

Performance Evaluation and Measurement of the Organization in Strategic Analysis and Control: Methodological Aspects

Summary

Information acquired by measuring and evaluation are a necessary condition for good decision-making in strategic management. This work deals with : (a) Methodological aspects of evaluation (kinds of evaluation, metaevaluation) and measurement (supposition of isomorphism in measurement, kinds and levels of measurement, errors in measurement and the basic characteristics of measurement). (b) Evaluation and measurement of potential and accomplishments of the organization in Kaplan-Norton perspectives (in the perspectives of learning and development, perspectives of internal processes, perspectives of the consumer/user, and in financial perspectives). (c) Systems and IT solutions of evaluation and measuring performances of the organization in strategic analysis and control.

Key words

Measurement, evaluation, performance, performance indicators.

1. Introduction

Information acquired by measuring and evaluation are a necessary condition for good decision-making in strategic management. It enables monitoring (and prediction) of changes important for the purpose of strategic management; it provides the base for decision-making in formulating strategic planning and contributes to connecting the vision and strategies with the goals and standards of the group and individual performance. It describes if and how much the organization, process, program, project and job attain set goals and enables a demonstration of accomplishments connected with set targets and goals, as well as description (and comparison) of advancing to set targets and goals. It also enables the evidence for evaluating processes, programs, projects, interventions and their costs and provides the base for managing corrective actions.

2. Evaluation and Measurement: Methodological Aspects

2.1. Methodological Aspect of Evaluation

2.1.1. Meaning of the Term "Evaluation"

There are some misunderstandings in differentiating the meaning assessment and evaluation. There are ideas that these expressions can be used by and it will not change the meaning. Some suggest that the meaning of evaluation has a broader meaning than assessment. In this text, the term evaluation means a systematic judging/determination of intrinsic (primary) and/or extrinsic (secondary) values of some entity evaluand of the goal, mission, strategy, program, process, organization, and so

on). Intrinsic values are non-derivative; intrinsic value per se. Values that are not intrinsic, not the values for them but for something else connected in some way, are derivative and called extrinsic values. It is arguable if all the extrinsic values are exclusively of instrumental values (values that are the means for attaining intrinsic values). There are many cases that we justifiably call values because they in the relation with the intrinsic value, although this relation is not a purpose.

2.1.2. Evaluation Studies

Studies taken to evaluate systematically strategies, programs, projects, interventions are usually called evaluation studies. Evaluation can be understood as a comparison of a perceived value with the standard, and the judgment can be expressed as the quotient of the perceived and the standard. It is emphasized with good reason that the numerator in this equation is very complex. It relates to the whole set of values contained in the entity that is evaluated. The denominator is also complex. It relates to the set of expectations and criteria the formal and non-formal groups of people have in relation to this entity (Stake, p. 75). This equation, of course, cannot be solved mathematically in most cases so the result is not numerical but descriptive judgment. The former, positivistic, strict requirements for a qualitative judgment in evaluation studies were based on the untenable supposition that the quantitative knowledge is exceeded and it is necessarily changed by the quantitative one. Therefore, in contemporary evaluation studies, qualitative methods are used obligatory together with qualitative ones.

Weilenman perceived almost three decades ago (Weilenman, 1980, p. 31-2) that in evaluation studies of that time the exclusive comparison of program and result goals is not typical. The theoretical framework was understood so the evaluator could anticipate tacit values of goals and the program performance. Even then, it was seen and recognized that many different categories of people were interested in the program result and there were many value structures and sets of evaluation criteria. It is necessary that many perspectives should be anticipated and included in the process of evaluation. These perspectives should be used in studying, evaluating, choice and defining problems that will be solved by the program, and determining the program goals, too. The multitude of perspectives is also important for selecting evaluation criteria and their interpretation. From the standpoint of some perspectives, measures can be chosen wrongly.

