#### Faizova S.

Ph. D. in Economics.

Associate Professor of Administration, Management and Entrepreneurship, National Metallurgical Academy of Ukraine;

e-mail: faizova4444@gmail.com; ORCID ID: 0000-0002-7243-0726

## Ivanova M.

Doctor of Economics, Associate Professor of Management, Dnipro University of Technology, Ukraine; e-mail: ma riva@ukr.net; ORCID ID: 0000-0002-1130-0186

Sannikova S.

Ph. D. in Engineering, Associate Professor of Management, Dnipro University of Technology, Ukraine; e-mail: svsannikova@ukr.net; ORCID ID: 0000-0002-5676-2528

Varyanichenko O.

Ph. D. in Economics, Associate Professor of Management, Dnipro University of Technology, Ukraine; e-mail: varyanichenkoelen@ukr.net; ORCID ID: 0000-0002-1331-9673

# PROBLEMS OF FORMATION OF FINANCIAL-INVESTMENT PROJECTION OF A BALANCED SCORECARD IN VALUE-BASED ENTERPRISES OF MINING-METALLURGICAL COMPLEX

**Abstract.** The directions of improving the methodical principles of Balanced Scorecard as a system of strategic enterprise management have been highlighted. The need to avoid the simplified mechanistic dividing of the indicators into financial and non-financial ones has been substantiated; the authors have also disputed the corresponding binding of financial indicators mainly to tangible assets and financial strategic prospects, and non-financial indicators — to intangible assets and non-financial projections of the strategy. The criteria of strategic targeting, efficiency and functionality have been defined as key criteria in selecting the BSC metrics.

The necessity and the possibility of integration of VBM and BSC concepts, which may be implemented through the company's financial control panel by using VBM metrics, has been substantiated. The unified criteria for selecting VBM metrics for the financial perspective of BSC (i.e. to take into account the investors' risk and intangible factors of creating the enterprise's market value; to be easily calculated and efficient; to provide for cascading and motivation) have been determined and their respective comprehensive assessment has been made. The general structure of the investment-financial perspective on the strategy map of a value-based enterprise of MMC has been developed.

One can highlight specific features of the management perspective of a value-based enterprise. Among them:the «investors» projection or the financial-investment projection serves as the starting point of the cascade of a company's value creation; unlike the amorphous classical BSC, the proposed pattern is clearly subordinated to the main indicator (EV); the financial-investment projection is represented by a limited number of financial, mostly VBM indicators; the balance of traditional and new metrics; unlike the classic BSC technique, the template developed does not imply a mandatory quantitative predominance of non-financial indicators.

On the basis of the analysis of interdependence of factors and indicators of the company's market value (KPIs / CSFs) absence of a linear relationship between financial indicators — tangible assets — current cost factors — on the one hand and non-financial indicators — intangible assets — future value factors — on the other, is defined.

The possibility to use financial and non-financial indicators to measure both tangible and intangible assets as sources of market value creation is proved.

**Keywords:** Balanced Scorecard, value-based enterprises of MMC, VBM-metrics, financial-investment perspective of BSC.

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### Фаізова С. О.

кандидат економічних наук,

доцент кафедри адміністрування, управління та підприємництва, Національна металургійна академія України;

e-mail: faizova4444@gmail.com; ORCID ID: 0000-0002-7243-0726

## Іванова М. I.

доктор економічних наук, доцент кафедри менеджменту, HTУ «Дніпровська політехніка», Україна;

e-mail: ma riva@ukr.net; ORCID ID: 0000-0002-1130-0186

# Саннікова С. Ф.

кандидат технічних наук, доцент кафедри менеджменту, HTУ «Дніпровська політехніка», Україна;

e-mail: svsannikova@ukr.net; ORCID ID: 0000-0002-5676-2528

# Варяниченко О. В.

кандидат економічних наук, доцент кафедри менеджменту, HTV «Дніпровська політехніка», Україна; e-mail: varyanichenkoelen@ukr.net; ORCID ID: 0000-0002-1331-9673

