carried out in this study showed that the Kazakh and world economy was not able to achieve their strategic goals with modern trends in the development without making managerial decisions, as well as without using advanced technologies in the field of strategic realignment. The current state of Kazakh oil

companies is characterised by the predominance of operational realignment, which is also influenced by external factors [28-31].

The proposed approach is a system that includes methodological provisions and manuals that justify the need and expediency of strategic realignment, as well as a description of the implementing procedures for the entire process when analysing the current state of the oil company to the practical implementation of the developed measures. A complex criterion is used as the basis of the strategic realignment. This criterion is representative of how the company achieves its goals, which allows determining key performance indicators (KPI), calculating the Spearman coefficient (Csp) and assessing the operational potential, as well as the need for realignments of the entire organisation or any part of it. Complementing the development with the specified algorithms and schemes, as well as design procedures and making organisational changes will help to use these suggestions in specific actions. Examining one of the Kazakh oil companies we showed the steps, which would improve the organisational and methodological support of the strategic transformations presented in this paper:

- justification of the necessity and expediency of the strategic transformations;
- definition of any type of realignment of the company or any part of it;
- any corrective measures and their practice;
- consequence assessment.

The external environment analysis can include the following components: life cycles (organisation and product), a plan/actual comparison, strategic management zones, a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis in the part of SW (Strengths, Weaknesses) with a possible addition to the SNW approach (Strengths, Neutral, Weaknesses), a value chain analysis, a function analysis, a motivation system, an organisational structure, corporate culture, etc. The improvement of corporate governance is ensured by the HR management strategy, which aims at involving, developing and retaining the key employees who contribute to the growth of the company's shareholder value [32-34]. Table 3 provides a list of strengths and weaknesses, as well as opportunities and threats necessary for conducting a SWOT analysis for the company.

**Table 3.** SWOT analysis of JSC "XXX"

Internal factors	
Strengths (+)	Weaknesses (-)
1. Low level of deposit depletion. 2. Strong facilities and equipment. 3. Qualified management personnel. 4. Low break-even point. 5. Low level of process losses and transportation losses.	1. Remote sales markets resulting in high transportation costs.
External factors	
Opportunities (+)	Threats (-)
1. Significant oil reserves at the field with the potential for further expansion due to geological and process measures and new technologies. 2. Additional prospecting. 3. Growth of production volumes through effective capital investments.	1. Decline in world oil prices. 2. Unfavorable legislation changes. 3. Natural disasters can stop production as well as result in financial and reputational losses. 4. Increasing competition within the Republic with companies from other countries for access to assets and resources. 5. Increasing global trends in the search for alternative energy sources ("green energy"). 6. High tax burden.

Thus, according to the SWOT analysis data, the following conclusions can be drawn:

The company's strengths are:

1. A favorable geographical location that provides access to several transport routes.
2. Full control over the logistics of liquid hydrocarbons.
3. The developed processing infrastructure allows JSC "XXX" to develop crude gas fields in the northwest of Kazakhstan, where there is a shortage of processing capacities.
4. High-quality light sweet crude.

The weaknesses include:

1. Despite the significant diversification of the product portfolio, the activities of JSC "XXX" are subject to market price fluctuations for products.
2. Unavoidable geological risks of the oil and gas industry.
3. Seasonal temperature fluctuations and difficult working conditions in the regions of operating activities.
4. The sparse population results in local skilled labour constraints.

The company may benefit from the existing oil fields when using new technologies [35; 36]. The company has significant opportunities in its traditional markets - Russia and the CIS (Commonwealth of Independent States), which is explained by the long-term nature of contractual relationships and a good reputation among consumers.

Today the main shareholder contributes to the conclusion of transactions and the promotion of the brand, which determine the company capabilities [37; 38]. The achievements include obtaining licenses for new fields, other promising oil and gas areas, and promoting the company abroad. The most significant threats include the decline in world oil prices [39-41].

In 2021, oil production is planned at the level of 630 thousand tons. To ensure this volume of production, it is planned to drill 20 additional appraisal and production wells in 2021. The following measures are planned for the existing wells: testing and development, overhauling, impact on bottom-hole zones, well reactivation, transfer of wells from the flush to artificial lift. In 2021, the company plans to further equip its production facilities, complete construction and put into operation a new shift camp on the territory of the Morskoye field. In addition to the production work, the company considers the possibility of prospecting to discover new oil and gas promising objects and expand the resource territory of the fields.