2.1.3. Kinds of Evaluation

Some of the most significant criteria for classifying evaluations are:

- (a) Type of the entity that is the subject of evaluation – evaluand (goal, mission, strategy, project, program, plan, process, organization, performance, development, maturity, and so on).
- (b) Paradigm on which evaluation is based (positivist, constructivist, and so on).
- (c) Predominant goal of evaluation (value description, diagnosis, motivation, decision-making, improvement of some characteristics of the evaluand, activity).
- (d) Status of the entity that is the subject of evaluation (evaluand).
- (e) Perspectives of evaluation, and
- (f) Level of the evaluand. According to the status of the entity that is the subject of evaluation (strategy, project, program, process), evaluations of the evaluand being proposed or developed belong to the class of “formative” evaluation, and evaluations of the evaluand already developed (also applied, carried out) belong to the class of the summative evaluation (classification introduced by M. Scriven).

Evaluations can be classified regarding to Kaplan-Norton perspectives into: evaluations in the perspectives of learning and development, evaluations in the perspectives of internal processes, evaluations in the perspectives of the buyer/user, and evaluations in the financial perspective. In accordance with the Rummler-Brache holistic conception on internal and external “ecosystem” of the organization where “all sorts of things” are

connected (Rummler & Brache, 1995), evaluating (goals, designs, management, performances, and maturity) can be done at the tree levels at least: level of the organization, level of the process and level of work.

Evaluation studies can be applied to many points during planning, appearing, carrying out, lasting, even after finishing or giving up a strategy, program, project, action plan or intervention. They are suitable for judging the value of the problem that should be solved, judging the value of the set goals, evaluating alternative conceptions of strategies, programs, projects or interventions. They are also suitable for solving the set problem and attaining the set goals, judging the value of the programs or projects in different phases of its building (formative studies), evaluating possibilities and ways of carrying out the designed program or intervention in different situation and organizational frameworks (feasibility studies). In addition, they are suitable for evaluating the effectiveness of programs or interventions (summative evaluation studies) and evaluating the efficiency of the carried out program or intervention (Ristic, 1995).

2.1.4. Constructivist Evaluation

It is justifiably believed that the radical change – new (“fourth”) generation of evaluation was produced by the approach to evaluation based on the constructivist paradigm (Guba & Lincoln, 2001). The ontological supposition on which the constructivist paradigm is based is relativism – the idea denying opinions (and value judgment) independent from the point of opinions and convictions that are justifiable in all the contexts, every time and for all the persons. The basic epistemological supposition of constructivism is transaction subjectivism. The viewpoint that the assertion about the “reality” (as value judgment) depends on the notion schemes, semantic nets, value orientations, interest, expectations and some other characteristics of individuals who state these assertions (and judgments). The methodological supposition on which the constructivist paradigm is based is hermeneutical dialectic one. It means the process considering constructions by some included individuals and groups. These constructions were first discovered and interpreted (hermeneutical aspect), and then faced, compared, opposed by situations (dialectic aspect). This methodological supposition allows the use of quantitative and qualitative methods in evaluations. Guba and Lincoln rationally warn that it is inadmissible to mix and unite different paradigms (for example, positivist and constructivist) in the framework of one evaluation (Guba and Lincoln, 2001).

2.1.5. Meta Evaluation

Evaluations are the subject of evaluation themselves. The evaluation of evaluation is called “metaevaluation”. According to one outstanding interpretation, the term metaevaluation has two meanings (i.e. it points to two functions): firstly, control of evaluation quality, the attempt to answer M. Scriven’s famous question:” Who evaluates the evaluator?”, and secondly, description, analyzing and judgment of the evaluation study or the process of evaluation, i.e. implementation of evaluation (Bustelo, 2002).

Metaevaluation can be classified according to many criteria: type of evaluation being evaluated; paradigm on which metaevaluation is based; perspective of evaluation; status of evaluation being evaluated; evaluation of evaluation that is supposed or developed belongs to the class of “formative” meta evaluations, and the evaluation of evaluation already done belongs to the class of “summative meta evaluations; purpose (mostly) of meta evaluation: value description of evaluation, improvement of determined aspects of evaluation; holistic/particularistic approach of evaluation being evaluated: evaluation of the whole evaluation, evaluation of the evaluation design, evaluation of the evaluation process, evaluation of the outcomes - evaluation of the results, evaluation of the consequences in applying evaluation results.

