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Strategy and Objectives in the Management System. Implementation of the Balanced Scorecard in a Research Institute

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Abstract:

The article presents a general aspect of development strategies, created by organizations together with dedicated strategic objectives indicating the basic activity directions. Long-term strategic objectives are connected to operational objectives in the aspect of determining the objectives related to quality, resulting from the quality system functioning in the organization. One of the article objectives is a presentation of the possibility of using the Balanced Scorecard for shaping the institute management system, in particular as regards planning of research institute development strategy. A conception of the Balanced Scorecard and a general methodology of its elaboration is described. A configuration of card, analyzed from four perspectives: financial, customer`s, internal processes, learning and growth is discussed. The objectives and general assumptions of this tool are presented and the mechanism of decomposing the BSC is discussed. The advantages and hazards related to using the Balanced Scorecard are described.

Streszczenie:

W artykule przedstawiono ogólne spojrzenie na sposób tworzenia strategii rozwoju wraz z przypisanymi celami strategicznymi nakreślającymi podstawowe kierunki działania. Powiązano długoterminowe cele strategiczne z celami operacyjnymi w aspekcie wyznaczania celów dotyczących jakości wynikających z funkcjonującego w organizacji systemu jakości. Jednym z celów artykułu jest przedstawienie możliwości wykorzystania Balanced Scorecard (Zrównoważonej Karty Wyników) w kształtowaniu zarządzania instytutu, a szczególnie w procesie planowania strategii Instytutu badawczego. Przedstawiono koncepcję karty oraz zaprezentowano ogólną metodologię jej opracowania. Omówiono układ karty, rozpatrywany w czterech perspektywach: finansowej, klienta, procesów wewnętrznych, wiedzy i rozwoju. Przedstawiono cele i ogólne założenia tego narzędzia oraz omówiono mechanizm dekompozycji karty BSC. Zaprezentowano korzyści i zagrożenia wiążące się z wykorzystywaniem Balanced Scorecard.

1. Introduction

Each organization, which wants to maintain a leading position on the market, must be well organized, i.e. it should apply state-of-the-art management methods.

The basic management element in each organisation is a determination of its activity direction against the background of changes taking place in the surrounding environment, thus defining a vision and a mission.

The main reason of organization existence is determined in the mission, however the vision should indicate objectives in the time perspective. A strategy is an element merging a mission and a vision. It guarantees a realization of basic objectives and presents the most important development directions together with the ways of their realization.

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A strategy identifies basic challenges of the organization and it is a plan, which determines a set of objectives, related both to resources as well as to time perspectives. It enables to assess if the organization should continue its activity in the existing shape or to develop or change the scope of activity.

The strategy indicates which path the enterprise should follow to achieve planned objectives.

The conceptions, mentioned before, have been introduced in the management philosophy and to the quality terminology. A new edition of the ISO 9000 International Standard defines as follows [1]:

- a mission: "organization's purpose for existing as expressed by top management",
- a vision: "aspiration of what an organization would like to become as expressed by top management".

According to the quality philosophy it is recommended that each organization should establish and use the following principles for an implementation of the strategy which enable [2]:

- a transformation of the strategy and of policies into measurable objectives for all the organization levels,
- an establishment of the time –schedule for each objective,
- a determination of responsibilities for achieving an objective,
- a risk assessment and a definition of means minimizing this risk,
- an assurance of resources indispensable for a realization of activities.

A development strategy of each organization includes a set of objectives.

Tactical and development objectives, which determine activity methods and short-term operational objectives concerning current activities (Fig.1) [3, 4, 5], come from the long-term strategic objectives.

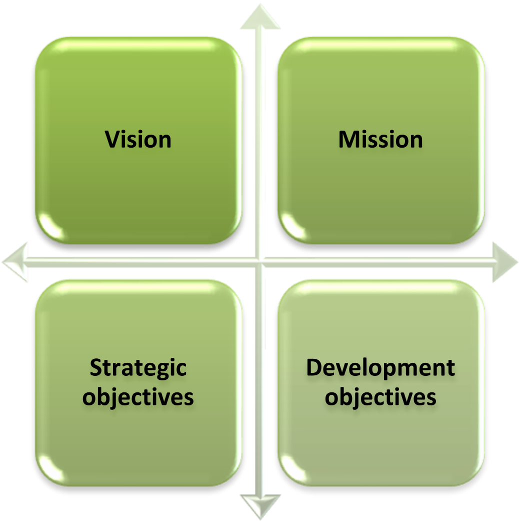

Fig. 1. Strategy stages and elements

The objectives should incorporate all the management levels and they should concern all the essential areas of activity both in a short as well as long time horizon. They should be tightly connected to a vision and a strategy of activity and to a realization of the organization operational objectives as it is shown in Fig 2.

