

**A LOGISTIC APPROACH TO ESTABLISHING BALANCED SCORECARD OF RUSSIAN OIL-PRODUCING SERVICE ORGANIZATIONS**

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**Abstract:** The aim of the study is to develop methodological recommendations for balanced scorecard practical implementation into activities of Russian oil-producing service organizations in present-day conditions on the basis of logistical principles. The perspectives for balanced scorecard development based on logistics principles and strategic management peculiarities of the oil-producing service organizations are proposed in the article. The indicators and their characteristic values, allowing to coordinate operational and strategic management and to obtain synergistic effect are suggested. As a result of the study, the authorial methodology of balanced scorecard using for oil-producing service organizations was developed in order to improve effective cooperation between service organizations of vertically integrated oil companies.

**1 Introduction**

Currently in a fast-changing business environment there is a growing need for logistic management approach implementation and revision of existing methods for the estimation of activities. The application of modern stream-oriented processes management methods is a key source of competitive advantage. For a long time, the development and performance of a company had been measured only on the basis of economic and financial indicators. Besides that, many companies cannot analyse the ways of achieving company’s strategy. These and many other factors, to our opinion, require changes. The balanced

scorecard (BSC), developed on the basis of logistic principles, can provide the manager with the most complete view of the enterprise activity on the market.

**2 The experience of BSC implementation**

The experience of BSC implementation by Russian companies shows, that in most companies this implementation takes place on the top-management level. That is the implementation in order to motivate employees, or implementation on certain areas. The restricted BSC implementation by domestic enterprises is presented in Table 1 [1].

*Table 1 Features of BSC implementation by Russian companies*

Implementation restrictions	
1. Activity features in Russian companies	
Factor	Meaning
4 perspectives of BSC	In BSC all indicators are divided into four perspectives (segmentation of market, intellectual capital, return on capital etc.). In Russian practice indicators of business income are mainly used, excluding other perspectives.
Marketing policy	Many managers do not monitor the market, do not create customer database, do not conduct monthly surveys for the increase of the short-term profit. Therefore, marketing policy is restricted by the “introduction” products to the market.
Motivation system	There is no particular motivation system in the Russian experience. The system is usually based not on workforce productivity, but on gross income. There are problems – the lack of responsibility zone, incomplete regulations and job descriptions.
Implementation stage of BSC	The BSC implementation involves step-by-step designing “from the bottom to top”, which gives the opportunity to train people and progressively align implementation at all management levels. In Russian practice, there is “from top to the bottom” variant, which leads to internal processes in coordination. The BSC implementation must begin with evaluation of company’s resources and its market position. In Russian practice, the first stage is holding of the seminars with foreign experience analysis for companies’ top-

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	managers, without considering strengths and weaknesses and market position. Besides, often there is a lack of clear strategy, management and all resources are directed to addressing short-term objectives.
2. Features of BSC implementation by domestic enterprises	
Market and company	Implementation of the system should be in price-quality relationship because it is not always profitably to use the standard BSC variant in the fast-changing domestic market. It should be noted that initially BSC was designed for western companies, operating in saturated segments of the market, where it is possible to evaluate competitive advantages of all companies.
BSC as a means of preventing the bankruptcy	In Russian practice, BSC implementation is possible by companies facing crisis situation. BSC implementation will reveal all problem areas. At the same time, it is necessary to remember that BSC implementation – is a resource-consuming process. There is an increase of all costs if this tool is inappropriately used.
Mind-set	Russian companies can face insufficient levels of company culture and intellectual capital when implementing western technologies. (For example, lack of experience in dealing with problems of mid-level and top-level managers when implementing BSC).
Risks	In Russian practice, it is a quite common phenomenon to execute a job at any cost, which completely denies working upon risks (external and internal).As a result, resource intensity and costs for elimination of errors after implementation of projects are increased.

Such tendency also emerges when BSC is implementing by oil-producing service organization, since certain mechanisms and directions of formation BSC are not identified, that leads to ineffective managerial decision-making.

Balanced scorecard includes the key performance indicator system (KPI). That is a group of financial and

non-financial indicators affecting on quantity or quality change of the results in relation to the strategic aim.

Currently the majority of vertically-integrated oil-companies (VIOC) in Russia use the following performance indicators (Table 2) [2].