To evaluate the quality of constructivist evaluations, among others, these criteria were suggested (Guba & Lincoln):

(a) Credibility (criterion roughly comparable with intrinsic worthiness in the positivist paradigm), the measure in which the outcomes of evaluation justify confidence from the perspective of participants in evaluation.

(b) Transferability (criterion roughly comparable with extrinsic worthiness in the positivist paradigm), the measure where the outcomes of evaluation can be generalized and transferred to other conditions and contexts, from the standpoints of persons in those other conditions and contexts.

(c) Dependency, contingency (criterion roughly comparable with reliability in the positivist paradigm) determined by means of dependency evaluation in cooperation with the independent evaluator through examining the notes of evaluation in order to determine which methodological decisions were made and to understand the reasons for these decisions.

(d) Confirmability (criterion roughly comparable with objectivity in the positivist paradigm), it relates to the measure where constructions, assertions, facts and data in evaluation can be followed

to their sources, and it is evaluated by the independent evaluator.

2.1.6. Performance Evaluation in the Organization

The term performance evaluation usually means the comparison of attained performance with the standards of performance (determining the measure in which the set goals of the organization are attained) with a view of performance management (organization, process, work, and so on) (performance management includes the system of processes, procedures and resources that help the organization to optimize performance). The standards of performance are normative statements that precisely determine the minimal level of acceptability of outcomes of some practice in the given limitations (without pointing to the way of attaining acceptable results). According to some opinions, the standards of performance obligatory point to the volume and level of attributes and potentials necessary for attaining the set goals, taking into consideration the maintenance of these potentials in the course of time.

2.2. Methodological Aspects of Measurement

2.2.1. On the Meaning of the Term “Measurement”

According to the most definitions, developed under the influence of definitions set by N.R. Campbell, and later S.S. Stevens, measurement in the narrow sense is understood as ascribing numbers to the characteristics of objects, processes, events, and others, in accordance with some rules. It is considered that measurement has two parts: (1) mathematical model – system of numbers and rules for their combination, and (2) physical or empirical manipulations, the operations done in the process of measurement. In this process, we use an abstract system, the system of numbers in order to represent the dimension – the feature that is measured (empirical system). By measurement, we try to establish correspondence between the dimensions being measured (empirical system) and the system of numbers (abstract system). In part of the definition about the rules of number ascribing, it is about the function, i.e. the rule on ascribing the members of one set of (objects whose characteristics are measured) to the members of another set (numbers from the system of numbers) (Ristic, 1995). In the broader sense, any classification of objects, regarding to some characteristic, is measurement (Brodbeck, 1971, p. 574). It is reasonable to say that measurement is a descriptive process and it is not evaluative basically, regarding to the fact that evaluation is usually specific for some special situation,

while measurement gives description whose importance is more general (Helmstadter, 1970, p. 264). Besides, exactly any mathematical model never describes reality. All such descriptions are only approximation, some of them better, some worse (Guilford, 1954, p.6).

2.2.2. The Supposition of Isomorphism of Measurement and Reality

The rules with which the numbers in some system of numbers are ascribed to objects should provide correspondence between variables, the characteristics of reality that is measured and the system of numbers. Measurement is based on the supposition that the characteristics of reality that are measured are subject to the representation by the model, i.e. the scale of measuring and that they are isomorphic to the procedure of measurement and the system of numbers ascribed to objects whose characteristics are measured. It is reasonable to ask the question if the supposition is justifiable. Are the phenomena of reality and the models or scales by which they are measured isomorphic? Is the system of numbers in structure similar to the empirical characteristic that is measured? Probably for justifiability of these questions, some methodologists (de Groot, 1969) think it is necessary to make difference between information contained in the data, the result of measurement and (pseudo) information imposed to data by the system of measurement itself. In a relatively small number of cases, it is possible to determine acceptably the correspondence of reality and measurement. Moreover, sometimes it is impossible to determine surely if we really measure what we want to measure.