Fig. 2. Objectives related to quality and organization strategy

Strategic objectives, formulated insufficiently or not synonymously, may cause that the organization does not achieve its intentions and does not have a stable market position.

Then a lack of defined operational objectives and a lack of their monitoring result in a lack of supervision of current activities. Analyzing the role of strategy and of strategic objectives, an aspect of determining the objectives related to quality appears in the background. According to the standards, concerning widely understood subject-matter of quality systems and management systems, the management system of each organization should establish objectives related to quality periodically.

These objectives should be defined both in relation to the strategy as well as to the mission and address the most essential processes taking place in the organization [6].

The organization, planning its quality related objectives, should determine [6]:

- what is to be done,
- what resources will be required,
- who will be responsible,
- when the task will be done,
- how the results will be evaluated.

The objectives related to quality should be: cohesive with the quality policy, measurable, related to made products and rendered services. When a need arises, they should also be monitored and up-dated. In other words the objectives, related to quality, are to some extent an obligation for a continual improvement of the organization.

2. Balanced Scorecard – an idea and used indicators

A determination of both strategic and operational objectives, in the case of small organizations causes a problem as regards a definition of a long-term vision.

In the case of big organizations, when their scope of activity covers a series of differentiated aspects, a definition of primary objectives may be an issue.

A determination of objectives, related to quality, also causes difficulties, in particular as regards their formulation and documentation. These objectives are often generated without any relation to a general strategy of the company.

As quality related objectives, in a logical way, inscribe in strategic and operational objectives of each organization, one can attempt to use one of the management tools such as a Balanced Scorecard (BSC) for defining them.

The suggested method was elaborated in the nineties by R. Kaplan and D. Horton [15].

A Card enabling to transform a vision and a strategy of the organization into measurable objectives, using a system of financial and non-financial indicators [3, 7, 8, 9,10], is an instrument of this method.

The BSC is commonly used in nearly all the branches of industry, irrespective of the company size and it transforms the strategy into a system of indicators.

The objectives and measures, contained in the Balanced Scorecard, resulting from the organization vision and strategy, are analyzed according to four perspectives [9, 3, 12]:

- financial,
- customer,
- internal processes,
- learning and growth.

Within the framework of each perspective the following items are determined (Fig 3):

- strategic objectives,
- detailed objectives which the organization wants to achieve,
- measures/measurements of these objectives,
- activities enabling to achieve the assumed objective.

Fig. 3. Four perspectives in Balanced Scorecard (BSC)

Financial aspects are determined in the financial perspective as financial measures define the objectives perfectly, they are easy to be measured and they indicate if a realization of the strategy contributes to an improvement of economic results.

Customer and market segments are determined in the customer`s perspective. The customer`s perspective can contain such measures as: a satisfaction, a maintenance, an acquisition of customers and a quantitative and valuable share of the in-coming market. It can also contain other measures which condition a realization of strategic objectives and have a decisive meaning for a customer`s decision as regards a change or a further collaboration.

Key internal processes, which are to enable a correct functioning of the organization itself, are determined in the perspective of internal processes.

In the perspective of internal processes the measures concentrate on internal processes, which will have the biggest impact on a customer.

Innovation processes which enable to broaden the organization activity directions are determined in the perspective of learning and growth.

The Balanced Scorecard (BSC) determines an equilibrium between:

- short-term and long term objectives,
- financial and non-financial indicators,
- evaluation and growth indicators,
- perspectives of internal and external activity.

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Mutual interconnections between perspectives as well as interconnections of processes taking place in the organization, characterize the Card structure. Each objective should be a part of reason-results chain describing the organization strategy.