### Conclusions

The proposed organisational and methodological support results in this company can achieve its goals, which is confirmed by an increase in the Spearman coefficient ( $C_{sp}$ ) = 1.0. Changing the criteria for using the potential in each business area shows that their internal structure ensures the fulfillment of the company's goals. All this also confirms the effectiveness of the proposed measures to improve the structure of the company's business directions. Today the main shareholder contributes to the conclusion of transactions and the promotion of the brand, which determine the company capabilities. The achievements

include obtaining licenses for new fields, promoting other promising oil and gas fields and epy company abroad. The most important threat is the decline in world oil prices. In 2021, it is planned to produce oil at the level of 630 thousand tons. Additional evaluation and drilling of production wells are planned for 2021 to ensure the production volume. The following measures are planned for the existing wells: testing and development, overhauling, impact on bottom-hole zones, well suspension, transfer of wells from the flush to artificial lift.

In 2021, the company plans to further equip production facilities, complete construction and put into operation a new shift camp on the territory of the Morskoye field. In addition to the production work, the company considers the possibility of prospecting to discover new oil and gas promising objects and expand the resource territory of the fields. It should be borne in mind that the results obtained in this study can be used by both oil companies and other enterprises taking into account the peculiarities of a particular industry. Based on the above, the developed organisational and methodological support creates a mix of management remedies aimed at the strategic transformation of oil companies, ready for practical application.

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### Conflict of Interest

None.

### References

- [1] Cheng Y, Liu H. Innovative teaching reform and practice in strategic management of enterprises based on the context of enterprise diversification. *E3S Web Conf.* 2020;214:030432020.
- [2] Zhong Z, Haoran W, Junsheng W. Analysis of enterprise strategic management issues and coping strategies based on big data analysis. *E3S Web Conf.* 2020;214:010172020.
- [3] Monge M, Gil-Alana LA. The lithium industry and analysis of the beta term structure of oil companies. *Risks.* 2020;8(4):130.
- [4] Mnif Y, Ben Hamouda A. Audit quality and the trade-off between real and accrual earnings management in the oil and gas industry: the GCC evidence. *J Appl Acc Res.* 2020;22(2):223-251.
- [5] Zhao X. Do the stock returns of clean energy corporations respond to oil price shocks and policy uncertainty? *J Econ Struc.* 2020;9(1):53.
- [6] Cerqueti R, Ventura M. Optimal concession contracts for oil exploitation. *Ener Pol.* 2020;147:111900.
- [7] Yuan S, Wang Q, Li J, Han H. Technology progress and prospects of enhanced oil recovery by gas injection. *Acta Pet Sin.* 2020;41(12):1623-1632.
- [8] Li Z-P, Zhou W-F, Zhang Y-W, Yang G, Liu R. Vehicle routing problem of refined oil secondary distribution considering unloading sequence constraints. *Cont Decis.* 2021;35(12):2999-3005.
- [9] Xu S. Research on digital construction of oil and gas field surface engineering based on internet of things environment. *Fres Env Bul.* 2020;29(11):9722-9729.
- [10] Bradley D. *Extracting business value from digitalization in oil and gas.* 2020. <https://www.hydrocarbonprocessing.com/magazine/2020/november-2020/digitalization/extracting-business-value-from-digitalization-in-oil-and-gas>.
- [11] Latifah AN. The effect of financial ratios on return of shares with the value of the company as an intervening variables. *J Educ Econ.* 2020;9(1):72-81.
- [12] Sydorets V, Korzhyk V, Khaskin V, Babych O, Bondarenko O. Electrical characteristics of the equipment for the hybrid plasma-MIG welding. *58th Ann Int Sci Conf Power Electr Engin Riga Techn Univ, RTUCON 2017 – Proceed.* 2017;2017-November:1-6.
- [13] Fialko NM, Prokopov VG, Sherenkovskij YV, Sherenkovskaya GP, Korzhik VN, Odosij ZM, Borisov YS. Mathematical simulation of 3D temperature fields in the articles during gas thermal sputtering of alloys liable to amorphous transformation. *Elektron Obrab Material.* 1992;5:20–23.