2.2.3. Kinds of Measurement

With good reason, the difference between indirect and direct measuring is underlined (Ellis, 1968, p.54-56). If we directly apply the scale of measuring on the characteristic being measured, the point is about the direct measuring. If the scale of measuring is not applied directly on the characteristic being measured than on the characteristic being with it in the known functional relation, then it is the point about the indirect measuring. Therefore, for example, the temperature is measured by the length of column of mercury. Many characteristics are not appropriate to be measured directly so their measuring is done by the help of the indicator. It means a perceptible (accessible to the direct observation) and the direct measurable characteristic (variable) for which we can justifiably assert that its characteristics, more or less credibly, point to the value of some other characteristic (indicandum),

mostly inconvenient to observation and direct measuring. The possibility that the values of one variable, convenient to direct measuring, point to the values of another, inconvenient variable to direct observation and measuring, is based on the known functional relationship between these two values. With indirect measurements, the question of isomorphism of measuring and reality is put more strictly than with the direct measuring. Besides, indirect measurements are more subject to errors than the direct one, although direct measurements cannot be without errors.

In accordance with the division of variables on scalar and vector, it is possible to differentiate between scalar and non-scalar measurements. To determine scalar variables, only two components are sufficient: the scale on which the variable is measured and the measured value, while vector variables require more components (Pyle, 1999, p. 54). The real vector measures have not the equivalent in the form of one numerical value. It is the point about vector variables. In this text, we are discussing scalar measurements.

2.2.4. Levels of Measurement

The striving for isomorphism of the system of numbers with the characteristic of reality that we want to measure points to the differentiation of four levels (scales) of measuring at least which are different according to mathematical characteristics: nominal level, ordinal level, interval level and the level of quotient (ratio). Data informativeness received by measuring depends on the selected level of measuring. Informativeness increases from the nominal level of measuring to the level of quotient. The level of measuring determines which sensible statements on measuring can be stated, including appropriate statistical operations (Shepperd, 1995). The choice of statistical processing procedures and data analysis received by measuring depends on the selected level of measuring.

2.2.5. Measuring Errors and the Basic Characteristics of Measurement

The basic sources of measuring errors are measuring instruments and the procedure of measuring, the person who measures, conditions under which measuring is done, the object whose characteristics are measured. The measuring instrument because of its imperfectness and possible influence on the characteristic that is measured is a significant source of errors, which are sometimes called "instrumental errors"(mistakes). Errors originated from the persons doing measuring are usually called the "personal (mistakes)" errors of measur-

ing. The problem of personal errors is the problem of measuring objectivity. The objectivity of measuring can be determined as a function of the freedom of measuring results from personal errors. The external conditions where measuring is done (climate, microclimate, social and others) are inexhaustible sources of measuring errors.

Independently from the kinds of error source, two basic kinds of errors of measuring can be differentiated: systematic errors and accidental errors (mistakes). Systematic errors are errors in measuring some characteristics in relatively constant conditions, where the arithmetic mean, when increasing the number of measuring to infinity, tends to some marginal value different from zero. The errors of measuring where the arithmetic mean in increasing the number of measuring to infinity, tends to the marginal value which is equal to zero, can be considered as accidental mathematical values and they are called accidental errors (mistakes).

By the help of these two kinds of errors, we can define two important characteristics of measuring, i.e. measuring instruments – reliability and validity. The reliability of measuring depends on the volume where a measure contains random errors. The smaller the volume of random errors in the results of measuring, the greater reliability of measuring is. The reliability of measuring can be determined as a function of the freedom of result measuring from random errors. The validity of measuring relates to the volume where measuring is free both from random and systematic errors. The problem of validity of measuring is especially big in indirect measurements. The validity of measuring can be determined as a function of the freedom of measuring both from the random and systematic errors of measuring. The reliability of measuring is necessary but not sufficient condition of validity. Measuring cannot be worthy if it is not reliable, but if it is reliable, it does not mean it is valid.

The validity of measuring can be determined as a proportion of the real variance important for that purpose with which that measuring is done. There are three basic approaches to evaluating the validity of some measuring instrument:

- (a) Analysis of the content of an instrument.
- (b) Connecting the results of measuring obtained by that instrument with the accomplishments of some significant empirical criterion.
- (c) Examining the volume in which some construct is measured.

Therefore, there are three kinds of worthiness: content, empirical and construct worthiness.