# ПРОБЛЕМИ ФОРМУВАННЯ ФІНАНСОВО-ІНВЕСТИЦІЙНОЇ ПРОЄКЦІЇ ЗБАЛАНСОВАНОЇ СИСТЕМИ ПОКАЗНИКІВ ВАРТІСНО ОРІЄНТОВАНИХ ПІДПРИЄМСТВ ГІРНИЧО-МЕТАЛУРГІЙНОГО КОМПЛЕКСУ

Анотація. Висвітлено напрями вдосконалення методичних засад збалансованої системи показників (Balanced Scorecard) як системи стратегічного управління підприємством. Обгрунтована необхідність відходу від спрощено-механістичного розподілу показників на фінансові й нефінансові, відповідно прив'язки фінансових показників переважно до матеріальних активів і фінансових стратегічних перспектив, нефінансових показників — до нематеріальних активів і нефінансових проєкцій стратегії. Основними критеріями відбору показників до ВSC визначені критерії стратегічної спрямованості й ефективності та функціональності.

Обгрунтовано необхідність і можливість інтеграції концепцій VBM та BSC, що здійснюється через фінансову панель управління підприємством і використовує VBM-показники. Визначено уніфіковані критерії відбору VBM-показників у фінансову панель BSC (урахування ризиків інвесторів, нематеріальних факторів створення ринкової вартості підприємства, простота розрахунку й економічність показника, можливість каскадування та можливість мотивації) і здійснено їхню відповідну комплексну оцінку.

Розроблено загальну структуру інвестиційно-фінансового напряму стратегічної карти вартісно орієнтованого підприємства ГМК. Виділено специфічні ознаки управлінської панелі показників вартісно орієнтованого підприємства. Серед таких: проєкція «інвестори», або фінансово-інвестиційна проєкція, слугує відправною точкою каскаду створення вартості підприємства; запропонований шаблон чітко підпорядкований головному показникові (EV); фінансово-інвестиційна проєкція представлена обмеженою кількістю фінансових, переважно VBM-показників; баланс традиційних і нових вимірників; розроблений шаблон не передбачає обов'язкове кількісне переважання нефінансових показників.

На основі аналізу взаємозалежності показників і факторів ринкової вартості підприємства (KPI / CSFs) визначено відсутність лінійної залежності між фінансовими показниками — матеріальними активами — факторами сучасної вартості, — з одного боку, і нефінансовими показниками — нематеріальними активами — факторами майбутньої вартості — з другого.

Доведена можливість використання фінансових і нефінансових показників для виміру матеріальних і нематеріальних активів як джерел створення ринкової вартості.

*Ключові слова*: збалансована система показників, вартісно орієнтовані підприємства ГМК, VBM-показники, фінансово-інвестиційна проєкція BSC.

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**Introduction.** Influenced by today's advances in economy, management is seeking for a «seamless» balanced enterprise management system that would integrate such concepts and techniques as economic profit, value-based management (VBM), balanced scorecard (BSC), activity based costing (ABC) etc. This system focuses on the BSC, which, through its financial aspect, allows more clearly translating the concept of the company's value creation down to the company's units and «cascading» it «down» throughout the enterprise.

Today BSC claims to address the most important management challenge, i.e. how to formulate a strategy and make it work. However, the domestic practice shows a lack of system and inconsistency of actions concerning business development according to the world management standards, insufficient support in the development of the strategy-based business culture. Accordingly, a clear understanding of the BSC methodology role and its constraints, the assessment of the conditions, possibilities and methodological format for integration of the BSC into the management systems of domestic industrial enterprises becomes crucial.