The ISO 9001 International Standard, concerning quality systems, in Item 5.1.1 introduces relationships among the quality policy and quality objectives and the organization strategic direction.

The objectives related to quality complete other organization objectives such as: a development, financing, a remunerativeness, an environment etc.[6].

Analyzing the structure of the Balanced Scorecard, it is not possible to help feeling an impression that the quality objectives, set forth by the organization, can be included perfectly in four perspectives mentioned above.

It is expected that the Balanced Scorecard should be a precise tool, so used measures must enable an explicit interpretation of the result obtained with use of a given measure.

That is why in construction of a BSC it is possible to apply the S.M.A.R.T. principle characterizing the objectives which are formulated correctly [13].

According to it, each objective formulated correctly should be:

– *Specific* – defining planned effects accurately,
– *Measurable* – enabling an evaluation of the realization on the base of defined indicators,
– *Attractive* – having sense as regards a realization,
– *Realistic* – possible to be realized in the aspect of possessed resources,
– *Timed* – exactly determined as regards time.

A selection of objectives, transferring the organization strategy to a system of indicators in four perspectives as well as a selection of the indicators as such, is an individual matter, however the mentioned perspectives should always answer the question: what resources should an organization have at its disposal and how should they be located to realize the indicated objectives ?

Most typical examples of indicators, presenting the objectives for individual perspectives are shown in Table 1 [9, 19 ,14].

Table 1. Exemplary indicators in relations to four perspectives

Financial perspective	- an increase of company value - a sales remunerativeness - a profit rate - a reduction of costs and an increase of production rate - a management of operational costs
Customer`s perspective	- ranking of customers (new, lost) - a market share - a level of customer`s satisfaction - an improvement of company image
Perspective of internal processes	- a number of new products/services - a duration of a product realization - an efficiency of a production process - a product defectiveness
Perspective of learning and growth	- a personnel potential (level of education) - trainings of employees - evaluations of employees - an access to new technologies

Analyzing the data, presented in Table 1, reason-result relationships between objectives and measures for individual perspectives can be found.

For example an increase of employees` competences can improve an efficiency of internal processes, then have an impact on a product quality and as a consequence cause an increase of the customer`s satisfaction.

Thus Balanced Scorecard (BSC) is a method, which enables a realization of strategic assumptions, transforming strategic objectives into specific activities. The Card is transferred to lower organizational levels. The following BSCs can be generated for individual organizational divisions or operational objectives, belonging to strategic objectives, can be situated on one comprehensive Card.

This process is often determined as *cascading.* It can be conducted as dependent one on the area size, strategic significance of the organizational unit, its independence and a kind of interconnections occurring in an organization.

The most popular cascading methods include [16]:

- an independent formulation of the strategy and objectives – strategic objectives are formulated on individual levels of the organizational structure,
- an exact transmission of objectives - objectives are transferred from the primary BSC,
- an adaptation of objectives values and /or strategic activities - the objectives in the Card are obligatory for all the organization divisions,
- a combination of standards objectives with individual objectives of the organization - objectives from the primary BSC are taken over only in the case when a division can participate in their realization,
- a direct transfer of strategic activities – this method is used when an organizational division does not participate directly in the process of generating values.

It is worth highlighting here that a continual supervision of the measures, which indicate a degree of the Balanced Scorecard realization, plays an extremely essential role.

3. Use of a Balanced Scorecard in research institute - a case study

The Balanced Scorecard (BSC) is an efficient tool ensuring a cohesion between the determined strategic objectives and undertakings under realization.

An introduction of the Card into the Institute management system enabled to transform the strategy into concrete tasks and measures of their realization for individual organizational divisions.

A case study of its use in a research institute, i.e. at the KOMAG Institute of Mining Technology, is presented below.

The Institute mission includes: “Innovative solutions for economy”, which is transformed into a concrete vision: “Research and development centre of organizational and proprietary structure adapted to the market activity in the European Research Area and of the organizational culture creating a friendly climate for generating new ideas and realizing innovative activities, i.e. transforming new ideas into new products. [18].

Basing on the analysis, conducted in the Institute, strategic areas which were identified. They include among others [17]:

- an innovativeness,
- a commercialization,
- a work safety and product safety,
- an environmental protection,
- an international collaboration,
- a staff development,
- sharing knowledge.