- [14] Fialko NM, Prokopov VG, Meranova NO, Borisov YS, Korzhik VN, Sherenkovskaya GP. Thermal physics of gasothermal coatings formation processes. State of investigations. *Fiz Khim Obrab Material*. 1993;4:83–93.
- [15] Kondratenko Y, Gerasin O, Topalov A. A simulation model for robot's slip displacement sensors. *Int J Comp*. 2016;15(4):224–236.
- [16] Kondratenko YP, Kozlov OV, Gerasin OS, Zaporozhets YM. Synthesis and research of neuro-fuzzy observer of clamping force for mobile robot automatic control system. *Proceed 2016 IEEE 1st Intern Conf Data Stream Min Proc, DSMP 2016*. 2016;1:90–95.
- [17] Babak VP, Babak SV, Eremenko VS, Kuts YV, Myslovych MV, Scherbak LM, Zaporozhets AO. Models of Measuring Signals and Fields. *Stud Syst, Decis Contr*. 2021;360:33–59.
- [18] Besenyő J; Málnássy A. Future expansion and prospects of Turkish defense industry. *Insights Region Develop*. 2022;4(2):10-21. [https://doi.org/10.9770/IRD.2022.4.2\(1\)](https://doi.org/10.9770/IRD.2022.4.2(1))
- [19] Deryaev A. Drilling of a Directional Exploration Well in Turkmenistan in the Waters of the Caspian Sea. *J Mines, Met Fuels*. 2024;72(3):199-209.
- [20] Deryaev AR. Well design development for multilayer horizons for the simultaneous separate operation by one well. *SOCAR Proceed*. 2022;1:94–102.
- [21] Deryaev AR. Drilling fluids for drilling wells in complex geological conditions in oil and gas fields of Turkmenistan. *Neftyan Khozyaystvo - Oil Industry*. 2024;2024(4):32–36.
- [22] Anand P, Husain D, Prakash R. Sustainable integrated system for rural development: a case study. *Insights Region Develop*. 2022;4(3):96-109. [http://doi.org/10.9770/IRD.2022.4.3\(6\)](http://doi.org/10.9770/IRD.2022.4.3(6))
- [23] Kerimkhulle S, Mukhanova A, Kantureyeva M, Koishybaeva M, Azieva G. Applying a housing construction model to improve a small town demographic dynamics. *AIP Conf Proceed*. 2023;2700:040047.
- [24] Kuznetsov BN, Chesnokov NV, Mikova NM, Zaikovskii VI, Drozdov VA, Savos'kin MV, Yaroshenko AM, Lyubchik SB. Texture and catalytic properties of palladium supported on thermally expanded natural graphite. *React Kinet Catalys Lett*. 2003;80(2):345-350.
- [25] Lyubchik S, Lygina E, Lyubchik A, Lyubchik S, Loureiro JM, Fonseca IM, Ribeiro AB, Pinto MM, Figueiredo AMS. The kinetic parameters evaluation for the adsorption processes at "liquid-solid" interface. *Electrokinet Across Discipl Contin: New Strateg Sustain Develop*. 2015;1:81-109. [https://doi.org/10.1007/978-3-319-20179-5\\_5](https://doi.org/10.1007/978-3-319-20179-5_5)
- [26] Kuznetsov BN, Chesnokov NV, Mikova NM, Drozdov VA, Shendrik TG, Lyubchik SB, Fonseca IM. Properties of palladium catalysts on carbon supports prepared from chemically modified and activated anthracites. *React Kinet Catalys Lett*. 2004;83(2):361-367.
- [27] Skorokhod AZ, Sviridova IS, Korzhik VN. The effect of mechanical pretreatment of polyethylene terephthalate powder on the structural and mechanical properties of coatings made from it. *Mech Comp Mater*. 1995;30(4):328–334.
- [28] Deryaev A. Features of forecasting abnormally high reservoir pressures when drilling wells in areas of southwestern Turkmenistan. *Innovac*. 2023;11(1):1-11.
- [29] Deryaev AR. Analysis of the opening of zones with abnormally high reservoir pressures in the oil and gas fields of the Western part of Turkmenistan. *SOCAR Proceed*. 2023;1:20–25.
- [30] Deryaev, A. Integration of advanced technologies to improve the efficiency of gas condensate field developme. *Machin Energ*. 2024;15(1):33–42. <https://doi.org/10.31548/machinery/1.2024.33>
- [31] Ali M, Alkaabi AK, Alameri SA, Afgan I. Thermal analysis of baffle jetting in fuel rod assembly. *Phys Fluids*. 2022;34(11):115133.
- [32] Teece DJ, Pisano G, Shuen A. Dynamic capabilities and strategic management. *Strat Manag J*. 2020;18(7):509-533.
- [33] Korzhik VN. Theoretical analysis of the amorphization conditions for metallic melts under gas-thermal spraying. I. Determination of cooling velocities of dispersed sprayed material. *Poroshk Metallurg*. 1992;9:56–61.
- [34] Korzhik VN. Theoretical analysis of conditions for metallic alloy amorphization on gas thermal deposition. 2. Phase formation under solidification of deposited material. *Poroshk Metallurg*. 1992;10:11–15.
- [35] Selvakumar RD, Alkaabi AK, Ryu J, Lee H. Role of dielectric force and solid extraction in electrohydrodynamic flow assisted melting. *J Energy Stor*. 2023;73:109169.
- [36] Selvakumar RD, Wu J, Alkaabi AK. Electrohydrodynamic acceleration of charging process in a latent heat thermal energy storage module. *Appl Therm Engin*. 2024;242:122475. <https://doi.org/10.1016/j.applthermaleng.2024.122475>
- [37] Belytskyi D, Yermolenko R, Petrenko K, Gogota O. Application of machine learning and computer vision methods to determine the size of NPP equipment elements in difficult measurement conditions. *Machin Energ*. 2023;14(4):42–53. <https://doi.org/10.31548/machinery/4.2023.42>
- [38] Deryaev AR. Drilling of horizontal wells in Western Turkmenistan. *SOCAR Proceed*. 2023;2023:32–40.
- [39] Mokni K. A dynamic quantile regression model for the relationship between oil price and stock markets in oil-importing and oil-exporting countries. *Energy*. 2020;213:118639.
- [40] Saravanan P. Why and how crude oil price became negative? *Econ Polit Week*. 2020;55(50):18-20.
- [41] Lim D-J. Inverse data envelopment analysis for operational planning: The impact of oil price shocks on the production frontier. *Exp Syst Appl*. 2020;161:113726.