The content validity was defined (Gion, 1965, p.124) as a degree where the whole variance of the sample (measuring instrument) is connected with the whole variance of the possible basic set of items (the instrument could include). The measuring instrument containing the pattern of behavior that is measured is believed to have the content of validity (so, for example, for a knowledge test or a “business pattern” we can say it has the content validity if its tasks make a representative sample of all the tasks of some kind which could be included into it). This kind of validity is the subject of judgment.

The empirical validity or the validity for the empirical criterion means the connection existing between the results of measuring of some characteristic obtained by the measuring instrument with some “criterion” variable. There are two kinds of validity for the empirical criterion: predicting worthiness and simultaneous worthiness. The predicting validity can be understood as the scope where the variance is the measures of some variable obtained in the time t_0 connected with the variance of the measure of the criterion variable obtained in the time t_1 . The simultaneous validity is the connection of the results of measuring by some measuring instruments with the results of the simultaneous measuring of the criterion variable.

Relying on the ideas of some philosophers of the positivist orientations, Cronbach and Meehl (Cronbach, 1979, p. 225) determined the process of construct validation that includes:

- (i) Putting the statement on the measuring instrument and it measures certain characteristic S;
- (ii) Including this statement into the nomological net = theory on the characteristic S;
- (iii) Deducing prediction from the conjunction of that statement and appropriate statements from that theory (constructive validation is possible only if the statements in the nomological net enable predictions of the relation between perceptible values;
- (iv) Collecting empirical evidence needed for confirming or refuting predictions, where many types of data are important: content worthiness, empirical worthiness, stability data, data on the correlation between items, and so on.

If the collected testimony is in accordance with deduced predictions, then the measuring instrument is considered worthy. The reason of non-realization of the deduced prediction (on condition that no morphological error in checking prediction

is made) can be twofold: suggested interpretation (measuring instrument) or nomological net. The change of the nomological net leading to the coordination with the empirical testimony leads in fact to redefining the construct. The construct validity, to the opinion of Cronbach and Meehl, cannot be expressed by one coefficient, data often allow determining the lower and upper limits for the proportion of the variance ascribed to the construct.

2.2.6. Performance Measurement and the Key Indicators of Performance

Performance measuring means a systematic defining and selecting (quantitative and qualitative) measurable indicators, as well as obtaining their measures in some time intervals, and checking them during the time, we can follow the accomplishments and advancement in attaining the previously set goals. The indicators enable to the decision-maker in performance management to evaluate progress in attaining the set outcomes of the processes, programs, projects, interventions, i.e. attaining the set (strategic) goals. To some opinions, there are four types of indicators: input indicators, process indicators, output indicators and outcome/influence indicators.

- (a) Input indicators refer to the characteristics of target populations and heterogeneous resources needed for determined programs, projects, interventions. They note costs and they are very important for everyday operations;
- (b) Process indicators point to how well resources are used. They transform inputs into products/services;
- (c) Output indicators refer to direct results produced by the transformation of input – quality of products/services.
- (d) Outcome/influence indicators point to far-reaching results attained by providing products/services and the degree of attained goals.

Performance indicators are the values whose measures describe if and how much the organization, process, program, project, job attain the set goals. The key performance indicators are variables which, watched together, provide sensible, concise, general picture about the performance of an organization and its processes and they are used for reporting progress to attaining the set goals reflecting the critical factors of successfulness.

3. Evaluation and Measurement in Kaplan-Norton Perspectives

Kaplan and Norton understood that successfulness of the organization cannot be motivated or measured by the use of the traditional financial model because that model measures events of the past, not investment into powers that will provide values for the future (Kaplan & Norton, 1996). Financial indicators are not quite suitable for guiding and evaluation of zeal that contemporary organizations must undertake in creating the future values through investing in buyers/users, suppliers, staff, internal processes, technology and innovations. It is necessary that a contemporary organization flexibly, adaptable and with high quality provides innovative products and services, in accordance with the target segments of consumers. Therefore, Kaplan and Norton, developing the system of strategic management BSC (Balanced Scorecard), filled up financial measures of the last performance by the measures that set in motion the future performance. They refer to considering performance of the organization from the four perspectives:

1. Financial perspective (how to take care about stockholders in order to attain financial success);
2. Perspectives of buyers/users (how we should take care about our buyers/users);
3. Perspectives of internal business processes (in which business processes we have to be excellent in order to satisfy both of them, and
4. Perspectives of learning and development (how to support our powers for learning and developing in order to attain our vision) (Kaplan & Norton, 1996).

