

Balanced Scorecard as a Tool for Strategic Planning at Industrial Enterprises

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Abstract: The study describes the balanced scorecard as one of the most successful tools used in strategic planning at industrial manufacturing enterprises. The basis of the balanced scorecard includes developing financial strategy for industrial enterprises in several perspectives, setting strategic goals and measuring the degree of these goals achievement by means of key performance indicators. These key performance indicators were established for the competitiveness control and monitoring the enterprises. This study is devoted to the development of a balanced scorecard for industrial enterprises to satisfy the needs of their competitive sustainable development.

Key words: Balanced scorecard, key performance indicators, production subsystems, business units, strategic plan, business processes, management level, strategic goals, strategic map, balanced economic growth, performance efficiency

INTRODUCTION

The balanced scorecard is one of the most successfully used economic tools, proposed by Kaplan and Norton (2006). This scorecard takes into account four key aspects of modern company activities-finance, customers business processes, training and development. The word "balanced" in the name means the same importance of all indicators for the analysis and the evaluation of an enterprise (Lukasyevich, 2010).

Methodologically, the balanced scorecard is a clear and a formalized definition of the basic criterial values that characterize business performance (Key Performance Indicators/performance indicators-KPI). At that, the criterial values are detailed according to the levels of management and business units and the tasks assigned to managers and employees are specified in such a way that their implementation ensures the achievement of desired results. Thus, we may conclude that the balanced scorecard proposed by Norton and Kaplan is focused on strategic development planning for modern economic entities, including manufacturing industrial enterprises.

The popularity of the balanced scorecard as a modern policy of strategic planning and business management can be explained by a set of reasons. In particular, the balanced scorecard and the established key performance indicators have greater flexibility and adaptability at the change of exogenous trends and, respectively at the changes introduced to the plans for the strategic development of a company. Besides, the balanced scorecard is applicable to large non-profit organizations as well as state-owned enterprises (Johnson *et al.*, 2007), i.e., it may include not only economic but also social indicators of business process efficiency. The use of not

only economic but also social key performance indicators allows commercial organizations to obtain objective and relevant information about the specifics and directions of socio-economic development-its knowledge (intellectual capital), human and material resources (Niven, 2002).

The development of a balanced scorecard and the establishment of key performance indicators for certain business processes of companies, including the organizations operating in the field of industrial production, must be based on an integrated methodological approach. It is proposed to structure the balanced scorecard according to the hierarchical levels of an enterprise business management (strategic, tactical and operational level of management) and according to business processes associated with this level of management.

Consequently, the formalization of the balanced scorecard and the establishment of key performance indicators of business processes of industrial enterprise production will be as follows (Fig. 1).

Thus, the balanced scorecard incorporates all levels of industrial enterprise business management and all business processes. At that, the key performance indicators are assigned to each business process.

The comparison of actually achieved results of an enterprise's functioning and development during a period or a number of prior periods with established key performance indicators enables the assessment of corporate development goal achievement and at the same time helps to reveal the problems which will be clearly specified and localized for each business process. Hence, we can say that the use of the balanced scorecard may be viewed as a tool of competitiveness management for production industrial enterprises.

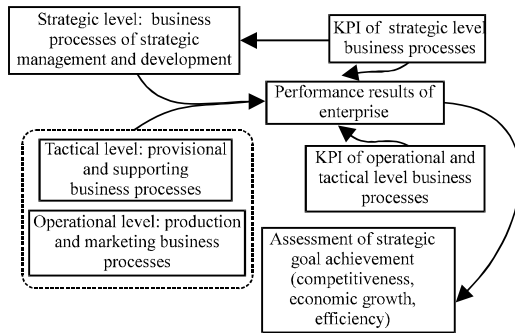


Fig. 1: Integrated approach to balanced scorecard development and establishment of key performance indicators. Adapted by the researcher on the basis of (Dudin and Frolova, 2015)

MATERIALS AND METHODS

Strategy map concept: Optimal planning of production industrial enterprises operations and development as well as the management of their competitiveness by means of the balanced scorecard formalization, first of all, requires the use of a strategic map concept developed by Norton and Kaplan.

The main objective of strategic map model is to present the characteristics of all significant factors which determine the strategic success of a company's operations and development, the level of its competitiveness. Therefore, according to the researchers of this study, a strategic map should be drawn up on the basis of identified problems and targeted development prospects.

The increase of industrial enterprise competitiveness may be implemented on condition of its operational effectiveness providing a necessary and a balanced economic growth. Accordingly, as demonstrated in Fig. 2-4, the four components of a strategy map (finances, business process organization, staff and customers) are distributed depending on the targeted vector of this component (Olivier *et al.*, 2009).