## **Процедура трендового аналізу для стратегічного управління нафтогазовою галуззю**

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### **Анотація**

**Актуальність.** Сучасні тенденції ставлять високі вимоги до розвитку нафтогазової галузі. Дотримання цих вимог забезпечило виживання казахстанських нафтових компаній і накопичення великого досвіду протягом останніх десятиліть. Необхідність пошуку оптимальних методів стратегічної перебудови має вирішальне значення для успішної реалізації стратегій нафтових компаній, спрямованих на досягнення довгострокових цілей, завдань і вимог зовнішнього середовища, враховуючи погіршення якості та високі цінові ризики ресурсної бази.

**Мета.** Основною метою цього дослідження є розробка комплексної організаційно-методичної підтримки стратегічних перетворень у нафтових компаніях. Ця підтримка покликана оптимізувати розподіл ресурсів та покращити реалізацію стратегій, усунувши виявлені прогалини в існуючих методах та коригувальних діях.

**Методологія.** У дослідженні оцінено ефективність конкретних індикаторів, що використовуються в існуючих методиках, та розроблено вдосконалену організаційно-методичну підтримку, адаптовану до потреб галузі.

**Результати.** Результати свідчать, що розроблене організаційно-методичне забезпечення створює комплекс управлінських засобів, спрямованих на стратегічну трансформацію нафтових компаній. Це забезпечення готове до практичного застосування і може бути використане як нафтовими компаніями, так і іншими підприємствами з урахуванням специфічних особливостей кожної галузі.

**Висновки.** Дослідження показало, що існуючі методи стратегічної перебудови в нафтових компаніях є недостатніми для оптимального розподілу ресурсів та ефективної реалізації стратегії. Запропоноване комплексне організаційно-методичне забезпечення усуває ці прогалини, підвищуючи здатність нафтових компаній досягати довгострокових цілей та адаптуватися до вимог зовнішнього середовища.

**Ключові слова:** фінансовий аналіз; свердловина; довгострокові активи; підприємство.