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# Applied Strategic Innovative Analysis as a Research Instrument of the Strategic Innovative Organization Activity Aspects

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## ABSTRACT

The article considers theoretical aspects of the applied strategic innovative analysis based on the innovative balanced scorecard element to be applied in the research process of the strategic innovative organization activity aspects. The methodology of the research is the Balanced Scorecard concept (BSC) introduced by R. Kaplan and D. Norton as well as the concept of the applied strategic analysis having been developed by the author. The applied strategic innovative analysis is depicted to encompass comparative assessment, variances diagnostics and indicators forecast of the innovative BSC element within the steps and strategic goals of the innovative process. The author draws a conclusion that the applied strategic innovative analysis is a sufficiently effective instrument to research strategic aspects of the innovative organization activity in present-day economic environment.

**Keywords:** *Applied Strategic Innovative Analysis, Applied Strategic Analysis, Balanced Scorecard, Strategic Aspects, Innovative Activity, Organization.*

## 1. INTRODUCTION

A high level of the economic achievements of the developed economies is ensured by such conditions as accumulated scientific, technical, industrial and investment potential; institutional factors of technological advancement and government support of innovative transformations.

To form and foster competitive advantage of any entity (an enterprise, a firm, a company, a business unit) is one of the basic objectives for the entity to survive and prosper in the present-day fast transforming economic environment. The objective fruition is defined by its level of innovative activity and efficiency achieved. A competition causes organizations to build reserves of economic strength both owing to a more efficient utilization of the production and financial reserves available and investment attraction for the business update and expansion. This is preceded by the innovative activity to develop alternatives of capital investment aimed at the competitive advantages determination and support. Such advantages are featured by lower risks, higher investment return compared with similar ones within a specific economic niche. The market niche may be found within a certain activity forming customer values or regional aspects, however, in any case, the anticipated business offers should have sufficient innovative justification based on the relevant information base and convincing analytical calculations.

An improvement of the analytical support of the innovative economic organization activity management is a high-priority task in the present-day environment especially in terms of its strategic aspect, as the innovative activity, in wider meaning, implies a long-term process of the investment and marketing activity.

In view of the mentioned above the author of the article seeks to consider his applied strategic analysis to be employed as the analytical support of the strategic innovative organization activity [15], [16].

## 2. PREVIOUS RESEARCH

To enhance strategic management efficiency in difficult conditions of the present-day market economy we have developed the applied strategic analysis (ASA) to improve its information-analytical support, to evolve theory, methodology and methods of the overall strategic economic activity aspects to the level of the financial analysis being an efficient research instrument of the financial aspects of the organization economic activity based on the financial indicators and described experience.

ASA, as a strategic management function, assumes an overall research of the strategic economic organization activity aspects based on the BSC.

The Balanced Scorecard concept as an analytical instrument applied in the field of strategic management was developed by American scientists Robert Kaplan and David Norton at the beginning of the 90s of the XX century [8], [6], [9], [13], evolving both in their works [3], [4], [5], [7], [10], [11], [12], [14] and those of other scientists studying economics [1], [2], [17], [18], [19], and was multiply tested. At present BSC is considered to be one of the essential instruments of the organization management system.

The main reason to develop BSC was a contradiction between contingencies aimed at setting up wider competitive opportunities and immobile accounting system (financial accounting system).

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Balanced Scorecard as a whole is understood as an aggregate of parameters featuring an overall organization performance in up-to-date market economy. It reflects a balance to be brought about between short-term and long-term goals, financial and non-financial indicators, basic and auxiliary parameters, as well as internal and external factors of the organization economic activity.

The scores of the balanced system are formed depending on the outlook and strategic goals of any particular organization and have individual features. They represent a balance between external accounting data for the owners (shareholders) and internal characteristics of the most significant business processes, innovations, training and growth that is the balance between the results of the organization performance and future growth. The system comprises a combination of objective quantity estimated data and subjective somewhat arbitrary parameters of future growth.

The main goal of the Balanced Scorecard is to transform a company strategy into specific tangible objectives, indicators and end up with events.

The BSC scores are selected so that the organization managers and employees focus on the factors to enhance the organization competitiveness, the BSC to be accessible for the employees of all levels. The ‘front-end’ employees should be well aware of the financial consequences of their decisions and actions, while top managers must be committed to the long-term financial success.

The Balanced Scorecard is founded on the cause and effect; results attain factors and their interrelation with financial data.

The Balanced Scorecard encompasses four basic interrelated elements: finance, a customer, internal business processes ones as well as training and personnel development element. The BSC scores enable to characterize comprehensively an activity of commercial, government and non-for-profit organizations, the scores being relatively few (about 25 scores in average, as a rule).

