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## GENERAL PRINCIPLES OF A MODEL FOR IMPLEMENTATION OF MINING COMPANY'S BUSINESS STRATEGY\*\*

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### 1. Introduction

Today's enterprise management is faced with new challenges arising from the necessity of doing business in "unprecedented conditions, in which the future is uncertain and the present is difficult to know, let alone understand" [3]. The high dynamics of changes in the environment are becoming one of the key determinants of action also for mining companies, bringing to senior managers new requirements and challenges. Modern management styles offer a variety of solutions aimed at the company environment (both internal and external), defining corporate objectives in the context of the needs and desires of the market and customers. In their strategic and operational activity, mining companies not only seek to achieve a sustainable economic balance through mining and selling coal with properties meeting the requirements of the customer, but also strengthen their position by investing in their own development. The managerial staff in mining companies are forced to manage intensively, i.e., not only to conduct everyday business, quickly use the obtained relevant information, make the right decisions, but also, or primarily, to skilfully manage risk, and program development in times of economic crisis and instability in the international coal market.

Coal mining companies realize that the world economy is undergoing continuous, dynamic change and the only chance to create favourable conditions for increasing competitiveness of Polish coal are (1) the processes of defining and re-defining their strategies in a continuous, dynamic manner, in response to changes in their environment, or ahead of these changes, or

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\*\* This research work was financed by the Polish Government's fund for science in years 2010–2013 as a research project No. N N524 361738.

even in a proactive manner, and (2) the implementation process coupled with the strategy, in which the resources and organizational skills are so deployed as to implement long-term development goals and to secure the company's existence in potential situations of discontinuity [12].

Consequently, strategic activities of mining companies are significantly determined, among other things, by:

- the coal market itself, which is characterized by large fluctuations in coal prices;
- continuous restructuring, reduction in coal production, reduction in production capacity through mine closures;
- reduction in employment;
- the growing importance of work safety supervision;
- the need for restructuring of liabilities: reduction in liabilities, increase in receivables;
- monitoring of public-law payments;
- the level of coal production costs, the investment projects conducted, asset restructuring, sale of unnecessary non-production assets and asset liquidation;
- conducting activities to reduce the impact of mining on the environment.

Observation of company environment indicates that mining development strategies focus on the diversification of operations, formation of groups of companies, or initiating the process of going public. This reality can lead to serious problems in the implementation of strategic goals set by the management boards of mining companies. Implementation of strategic goals in key areas of development of the mining company, to which undoubtedly belong production strategies, occupational health and safety, human resources, marketing, environmental protection (including waste management) and asset management, become a major challenge for the increasingly complex corporate structures of mining companies. A variety of solutions offered by modern management can be used to help align and synchronize different strategies, hoping for benefits of so valuable and desirable synergy effect, which offers a chance to increase the attractiveness and competitiveness of Polish coal, both in Europe and worldwide.

## **2. Implementing the strategy**

“Effective implementation of a strategy is one of the most important measures for assessing both companies and their management staff” [9]. There is thus no doubt that managers bear a great responsibility for the actual, effective implementation of strategy. They continuously look for relevant and up-to-date tools to support its implementation. Very popular in this respect is the concept of Balanced Scorecard (BSC). It is used in an increasing number of Polish companies, as it provides managers with a mechanism that makes it possible to translate strategies into goals that are clear and understandable to all employees at all levels of management, and enables communication between these levels.

Strategy is increasingly defined as a central element of a company's management system. Its implementation involves not only converting its usually descriptive form into a set of parameters and determining the appropriate actions to achieve its strategic priorities in the long term, but also requires a high level of integration and cooperation between individuals and organizational processes. Therefore, other elements of the management process should be designed so as to enable alignment, which is widely elaborated by the authors of BSC, R.S. Kaplan and D.P. Norton [6].

They identified four components of this alignment:

- Strategic fit — pertains to the internal consistency of the activities that implement elements of the strategy (objectives, initiatives and actions that must be provided and coordinated by the management system);
- Organizational Alignment — pertains to how the various parts of an organisation synchronize their activities to achieve integration;
- Human capital alignment — the strategy is formulated at the highest level of the organization, and must be implemented by all employees, including those at the lowest levels in the organizational structure: that is why they must understand the strategy or be motivated to implement it; otherwise the strategy is bound to fail;
- Alignment of planning and control systems — a lack of alignment of the management processes including planning, operations management and monitoring of performance and possible modification of the strategy may hinder effective implementation of the strategy.