Thus, the proposed strategic maps are, first of all, fully consistent with the concept of strategic mapping offered by Norton and Kaplan. And, secondly, the developed strategy maps fully incorporate all problematic aspects that tend to reduce the competitiveness of manufacturing industrial enterprises and determine the key priorities for their further development taking into account the strategic goal. Next, it is necessary to carry out the development of key performance indicators and relate them to business processes.

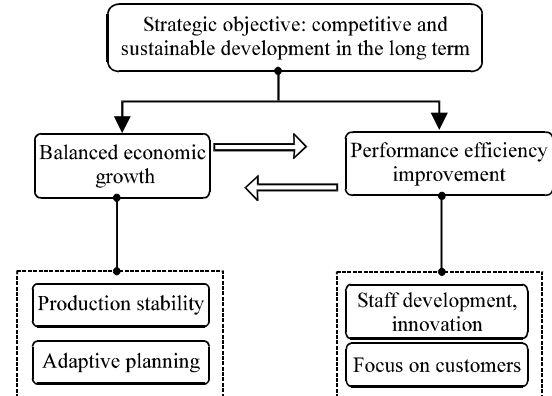


Fig. 2: Strategic map of a long-term competitive development for production industrial enterprises (McNair *et al.*, 1990)

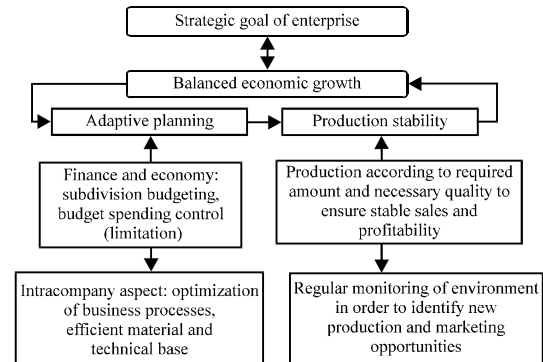


Fig. 3: Strategic map detailing in the aspect of "balanced economic growth" for industrial enterprises (McNair *et al.*, 1990)

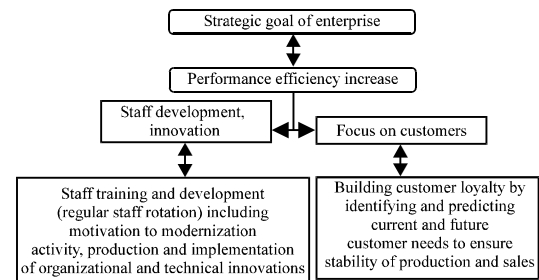


Fig. 4: Strategic map detailing in the aspect of "production efficiency increase" for industrial enterprises (McNair *et al.*, 1990)

RESULTS AND DISCUSSION

Development of key performance indicators: It has been shown already that the balanced scorecard incorporates four key values of enterprise functioning and

Table 1: Balanced scorecard and key performance indicators of business process efficiency for production industrial enterprises

External enterprise environment	Internal enterprise environment
KPI	
Business processes of strategic management and development: Goodwill. Represents the value of an enterprise's business characteristics without the cost of tangible assets (property or capital stock)	Production and operating business processes: Technological basis, fixed assets, material resources Income and profitability of production and sales Match between supply and demand structure, taking into account the reduction of a product life cycle
Economic added value. Represents a company's ability to generate additional revenue for shareholders (strategic investors)	Financial business processes (business planning processes) Financial results of a company (operating and after-tax profit indicators) Liquidity of assets and overall solvency of a company Provision of functioning and development needs with financial resources
Enterprise's market share. Represents current market: positions of a company in relation to immediate competitors Economic growth stability. Represents a company's ability to increase the cost of equity capital through reinvestment of profits Customer loyalty index. Determines repeat business for a certain manufacturer	HR business processes: Staffing level (according to staff categories) Staff intellectual activity Return on investment in staff development
Innovative activity of an enterprise: demonstrates a company's ability to use its own and attracted knowledge in order to generate additional economic benefits.	

Table 2: Strategic perspectives of key performance indicators for production industrial enterprises in the aspect of their competitiveness management

Balanced scorecard aspect	Operative and tactic control	Strategic management
Customers	KPI of production and operating business processes in the customer aspect should be assessed as the ability to meet customer needs	KPI data set provides a comprehensive assessment of an enterprise's resource use and characterizes the level of goal achievement expressed in concrete values
Finances	KPI of financial business processes should be assessed as the ability to set goals through their cost or quantity value and the ability to achieve these goals	
Intracompany aspect	KPI of all business processes demonstrate an optimal intracompany environment and its impact on an enterprise's operational efficiency	
Staff	KPI of HR business processes should be assessed as a company's ability to develop and use human resources effectively in accordance with the established goals KPI of an enterprise's innovative activity must be evaluated as the sum of manager and staff efforts to achieve the established goals through the use of intensifying factors in the current activity	

development. These four key values structure all business processes. Therefore, management is performed on the basis of Key Performance Indicators (KPI) established for specific business processes. It is worth noting that in Russian practice KPI are interpreted as key performance values. According to the researcher of the present study, the term "values" is not fully correct because modern business management is developed on an indicative basis. Therefore, the use of the word "индикатор" ("indicator") is more correct which in general, is fully consistent with the literal translation of the term "Key Performance Indicators".