Strategic Institute objectives were defined for the mentioned areas which were grouped according to four perspectives of the Balanced Scorecard (BSC).

A description of selected strategic objectives, which are combined with planned activities and measures, are presented in Table 2.

They aim at a quantitative verification of realization degree of accepted objectives (due to the data confidentiality real values of measures are omitted).

Table 2. Selected strategic objectives in relations to the Institute strategy

Balanced Scorecard (BSC) **Perspective**	**Strategic objective**
Financial perspective	- a sales remunerativeness - a change of income structure - obtaining budget financial means for a realization of determined tasks - an efficiency increase of collaboration with the economic environment and of a commercialization of research results - an increase of income from the research activity
Customer`s perspective	- an increase of customer`s number from a new area - a new scope of services, new branches - tightening collaborative links with other organizations in the region - an increase of promotional activity - an improvement of relationships with customers
Perspective of internal processes	- an improvement of the Institute management system - an efficiency increase of information flow within the Institute - an elaboration of system tools of rewarding employees for their scientific achievements - an increase of interdisciplinarity of conducted research projects - an increase of testing infrastructure use - an optimization of the Institute organizational structure
Perspective of learning and growth	- an improvement of the staff scientific development system - a modernization and development of testing infrastructure - a development of editorial and publishing activites

The following stage included cascading of the Card through an independent formulation of objectives and an exact transfer of objectives in relations to individual processes and organizational divisions. For example in the case of the Customer`s perspective the strategic objective " *Increase of customers` number from a new area*" was established. Through cascading, the strategic objective from the Balanced Scorecard (BSC) is presented below as an example of the transfer concrete of activities for one of the testing laboratories according to Table 3.

Table 3. Cascading of a strategic objective

Balanced Scorecard (BSC) **for testing laboratory**			
Financial perspective	Customer`s perspective	Perspective of internal processes	Perspective of learning and growth
- an increase of income from testing activity	- an increase of customers` number from the determined area - an increase of participation in local market	- an implementation of new testing methods - an increase of use of measurement infrastructure - ensuring a high quality of tests	- a purchase of new measurement equipment - trainings of the personnel in the scope of new techniques

	- an increase of promotional activity in a new testing offer - an increase of customer`s satisfaction level	confirmed by the accreditation	- scientific and publishing activity

4. Summary

As both the environment and the organization are subject to continual changes, establishing of strategic objectives is one of the key abilities in the management process. An ability of their determination and realization is one of the elements which decide about a state-of-the-art organization.

A Balanced Scorecard (BSC) becomes more and more popular due to the fact that it guarantees a possibility of transforming an organization vision and strategy into a set of unit objectives and measures as well as monitoring the realization stages of the strategy, described in this way . It is an instrument, used for a strategic management, which enables to measure a subject efficiency in many planes of its activity.

The Card is one of several methods, which can be used for connecting different elements of the organization management system into an integrated whole.

A realization of strategic objectives has an impact both on the processes which take place inside as well as on the environment. However, it is a prerequisite that the Card should be something more than a set of a dozen or so measures included in four perspectives.

It must have a close relation with the organization strategy, aid a realization of objectives and be implemented on all the organization levels.

A correct use of the Card is required not only at the stage of generating the strategy, during its implementation, but it is tightly connected to a continual monitoring of the laid out objectives realization [18].

The most frequent mistakes, made during an implementation of the Balanced Scorecard, include:
- a lack or incorrect definition of reason-result relationships between objectives and indicators,
- a too big number of objectives/ indicators,
- a lack of real relationships between objectives and the organization strategy,
- a lack of monitoring of realization degree.

The Card elaborated correctly can be the basis of the management system as it integrates and supports the most important processes such as:
- polishing up or up-dating the strategy,
- a presentation of the strategy in the whole organization,
- a combination of objectives of organization individual divisions with the strategy,
- a combination of the strategy with annual and long-term objectives,
- obtaining information in return to improve the strategy.

A Balanced Scorecard is a management tool developed by managers. It is to motivate people to realize the organization vision and concentrate efforts of the whole organization on achieving strategic objectives. This Card is to deliver information in return about the current situation and indicate a system of measures enabling to achieve a future effectiveness of people.

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