A properly implemented strategy shows the quality and effectiveness of the ongoing management process, creates the company's image and guarantees its good future. It also significant internally — it engages employees in achieving strategic objectives of the entire company, and the process of human capital alignment motivates them skilfully. Therefore, alignment is considered an important element of the management process.

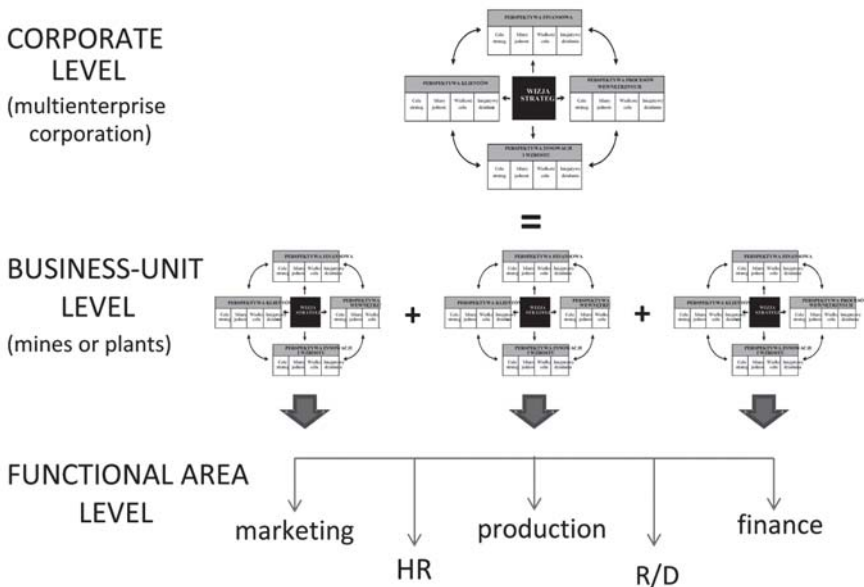
### **3. Implementation and cascading of strategies in mining corporations**

One of the main goals of implementing a strategy in a company is to build a supportive management system and thus form an organization capable of effective implementation of the strategy. However, for a strategy to be implemented in an effective manner, it is “not enough to parameterize it only at the highest level of management, but it must be passed down to lower levels” [10]. In practice, many levels and types of strategies are identified, depending on the size of the company [2]. The structure of mining companies that comprise many plants is similar to a typical multi-enterprise corporation, composed of entities known as strategic business units. The issue of strategy implementation in coal companies, known as mining corporations, seems to be somewhat complicated due to the presence of several levels of management.

K. Wodarski identifies three levels of strategy in coal companies [13]:

- strategy of a coal company (corporate level),
- strategies of mines and plants,
- functional strategies.

In order to properly implement a strategy and transfer its implementation to an operational level, Balanced Scorecard cascading techniques are used. Cascading is the process of building scorecards for smaller areas of management. Disaggregation of strategic objectives makes it possible to set targets for lower organizational levels, allocate tasks, delegate responsibility, and its goal is to preserve strategic convergence of goals of the entire corporation. A cascaded strategy is “a form of communication between the management and lower levels of management” [1, 8]. Among the methods available for cascading the BSC, the best one for the mining corporation conditions seems to be the method of partial copy of the master Balanced Scorecard (for headquarters) of the strategic objectives that a given mine can affect, combined with the strategic objectives characteristic of this mine, which result from its specific unique features. The set targets, together with measures of their performance must be adequate to different levels of the organization. Vertical cascading is favoured by the organizational structure of mining corporations. Figure 1 shows the process of translating the strategic objectives contained in the BSC from the corporate level to lower organizational levels.



**Fig. 1.** The process of translating strategic objectives in a mining corporation.

Source: own work on the basis of: [8, 13]

According to the authors of the BSC concept, corporations can choose “different ways to attain a high level of strategic fit at all organizational levels” [6]. These are: Top-down cascading (starting from the level of corporate headquarters, and then going to lower levels of management) or bottom-up cascading process, implementing the strategy in the entire organization the same time or conducting a pilot program, followed by an extension of the fitting process.