3.1. Evaluation and Measurement in the Perspective of Learning and Development

The capability for attaining the set goals in the financial perspective, the perspective of users and the perspective of internal processes directly depend on the capability of the organization to learn and develop. Advanced knowledge, powerful informatics technologies and organized processes of the organization can attain innovation and the advancement of products, services and processes. The goals set in the perspective of learning and development is the driving force in attaining success in three remaining perspectives. Therefore, the organization must invest in staff, systems and procedures in order to have power to reach the goals of financial growth. There are four main categories in the framework of learning and development perspectives:

- (a) Capabilities of the staff;
- (b) Research and development;
- (c) Motivation and the joint zeal;
- (d) Powers of the information system (Kaplan & Norton, 1996).

The examples of measures in the perspective of learning and development are expenses for IT development/IT expenses; R&D resources/total resources; expenses for competence development/staff; investing in new market development; and so on.

3.2. Evaluation and Measurement in the Perspective of Internal Processes

In the perspective of internal business processes, it is necessary to identify the critical processes in which the organization has to be very successful in order to attain the organizational goals relating to all the relevant interest groups and market segments. The conventional measurement of performance was concentrated on keeping up and advancing the measures relating costs, quality and productivity. Contrary to this, the approach from the standpoint of BSC enables that the requirements for the performance of internal processes be deduced from the expectations of specific external constitutive factors. Every business has a unique set of processes for creating values for the consumer and performing financial results. The model of these processes includes three main business processes: innovation, operations, post-selling service. The newest development has been reflected in including innovative processes, as a vital component of the perspective of internal business processes. Innovative processes are the key factor of the perspective of internal business processes. Innovative processes clearly point to the importance of the following: (a) identifying characteristics and feature of market segments that the organization wants and intends to satisfy with its products and services, and (b) designing and development of products and services that will satisfy these target market segments. This approach enables the organization to attach sufficient importance to the processes of research, design and development of new products, services and markets. In the process of innovation, the organization researches arising or latent needs of the user, and then it creates products or services that will meet these needs. In most organizations, the current systems are oriented to the improvement of the existing operational processes. From the standpoint of BCS, it is advisable that managers define the whole chain of values of internal processes starting with innovative

processes, identifying the current and anticipating the future needs of consumers; continuing through operational processes and delivering the existing products and services to current consumers; finishing with the post-selling service and offering services after sale, adding the value which consumers get from selling and services of the organization. Such a sequential approach of organizing the process usually “discovers” business processes, which the organization must do much better than it used to be. From the standpoint of BSC, goals and measures in the perspective of internal business processes originated from the explicit strategy in order to meet the expectations of target consumers and relevant interest groups. The examples of measures in the perspectives of internal processes are: administrative costs/total profit; delivery on time; leading time for product development; leading time from orders to delivery; productivity increase; IT capacity, and so on.

3.3. Evaluation and Measurement in the Perspective of Consumer/User

In the perspective of consumer/user, it is necessary to have a clear idea about target business and market segments, the segments of service users because the basic group of users is heterogeneous according to their needs and preferential. When the organization identifies market segments, it can set goals and the key measures of performances for its target segments. There are two sets of measures in this perspective:

- (a) Core set of measures as consumer satisfaction, share in the market, keeping and finding new consumers, and
- (b) Set of measures that answer the question: what the organization must give its users in order to attain the high level of satisfaction of users, keeping users, finding new users and increasing its share in the market.

This set of measures includes valuable convictions, which the organization tries to offer to the target segments of users. These measures refer to the following characteristics:

- (a) Characteristics of products and services,
- (b) Characteristics of the relationship with consumers, and
- (c) Characteristics of the image and reputation (Kaplan & Norton, 1996).

It is necessary to find out what the users in some target segments consider worth, what they respect, and then select the values, which should be offered to them. The examples of measures in the perspective of consumer/user are the number of consumers/user; share at market; annual

sale/consumer; lost of consumers; consumers/staff; index of consumer satisfaction; index of consumer loyalty, and so on.