Analysis of research and problem statement. The problem of integrating the balanced scorecard into the practice of managing industrial enterprises has been investigated in the works of foreign and domestic researchers, namely A. Gershun and M. Gorsky, R. Kaplan, M. Kizim, O. Kuzmin, L. Malyarets, T. Momot, D. Norton, Nilsa-Gorana Olve, A. Pylypenko, K. Redchenko, V. Slinkov, B. Phelps, H.-P. Friedag and W. Schmidt, K. R. Hubert and others. However, the current research deals mainly with the partial problems of the evolution of strategic management based on the balanced scorecard, considering the latter in a limited methodological format. Some aspects of the formation of a qualitatively new, BSC-based level of strategic enterprise management lack theoretical substantiation, the methodical tools for the formation of the managerial panel of indicators for enterprises of the mining and metallurgical complex are imperfect and they have not been finalized.

**Research results.** A balanced system of indicators, the balance scorecard (BSC), emerged as a system for assessing the company's value and effectiveness, which uses the measures of material and intangible factors used to create its value. The BSC has soon turned into a planning technology and it is evolving into an independent system of the strategic enterprise management side-by-side with the advances of economy. Certain signs of this tendency have been noticed by both foreign [1] and domestic researchers [2, p. 138; 3].

The comparative analysis of Kaplan and Norton's methodological principles of BSC and the BSC as a balanced enterprise management system leads to a conclusion that there is a discrepancy in the criterion for balanced indicators in the management perspective. The classic BSC was characterized by the simplified mechanistic division of indicators into financial and non-financial ones in a rigid structure (compulsory quantitative predominance of non-financial indicators). At the same time, it was amorphous, without highlighting the top priority metrics. Yet, focusing on the implementation of the general strategy requires focusing on relevant factors, metrics and strategic initiatives.

The feature of the evolved strategic enterprise management in the MMC is a turn to a value-based management. That is, the management panel of a value-based enterprise should be aimed at:

- management of the investment community;
- assessment and justified choice of strategy for increasing the business value;
- ensuring the creation of the company's value as a result of balanced performance management [4].

Addressing these challenges makes it necessary to integrate VBM and BSC concepts through the enterprise financial management panel and using VBM metrics. The unique features of the enterprise require defining uniform criteria for the selection of VBM metrics in the BSC financial perspective. They should take into account:

- principles of value-based management [1];

- principles of a strategy-based organization, that is, a balanced system of indicators (the BSC) as a system of balanced enterprise management [5];
- general management principles that can be formulated according to the so-called COT (clarity, objectivity, teamwork) [6, p. 9].

With the aim of improving the methodology for integrating the BSC and VBM concepts, unified criteria for selecting VBM metrics for the BSC financial perspective have been developed. The criteria are based on the integrated consideration of the above principles, among them:

- taking into account the risks through including into the metric the investors' expectations about the growth of the company's market value. This in turn focuses on the BSC-based investment community management;
- taking into account the intangible factors of the enterprise's value on the basis of objective metrics. It allows understanding the key levers of the value creation mechanism and, consequently, the assessment of strategies for creating the market value, managing the strategies through the management of intangible assets;
- the ease of calculating the metric and the perceptibility of its logic at all levels of management, the cost of obtaining information for the calculation, that is, the ability of being adapted to the current enterprise management system and integration with the budgeting system;
- allowing the strategy cascading on the principle of clarity, that is, the direct relationship with key success factors; controllability, that is, the possibility to influence the factors and monitor the degree of target implementation;
- allowing the motivation of the staff based on a clear relationship between the defined goals and reward for their achievement.

Comprehensive assessment of a metric by the above criteria, as presented in *Table 1*, takes into account both the positive characteristics and the argumentation of choice: a significant focus on the expectations of the investors; possibility of taking into account the contribution of intellectual capital of the enterprise to the creation of its future value; ease of calculation and perceptive logic of the metric at all levels of management; the possibility to translate the key factors of value creation down to the lower levels of management, and incentives for employees for implementing strategic goals.