Regardless of the path chosen, the purpose of cascading is a clear and simple translation of the strategy or, more precisely, its strategic objectives from the corporate level to successively lower organizational levels. Due to the complexity of the implementation process in mining enterprises, and to ensure the continuation of business processes, it is very important to monitor the strategy’s implementation progress on a continuous basis, which would also take into account the risks associated with its implementation. Elimination of uncertainty, at least partial, would contribute to better decision making, would ensure flexibility and dynamics of changes in action, tailored to the dynamics of changes in the environment [5].

#### **4. The role of IT tools in the implementation of a mining company’s strategy**

Hard-coal mining companies in Poland are struggling with the constant pressure of having to adapt to new market requirements and are faced with the challenge of re-defining them as organizations that provide specific services and are customer-oriented. One of the basic elements of effective management of today’s organizations, also in the case of mining enterprises is to understand their key business processes, whose proper course results in the implementation of the strategies adopted. Common problems in strategy implementation include the lack of relationship between processes and strategy. The formulated business strategy is often not related to the processes carried out at the plant; the designed processes do not reflect the company’s business objectives and business performance indicators are not linked to the performance of processes.

Integration of business processes with the company’s strategy is an important element of managing the rapidly changing sector of mining companies. What is required are effective management processes to enable the implementation of the corporate strategy and strategic objectives, as well as their implementation in everyday business practices with the use of operational measures. Modern trends in the use of IT tools have shown that in order to make it possible to link the company’s strategy with existing processes and improve these processes or thoroughly reconstruct them, it seems necessary to introduce an integrated platform of the Business Process Management (BPM) type, which would enable comprehensive management of business processes — from defining a strategy, to the design, analysis, detection, simulation and monitoring, to the optimization and management.

Tools that support implementation of the strategy are now the pivotal element of the management system supporting strategy implementation adopted by companies, including

those of the mining industry. Efficient use of newer instruments to implement the strategy, supported by IT systems, is based on two main factors:

- possibility to clearly describe the strategy
- possibility of connecting all departments, processes and systems of an organization with its strategy.

Currently, there are quite a lot tools to support implementation and monitoring of strategy implementation with company's processes. Analysis of these tools was made and presented in such papers as Marr, B, Neely, A [11], Karkula M., Kowal D. [7]. Today, one of the most powerful tools to support BPM is the ARIS platform. ARIS (Architecture of Integrated Information Systems) is a generally recognized and worldwide accepted way of describing a company around the world: it is an IT tool used to design, restructure and improve various types of organizations [7, 15]. Models built with the help of the ARIS platform function at various levels of abstraction, from that of a concept to the implementation and monitoring of the processes analyzed. This ensures support for decision-making processes in the enterprise from the stage of analysis to the implementation. One type of tools offered by the ARIS package is known as Strategy Platform, which is designed to define, implement and continuously monitor the progress of implementation of the organization's business strategy.

The purpose of this platform is to bridge the gap between corporate strategy and the company's operation. Its constituent tools have been designed for people responsible for business strategies, who require appropriate tools to analyse the condition and actual performance of the company, design appropriate strategies and support their implementation, taking into account both organizational structures and processes within enterprises.

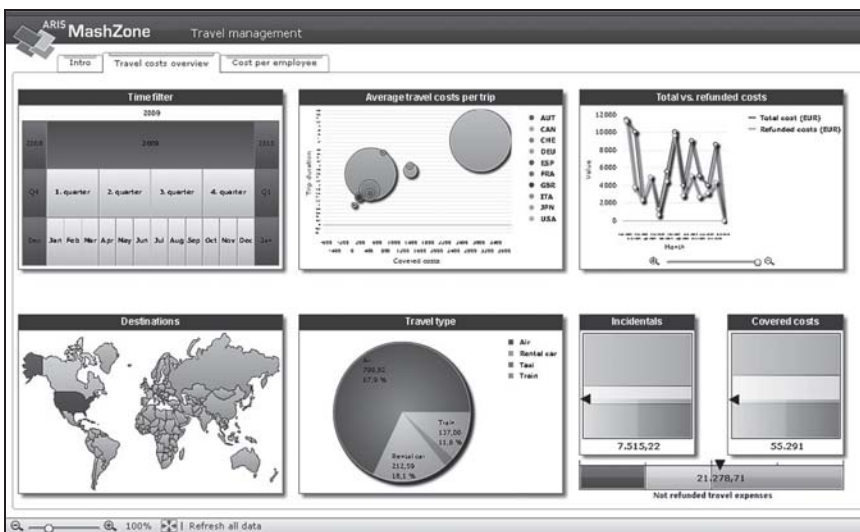


Fig. 2. A sample dashboard created using ARIS MashZone tool [16]

For the design and implementation of the strategy to be effective, the managers of a company must have systematic access to information on progress in its implementation. The ARIS Business Strategy provides the ARIS MashZone tool (Fig. 2), which provides a graphical way to present the effectiveness of corporate strategy and key indicators in the form of specific dashboards.