Table 2 The main indicators of vertically-integrated oil-companies performance

No	Main indicators of performance	PAO ANK «Bashneft»	PAO NK «Rosneft»	PAO «Lukoil»	PAO «Gazprom-neft»	PAO «Tatneft»	PAO «TNK-VR»	PAO «Surgutneftegaz»
1	Oil extraction, million tons	+	+	+	+	+	+	+
2	Estimated reserves, million barrels	+	+	+	+	+	+	+
3	Prospective reserves, million barrels			+	+	+		+
4	Possible reserves, million barrels			+	+	+		+
5	Headway in production drilling, thousand meters	+	+	+		+	+	
6	Headway in exploration drilling, thousand meters	+	+	+		+	+	
7	New development well	+	+	+				
8	Number of wells in use	+	+	+	+	+	+	+
9	Number of running well	+	+	+				
10	Number of inactive well	+	+	+				
11	Average daily production rate, tons per day		+	+	+	+	+	+
12	Average watercut, %		+	+	+			
13	Gas output, billion cubic meters					+		
14	Share of green-fields in total carbon production, %				+	+	+	+
15	Number of oil fields, pcs	+	+	+	+	+	+	+
16	Average well depth, thousand meters			+	+	+	+	

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Table 2 presents a range of indicators across the entire structure of existing Russian VIOC, which allows to control work effectively. The main indicators are: oil extraction, headway in production drilling, number of wells in use, average daily production rate etc.

The usage of logistic principles (rationality, consistency, hierarchy, integration) allows to improve the methodology of indicators selection.

The main indicators of vertically-integrated oil-companies performance by projections are offered in the result of studied material [2-6].

The “Finance” projection includes different indicators: 1) financial sustainability (absolute and current liquidity ratio, financial leverage); 2) growth in profits (return on capital employed, return on sales and return on assets).

The “Industry specialization” projection includes indicators: downtimes of service organization gang for different reasons, a number of high rate well, a number of performed plan targets, production loss during emergency work, well-timed equipment provision.

The “Business processes” projection includes: quality control system, development of applied researches, a constant process improvement and an existence of the best supplier.

The “Training and growth” projection includes: reduction of labour turnover, personnel development, better employee motivation.

It is necessary to consider the aim of managing stream-oriented processes – providing the output of adjustable indicators, corresponding to logistics regulations [4]. The “Business processes” projection transforms into the “Stakeholders” projection and involves following directions: customer, service organizations and suppliers.

Besides, the “Business processes” projection changes to the “Success factors” projection, which reflects both the results of the work with the environment and usage of company’s internal resources.

The algorithm of producing BSC indicators with considering logistical principles consists of the following stages: 1) overview of company’s strategic objectives on the basis of logistic approach; 2) monitoring an interconnection of company’s strategy and its structural divisions’ aims; 3) key figure block development for assessment of strategy implementation with considering logistical principles; 4) calculating KPI in all directions of the company 5) BSC calculation for the selected KPI indicators from projections; 6) creating strategic chart of the company with considering indicator’s influence on strategic objectives; 7) BSC implementation and monitoring of existing indicators’ deviations, elaboration of negative trend reduction measures.

OOO “Mekhanik” organization was chosen for the BSC test. This organization is involved in uninterrupted oil production for PAO “Udmurtneft”. Company’s performance analysis showed that the following factors have a negative effect on the profit: a) downtimes (51% - downtimes of major work over gangs), b) equipment (31% - non-provision of standard set of equipment), c) debts (9% - debts which are not settled for various reasons), c) delayed delivery (9% - long deliveries from the factories).

With consideration of influence factors and logistical principles there has been developed the BSC system, regulation values (under the terms of the legislation), recommended values (by market trends) and indicative values (by industry specification) for OOO “Mekhanik” service organization (Table 3) [1-3].

*Table 3 The balanced scorecard for OOO “Mekhanik” service organization*

Indicators	2014г.	2015г.	2016г.	Note
<b>Projection: Finance</b>				
1. Absolute liquidity ratio	0,002	0,002	0,67	Monitoring dynamic patterns during the reporting period
	Recommended values 0,2 - 0,7			
2. Current liquidity ratio	1,23	1,34	1,28	Monitoring dynamic patterns during the reporting period
	Recommended value - 2 (minimum value 1,5)			
3. Financial leverage	1,15	0,94	0,98	Monitoring dynamic patterns during the reporting period
	Recommended values 0,4 - 0,8			
4. Return on Capital Employed (ROCE), %	82,80	115,50	14,11	Monitoring dynamic patterns during the reporting period
	Recommended value, % in foreign practice - 10- 12, in Russian practice - 20.			
5. Return on sales (ROS), %	48	57	49	Regulation values are found in appendix №4 to Russian Federal Tax Service order on 30.05.2007 № MM-3-06/333@.
	Regulation value, % 23,8			