So, we have determined the theoretical component of key performance indicator development; next we need to address their specific construction. The greatest difficulty is the specification of key performance indicators established for individual business processes. It should be clearly understood that each indicator must characterize objectively and relevantly the efficiency and the effectiveness of a business process. This is the main and necessary condition for strategic business

management based on the balanced scorecard which provides enhanced competitiveness (Tsvetkov and Dontsova, 2010) including the competitiveness of industrial enterprises.

Based on the experience of the companies which have successfully implemented the balanced scorecard as well as the empirical studies carried out previously (in preparation for this study) the author of the present study suggests that the following systematization and structuring of business processes and appropriate performance indicators may be accepted for production industrial enterprises (Table 1 and 2).

It should be noted that key performance indicators partially duplicate the indicators (criteria) of competitiveness which generally empirically proves the use of the balanced scorecard and key performance indicators for the management of manufacturing industrial enterprise competitiveness. With this in mind, let us consider the strategic prospects for each type of key performance indicators developed within the previous Table 3 and 4.

Table 3: Calculation of strategic key performance indicators concerning the activity of industrial enterprises

Indicators	Calculation method or source
Goodwill	Balance (as part of intangible assets) or the difference between the amount of initial investment and the amount of an enterprise's net assets
Economic Value Added (EVA)	Net operating income, reduced by the amount of invested capital value
Sustainable growth rate	An enterprise's own capital profitability, multiplied by accumulation rate
Market share*	For large and largest companies the market share is estimated by rating agencies
Net Promoter Score (NPS)	The ratio between the customers who are ready to make repeat purchases and to recommend the products to others and the consumers who are not ready to purchase again or to recommend the products

*For industrial companies whose market share is difficult to estimate, this value may be replaced by a simple value of competitiveness calculated as the ratio between the operating income of the given company and the income of an immediate competitor (a comparable enterprise)

Table 4: Calculation procedure for individual functional and operational key performance indicators concerning the activity of production industrial enterprises

Indicators	Calculation method or source
Technological base, fixed assets, material resources	The ratio between the actual indicators available in a company, material resources, technologies and capital assets and the indicators set according to plan
Provision of financial resources for current and strategic needs	The ratio between the long-term and short-term liabilities, the sources of self-financing and the investments in fixed assets, current assets and technologies, including reserves
Staffing level according to major categories	The ratio between the actual number of enterprise employees and the planned number indicators (according to the main staff categories)
HR investment profitability index	The ratio between the operating profit and the costs of the human resource subsystem functioning
Match between supply structure and demand structure	The ratio between the product portfolio structural indices and the structural indicators of actual consumer demand for the current period. In order to calculate the structural indicators of supply and demand, one can use the structural activity coefficient formula (Voytlovsky <i>et al.</i> , 2013). At that, the structural indicators of demand are advisable to adjust by the multiplying factor characterizing the reduction of produced commodity's lifecycle. For example, for furniture enterprises, the reduction of commercial product life cycle on the market is about 10% per year (Sukhorukov, 2013)
Innovation and research activity	R&D investment profitability: the ratio between the operating profit from sales of innovative products and the incurred innovation and research costs
Staff intellectual activity	The ratio between the number of implemented proposals and inventions and the number of rationalization proposals and inventions made by the company employees

So, summarizing the above information, let us note that the business processes of an enterprise's strategic management are focused usually on the external environment and determine the level of the enterprise's sustainable and competitive development. Production, operational, personnel and financial business processes are focused on the internal environment of an enterprise. Accordingly, the key indicators focused on the external environment, demonstrate the strategic effectiveness of an enterprise's functioning and development. In their turn, key performance indicators focused on the internal environment, demonstrate the functional and operational efficiency of a company's functioning and development.

Calculation procedure for strategic key performance indicators, established for the business processes of strategic management: Table 3 shows the calculation procedure for strategy key performance.

Calculation procedure for separate functional operational key indicators of industrial enterprise activity: Table 4 shows the calculation procedure for separate functional operational key indicators of industrial enterprise.

CONCLUSION

The balanced scorecard is developed and a set of key performance indicators is determined in the context of

competitiveness management of production industrial enterprises. The researcher detailed business processes and established key performance indicators for each business process. Each indicator describes the efficiency and effectiveness of business processes relevantly and objectively and this is the main prerequisite for strategic business management based on the balanced scorecard which provides the competitiveness increase for production industrial enterprises.

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