This software allows direct monitoring and analysis of a company's strategic goals and KPI created using ARIS Business Strategy. The main advantage of this solution is the ability to integrate internal and external data sources in real time, create custom, personalized dashboards with an intuitive interface based on drag-and-drop operations, performing one's own analyzes using interactive charts and graphics. It seems that currently, the effective control of strategy implementation would not be possible without such instruments.

## 5. Summary

The specificity and complexity of mining companies, which operate in specific social and environmental relationships, and the dynamic changes in their environment are driving the need for continuous adjustment, integration and cooperation between individuals and organizational processes. These operating conditions are forcing managers to simplify the strategy, adjust the capital, technology and personnel so that they have the best effect on the outcome. There is a need to continuously identify strategies that can best contribute to a company's success. In such complex structures, effective implementation of a strategy becomes increasingly based on aligning the information capital to the company's strategy with the use of integrated tool platforms such as Business Intelligence.

## REFERENCES

- [1] *Brzozowski A.*: Jak przełożyć Balanced Scorecard na niższe poziomy zarządzania. Porady ekspertów. Controlling i rachunkowość zarządcza, No. 2/2006.
- [2] *Drążek Z., Niemczynowicz B.*: Zarządzanie strategiczne przedsiębiorstwem. PWE Publishers, Warsaw 2003.
- [3] *Grant R.M.*: Współczesna analiza strategii. Oficyna a Wolters Kluwer business (publisher). Warsaw 2011.
- [4] Informacja o funkcjonowaniu górnictwa węgla kamiennego w 2011 r. Ministerstwo Gospodarki. Warszawa. Marzec 2012.
- [5] *Jeżak J.*: Zarządzanie strategiczne przedsiębiorstwem, University of Lodz Publishers. Łódź 1990.
- [6] *Kaplan R.S., Norton D.P.*: Dopasowanie w biznesie. Jak stosować strategiczną kartę wyników. Gdańsk Psychology Publishers Sp. z o.o. Gdańsk 2011.
- [7] *Karkula M., Kowal D.*: Wykorzystanie narzędzi informatycznych w procesach realizacji strategii przedsiębiorstw górniczych węgla kamiennego. Przegląd Górniczy 66 (9), 2010.
- [9] *Kowal B.*: Model strategicznej karty wyników dla spółki węglowej, AGH Publishers, Kraków 2010.
- [9] *Kowal B.*: Uwarunkowania implementacji strategii w przedsiębiorstwie górniczym z wykorzystaniem Balanced Scorecard. Wiadomości Górnicze No. 1/2011.
- [10] *Kowal B.*: Cele strategiczne przedsiębiorstwa górniczego w ujęciu badań sondażowych. Wiadomości Górnicze No. 11/2011.
- [11] *Marr B, Neely A.*: Automating your scorecard: the balanced scorecard software report. Gartner and Cranfield School of Management. InfoEdge. Stamford CT 2003.
- [12] *Oblój K.*: Strategia organizacji: w poszukiwaniu trwałej przewagi konkurencyjnej, PWE Publishers, Warsaw 1998.

- [13] *Wodarski K.*: Zarządzanie ryzykiem w procesie planowania strategicznego w górnictwie węgla kamiennego (monograph), Silesian University of Technology Publishers, Gliwice 2009.
- [14] *Snabe J.H., Rosenberg A., Møller C.*: Roadmap To Business Process Management. SAP Press, 2008.
- [15] *Scheer A.W., Jost W., Heß H., Kronz A.*: (Eds) Corporate Performance Management. ARIS in practice, Springer-Verlag. Berlin Heidelberg 2006.
- [16] <http://gallery.mashzone.com/mashzone/app/Viewer.html?guid=ab0a5e6f-c000-45f6-94b5-ddb5228c7093&module=viewer>.