Table 1
Selection of VBM metrics to the BSC by the balance criterion

	Parameters compared					
Metric	Risk management	Taking into account intangible factors	Ease of calculation, efficiency	Possibility of cascading	Possibility of motivation	
ROIC (ROE, ROA)	_	-	High at all levels of management	High	Limited by the lack of connection with value increase	
EV	Included	Partly	Low for companies whose shares are not traded on the market	Low	Low	
EBITDA	_	_	High	High	High	
EBITDA margin	_	_	High	High	High	
NOPAT	_	_	High	High	High	
EVA	Partly through assessing the expected capital structure and accordingly, the WACC rates	Partly	Average due to the WACC algorithm	High	High	
TSR	Included	Included	High, based on real parameters	Low. Aggregative index	Limited by corporate level	

*Note*: compiled by the authors.

Source: [1; 5; 7; 8].

The analysis conducted on the defined criteria demonstrates the high potential of TSR as the key BSC VBM metric. PAT «Interpipe Niko Tube» has included this metric in its strategy map. TSR has been used by the stock market for comparative analytics within 3 to 5 years to show the effectiveness of corporate governance. If a company shows a lower TSR than its competitors, as a result of a negative response of the capital market to its managerial decisions in the current year, this may be a reason for the company's strategy correction. That is, this popular financial indicator best takes into account the contribution of intangible assets to the value creation.

A general structure of the investment and financial perspective on the strategy map of a value-based enterprise was developed using the VBM metrics selected by the balance criterion (*Table 2*). The key indicator of the «investors» projection is earned value (EV).

**Balanced Scorecard of a MMC value-based enterprise (fragment)** 

Table 2

Strategic Objectives	Value created	Key success factors	Indicator					
Investors								
Growth of capitalization or market value	Market value Potential of future value	Effectiveness of strategic management	Earned value $(EV)$ = current market capitalization + market valuation of a company's debt					
2.1. Increasing investment attractiveness	Investment attractiveness	Increased market price of the company's shares	R / E = market share price: dividend yield					
		or						
2.2. Use of stock market resources and going on an IPO	Attracted financial resources	Increasing the value of the company	EV / EBITDA					
3. Increasing the effectiveness of corporate management	Profitability and intellectual excellence	to increase profitability Increase in investment	Total Shareholders' Returns (TSR) = percentage increase in stock prices for the period under review (share price at the end of the period: initial stock price) + dividend rate (paid dividend at the end of the year: initial share price)					
		Finance	-					
Increased financial and economic efficiency	Added value	Operational efficiency Efficiency of financial activity Efficiency of investment activity	Economic Value Added (EVA) = NOPAT - (WACC x invested capital); (ROIC - WACC) x invested capital					
2. Increased efficiency of operating activities	Products and revenues Production potential	Growth of sales and scale of activity Growth of profit margins Effectiveness of tax administration	2.1. Pre-tax profit, depreciation and interest expense on loans (EBITDA) = operating profit + depreciation of tangible and intangible assets - Revaluation of assets 2.2. Maginal EBITDA = (EBITDA: sales revenue) × 100%					
3. Increased efficiency of investment activities	Investment potential	Increase in asset value Optimization of redistribution of investment resources relative to centers of value creation	Return on net assets (ROIC) = (NOPAT: invested capital) ×100%					
4. Increased efficiency of financial activities	Financial potential	Optimization of the ratio of own and borrowed capital Attracting cheaper borrowed funds	Return on assets (ROA) = (NOPAT: assets) × 100%					

*Note*: compiled by the authors.

Despite the low potential of selection to the BSC financial perspective, EV is a rather simple and obvious indicator of how financial markets assess the company [9]. «Heading» the investment projection, EV performs a dual function, both as a management tool for the investment community, through fixing the enterprise's value and as a tool of creating the reverse positive effect of the stock market on the company's share price.

The EBITDA / EBITDA margin can fulfill the role of the top priority VBM metric for domestic MMC companies in the initial stages of formation of a balanced enterprise management based on BSC.

One can highlight specific features of the management perspective of a value-based enterprise.

Firstly, the «investors» projection or the financial-investment projection serves as the starting point of the cascade of a company's value creation. However, it does not make sense to isolate "investors" as an independent projection, if the company's strategy does not include the investment strategy of attracting stock market resources and going on an IPO.