3.4. Evaluation and Measurement in the Financial Perspective

BSC retains financial measuring, financial perspective, as a substantial statement of managing and business performance, but it emphasizes a more general and more integrated row of measures that connect consumers, internal processes, staff and the system. Historically, the system of business performance measuring has always been financial one. Accounting has always been the “language of business measuring”. Accounting record keeping of financial transactions can be seen for thousands of years. Industrial revolution brought many innovations, systems, methods and measuring techniques of financial performance. Accounting and financial planning and management in many companies had the role of vital importance for their successful growth. Financial techniques, as return-on-investment (ROI), and operative and cash budgets, had decisive importance for success of the enterprise. However, many theoreticians, consultants and practice criticized the wide and exclusive use of financial measures in business. In essence, to emphasize attaining and keeping short-term financial results can induce the organization to invest too much in the short-term business, and too little in creating the long-term values, especially in insufficient tangible resource and intellectual capital that are potential and guaranty for further progress. The examples of measures in the financial perspective are total property/staff; income/total property; income/staff; profit/total property; profit/staff; income on net property, and so on.

4. Systems and IT Solutions for Performance Evaluation and Measurement of the Organization in the Strategic Analysis and Control

4.1. Performance Evaluation and Measurement of the Organization in the Strategic Analysis

Performance evaluation and measurement of the organization in the strategic analysis must be supported by IT solutions and business intelligence techniques. The analytical powers of these systems and IT solutions must be huge. They require building the corporative Data Warehouse and the application of methods and techniques of contemporary

data analysis: OLAP, statistical and Data Mining techniques. Data Warehouse, OLAP and Data Mining enable numerous different analyses:

- Analysis of consumer behavior (for predicting patterns of the future orders and the advancing of planning products/services, finding new and keeping former consumers, and so on),
- Analysis and predicting sale, marketing analysis (segmentation, analysis of special offers, generating the list of the best prospects for target marketing campaigns, and so on),
- Financial analyses (profitability analysis: consumer segment profitability, profitability of some consumers, the most profitable production lines and products, the most profitable time periods, developing models for price optimization, and so on),
- Competence analysis,
- Stock analysis,
- Capacity analysis,
- Cost analysis,
- Quality analysis,
- Estimating several hundreds of key performance indicators.

These analyses mean gathering valuable information from data and they are also connected with exploration. They also mean discovering, gathering (discovering new facts, hidden patterns, trends, clusters, exceptions) and using information for strategic decision-making.

4.2. Performance Evaluation and Measurement of the Organization in the Strategic Control

Performance measuring is one of the most important links on the chain of the strategic control. Performance measuring and strategic control are done within the framework of the set goals. Performance measuring is not the goal for itself. It is done in order to compare realized values with the planned ones and to understand through this comparison if the direction and speed of the organization, i.e. some its segments, are satisfying. If it is not the case, something must be changed: to undertake some actions for eliminating the reasons for not realizing the goals or to set goals in another way. The BSC methodology for performance measuring attaches the biggest importance to keeping up of the key indicators of performances (KIP). Well-defined BSC system must include a good mix of indicators for accomplishment measuring both the long-term and the short-term goals. The long-term indicators are usually of genetic nature (for exam-

ple, labor productivity, and consumer satisfaction) and they are characterized by a relative slow change of values. In contrast to this, the short-term indicators or the so-called driving force of performance are mostly specific for the organization and they point to the efficiency of the selected strategy. Although different perspectives are taken into consideration, the biggest importance is attached to measuring financial performances. To Kaplan and Norton's opinion, if operative improvements do not give the expected financial effect, managers will have to discuss again the correctness of the selected strategy and/or plan of its implementation. The KIP monitor has the key role in the BSC software product. Through the KIP monitor, we control the realization of the key indicators of performances in relation to the previous period and the plan. KIP values are withdrawn from the analytical base and calculated again on every supply of the analytical base. Let us take this example. We have 10 marts that are seen from four perspectives. We defined 15 indicators of successfulness so we have the number of 600 interactive measures. From the sea of so much interactive measures, we should separate key business indicators representing the subset of critical KIP that are market in this way in the KIP library. Just these indicators represent the starting point in explaining the KIP monitor.

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