An overall balanced scorecard developed is presented in table 1.

**Table 1:** Balanced Scorecard of the Organization Development

BSC element	Key problem	Strategic goal	Indicator	Target figure	Strategic event
Finance	Which goals do they have to set coming from the shareholders and investors expectations?				
Customers	Which goals concerning customer mix and their demands do they have to set to attain financial goals?				
Inner business processes	Which goals concerning business-processes do they have to set to attain financial and customer goals?				
Training and personnel development	Which goals concerning training and personnel development do they have to set to attain financial and customer goals as well as internal business processes goals?				

It should be taken into consideration that basing on the balanced scorecard system special for any particular organization the Applied Strategic Analysis lacks any standard methods. Hence, the ASA methods are special as well for any particular organization.

The goal of the applied strategic analysis implementation is to form analytical support for taking strategic management decisions.

The ASA objectives are as follows:

- a. Comparative assessment of the balanced scorecard assuming comparison of their outcome and target figures, determination of the BSC real and target figures variance and qualitative characteristics of the variance.
- b. Diagnostics of the balanced scorecard variance enables to find out the results attaining factors

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having impact on the general or outcome BSC indicators and determine the variance value.

- c. Balanced Scorecard forecast is of the purposeful nature. In case of the objective conditions the Balanced Scorecard forecast is targeted at the primordial determination and/or correction of the target BSC scores values and either determination of the specific ways of their attainment or the development of the events aimed at the elimination of the variance emerged between outcome and target BSC scores values in the future.

Applied Strategic Analysis lacks any standard methods as all its objectives are interrelated so each consecutive objective follows from the previous one. For example, the diagnostics is exercised basing on the results of the BSC elements comparative assessment while their forecast takes into account the diagnostics results.

The ASA aspects are the following:

- A strategic aspect proper. Within the aspect evaluated, diagnosed and forecast are final BSC indicators values at the time of the developed strategy functioning i.e. their strategic values.
- A tactical aspect. Within the tactical aspect of the BSC analysis we evaluate, diagnose and forecast interim BSC indicators values by the end of the year, i.e. their tactical values.
- An operational aspect. Within the operational aspect of the BSC analysis evaluated, diagnosed and forecast are interim BCS indicators values by the end of each month, i.e. their operational values.

All the ASA aspects mentioned are interrelated and agreed: the results of the analysis of the operational BSC indicators values impact on their tactical values and the results of the tactical value analysis impact on the strategic ones.

The basic ASA method comprises methods of absolute, relative and average values, comparison, grouping, graphical and table methods, correlation and regression analysis, cluster analysis, factoring, as well as expert evaluation method.

The ASA accomplishment principle, a deduction principle presumes, firstly, an investigation of the general BSC indicators, then specific indicators. The principle defines general sequence of the ASA analysis according to the following leads:

- Analysis of financial indicators.
- Analysis of customer indicators.
- Analysis of internal business-processes indicators.
- Analysis of training and personnel development indicators.

Each of the basic ASA leads, financial, customers, internal business-processes as well as training and personnel development is represented through the prism of its basic objectives: evaluation, diagnostics and forecast. The ASA commences from the comparative evaluation of the financial indicators and is completed by the forecast of training and personnel development.

In addition, assuming “intersection points” of the basic leads and the most significant objectives as some kind of elements we are able to build a matrix out of the ASA elements (table 2) illustrating its structure and economic content.

Thus having characterized briefly the applied strategic analysis as a sufficiently effective research instrument of the strategic organization economic activity aspects and its information base let us consider the ASA application for the strategic innovative organization activity aspects to separate from the ASA its individual kind – an applied strategic innovative analysis.

**Table 2: ASA Elements Matrix**

Basic ASA leads	The most significant ASA objectives		
	Comparative evaluation (1)	Variance diagnostics (2)	Forecast (3)
Analysis of financial indicators (1)	Comparative evaluation of financial indicators	Diagnostics of financial indicators variance	Financial indicators forecast
Analysis of customer indicators (2)	Comparative evaluation of customer indicators	Diagnostics of customer indicators variance	Customer indicators forecast
Analysis of internal business-processes indicators (3)	Comparative evaluation of internal business-processes indicators	Diagnostics of internal business-processes indicators variance	Internal business-processes indicators forecast
Analysis of training and personnel development indicators (4)	Comparative evaluation of training and personnel development indicators	Diagnostics of training and personnel development indicators variance	Training and personnel development indicators forecast

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### 3. THE CONCEPT BASE OF THE APPLIED STRATEGIC INNOVATIVE ANALYSIS AS A RESEARCH INSTRUMENT OF THE STRATEGICS ORGANIZATION INNOVATIVE ACTIVITY ASPECTS

#### 3.1 Concept and Essence of the Applied Strategic Innovative Analysis

An applied strategic innovative analysis (ASIA), a kind of the applied strategic analysis, assumes a complex, comprehensive research of the strategic innovative organization activity aspects basing on the innovative element of balanced scorecard. It can also be considered as a facilitating function of the strategic innovative management.