Secondly, unlike the amorphous classical BSC, the proposed pattern is clearly subordinated to the main indicator. It is «tied» to the financial-investment projection, since a value-based company is being concerned. «Increase in capitalization or market value» serves as an overall strategic objective of the BSC financial and investment perspective. A top priority BSC metric is «earned value» (EV).

Thirdly, the financial-investment projection is represented by a limited number of financial, mostly VBM indicators. VBM metrics, on the one hand, serve as a vector for strategic development of a value-based enterprise, and on the other hand, serve as a basis for defining the objectives and indicators of non-financial projections. Given the type of strategy, variations of financial goals / financial indicators are possible.

Fourth, the general feature of the financial and investment projection of the BSC is a balance of traditional and new metrics. Under current conditions, there is almost no reason for a non-alternative implementation of VBM metrics. They are not stipulated by national accounting standards; information-analytical system of enterprises is not adapted for their calculation; they are hard to be perceived by unit managers and the staff as a goal of development and a tool of material incentives. A complete abandonment of the traditional system of metrics can have a demotivating effect on the company's management, lead to a loss of accumulated positive management experience. Consequently, the VBM metrics that are most consistent with the above criteria for the integration of the VBM and BSC concepts should be implemented gradually; in the early stages of formation of a balanced management of the enterprise, they may perform the role of a navigator of strategic thinking into corporate culture.

Fifth, unlike the classic BSC technique, the template developed does not imply a mandatory quantitative predominance of non-financial indicators. Selected according to the criterion of strategic targeting and efficiency, they contain indicators of the most effective factors for achieving the strategy, whether they are material or intangible, on the basis of balanced selection in the process of analytical and statistical observations, subjective assumptions based on experience and managerial art, modeling specific business conditions, taking into account international standards for the classification of business processes [10, p. 70; 11; 12, p. 180; 13; 14].

When forming a BSC template for a value-based enterprise, we were guided by a functionality criterion, where grouping of critical success factors (CSFs) results into revealing the factors that are both the «determinants» of the present value and «makers» of the future value of MMC enterprises [6]. By the criterion of strategic targeting and efficiency, the focus is placed on the strategic resource of each indicator, its ability to assess the degree of reach of the strategy and measure the most effective factors for its achievement. The analysis of the interdependence of factors and indicators of the company's market value (KPIs / CSFs) showed the following:

- Absence of a linear relationship between financial indicators tangible assets current cost factors on the one hand and non-financial indicators intangible assets future value factors on the other.
- Possibility to use financial and non-financial indicators to measure both tangible and intangible assets as sources of market value creation.

For example, the return on assets as a top metric of the BSC finance perspective is usually benchmarked to the average industry level or the corresponding value of a similar company. The latter makes this purely financial indicator an indicator of competitiveness and quality of management, and respectively, an indicator of the company's market value growth potential.

Consequently, the form of a metric becomes of fundamental importance in the theoretical context. From a practical point of view, the main criteria for selecting indicators for the BSC should be the criteria of strategic targeting and efficiency as well as functionality.

Conclusions. In the process of forming a balanced enterprise management, changes are being made to BSC's methodological principles in the direction of moving away from the simplified-mechanistic dividing into financial and non-financial indicators, and respectively, binding the financial indicators mainly to tangible assets and strategic financial perspectives, and the non-financial indicators — to intangible assets and non-financial projections of the strategy. Using a classical BSC with a focus on the mandatory quantitative predominance of non-financial indicators without their careful selection and balancing makes the system ineffective under conditions of domination of tangible assets and noticeable underestimation of intangible assets in domestic industrial enterprises. There is a need to improve the methodical tools for forming the management perspective of the Balanced Scorecard of MMC companies. It is expedient to include in the BSC the metrics of the most effective factors for achieving the strategy, regardless of whether they are material or intangible: some indicators should diagnose and monitor the effectiveness of the use of the enterprise's economic potential, while the others are to be indicators of potential reserves of the enterprise's development and the corresponding directions of the general strategy correction.

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