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6. Return on assets (ROA), %		38,50	45,50	7,13	Regulation values are found in appendix №4 to Russian Federal Tax Service order on 30.05.2007 № MM-3-06/333@.
		Regulation value, % 8,1			
<b>Projection: Stakeholders</b>					
<b>Customers - oil and gas production unit</b>					
7. Production loss during emergency work, tons per year	Oil production loss during emergency work for the annual report	278	289	262,8	Monitoring dynamic patterns during the reporting period by indicative method. Losses are shown in 3 zones
		Indicative values, tons per year			
		120-300	300-420	420-540	
<b>Service organizations</b>					
Major workover (WO)					
8. Downtimes of major workover gang waiting for dismantlement or assembling	Actual number of major workover gangs' downtimes for the annual report	765	1886	1620	It is necessary to control downtimes and monitor its reasons. The protocol for downtimes longer than 2 hours must be implemented. The indicator shows increasing or decreasing of gang downtimes through the fault of service organization. The main aim is to prevent the transition of indicators in the red zone
		Indicative values, hours per year*			
		600-1500	1500-2000	2000-2500	
Technological transport					
9. Standard set of equipment provision	Number of equipment/number of equipment according to the business plan	0,96	0,97	0,95	In this line the most important daily-needed equipment is recorded. There is a high chance of work disruption if this equipment is not present
		Recommended values 0,9-1			
<b>Suppliers</b>					
10. Delay in delivery	The amount of delayed deliveries / the amount of all deliveries	0,2	0,23	0,1	The indicator is needed to control a work with customers. The results of this work are directly reflected in the debts receivable
		Recommended value is not above 0,3			
11. The effectiveness of supplier's performance	Expert survey	0,40	0,42	0,48	The advantage of expert survey is in engaging respondents from all levels of organization
		Indicative values*			
		0-0,3	0,3-0,75	0,75-1	
<b>Projection: Success factors</b>					
12. Agility in responding to orders, tons per year	Oil production loss for annual report	620	754	895	The indicator is used for monitoring of reasons for the transition to the critical zone. For the correct report it is necessary to keep a daily and monthly record of emergency works that is to make summary table on all types of work, deadlines and the reasons for deviations
		Indicative values, tons per year*			
		800-1300	1300-1700	1700-2500	
13. Orders completion rate		0,25	0,16	0,2	The report with debt indication is to be implemented, there should be

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	The amount of debt orders/ the total amount of orders	Indicative values*			noted the reasons of inability to fulfill an order
		0-0,4	0,4-0,6	0,6-1,0	
14. Quality control system	The amount of performed works/the total amount of works (mechanical assembly and disassembly)	1,06	1,02	1,08	The indicator allows to estimate effectiveness of using resources (according to the business plan)
		Recommended values 0,8-1			
15. Development of applied scientific researches	The amount of carried out researches/the total amount of researches	0,5	1	0,25	Coefficient demonstrates the amount of practically applied researches
		Recommended values – 0,7- 1			
<b>Projection: Training and growth</b>					
17. Personnel development	The amount of people completed advanced training courses/the total amount of employees	0,78	0,78	0,84	The coefficient reflects the effectiveness of human resources department
		Indicative values*			
		0-0,4	0,4-0,8	0,8-1	
18. Better motivation of employees	Expert survey	0,71	0,73	0,70	Respondents from all levels of organization should be engaged
		Indicative values*			
		0-0,3	0,3-0,75	0,75-1	
*Green zone – recommended values; Yellow zone – acceptable values; Red zone – critical values.					

In general, the proposed BSC system has specific features, which are not inherent in individual projections. The synergetic effect is possible to be achieved by BSC implementation. This system also allows assessing company's potential in all directions, reducing time between the development and implementation of the strategy, coordinating operative and strategic management, monitoring implementation of the strategy in different ways, motivating employees to follow strategic aims, creating a feedback for making the decisions in the shortest time and applying tools taking into account industry specificity.

### 3 Conclusion

The result of this study is the developed balanced scorecard system, which reflects the specificity of oil industry and represents a flexible mechanism of management. In the addition to finding relationship between financial and non-financial parameters, this study identified possible ways of achieving interaction with the stakeholders, building partnership with the customers, decreasing transport costs and optimizing data base for making immediate and balanced decisions.

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