ASIA subject is the innovative BSC element indicators and the factors specifying them.

ASIA object is strategic organization innovative activity aspects.

The aim of the applied strategic innovative analysis is to form an analytical support of taking strategic decisions in the field of innovative activity management.

The ASIA objectives are as follows:

- a. Comparative assessment of the innovative BSC element indicators.
- b. Diagnostics of the BSC innovative BSC element indicators variances.
- c. Forecast of the innovative BSC element indicators.

Notice, that all the objectives are closely interrelated as each subsequent objective follows from the previous one. So the diagnostics is effected by the results of the comparative evaluation of the innovative BSC element indicators and their forecast considers the diagnostics results.

Comparative assessment of the innovative balanced scorecard element implies a comparison of their real and target figures, finding a variance of the real innovative balanced scorecard element figures from the target ones and their qualitative variance characteristics (table 3). The qualitative characteristics of the innovative BSC element are real and target figures variance depends on their value (table 4).

The diagnostics of the innovative Balanced Scorecard element indicators variance is based on the cause and effect links combining BSC values, the innovative element included, into the balanced complex of general

indicators and their specifying factors (results attaining factors).

While diagnosing the innovative BSC element indicators variance found are the results attaining factors, which are mostly impacting on the general or final indicators of the innovative Balanced Scorecard element, and determined is its value.

It should be noted that some specific BSC outcome indicators (for example, training and personnel development) may be assumed as factors defining factoring indicators variance of the more general innovative element. Hence, a factoring model of the balance system innovative process indicators comprises outcome indicators of the innovative BSC element as outcome (the most general) indicators, a block-scheme of the generalized factoring model being presented in figure 1 and including the following factors:

- 1-st level factors: factoring innovative BSC element indicator;
- 2-nd level factors: some outcome indicators of the BSC training and personnel development element;
- 3-rd level factors: some factoring indicators of the BSC training and personnel development element.

The computation results of the factorial indicators impact on the outcome innovative BSC elements indicators defined presented are in the form of a table (table 5).

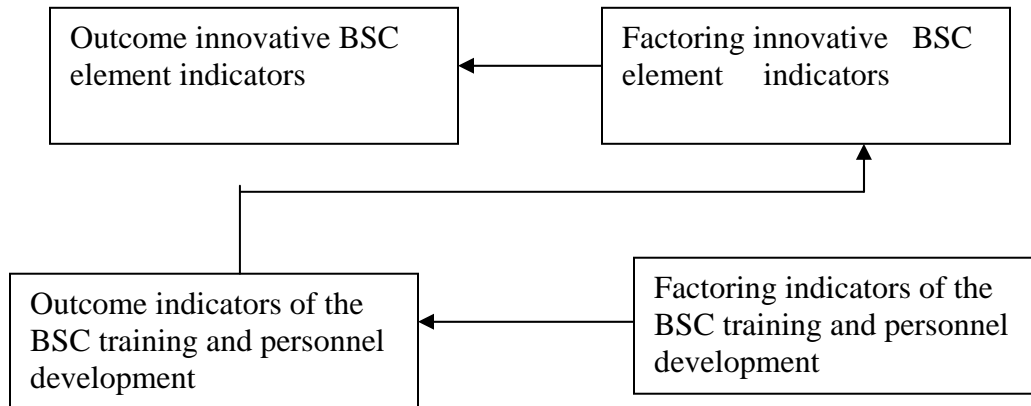
The appropriate deductions are drawn from the computation results.

**Table 3:** Comparative Assessment of the Innovative Balanced Scorecard Element

Balanced Scorecard indicator	Target figure	Real figure	Variance		Qualitative variance characteristics
			absolute	%	

**Table 4:** Estimation of Qualitative Variance Characteristics of the Innovative BSC Element's Real and Target Figures

Variance value, %	Qualitative variance characteristics
Up to ± 1%	Fairly small
From ± 1% to ± 5%	Essential
From ± 5% to ± 10%	Significant
From ± 10% to ± 20%	Large
± 20% and higher	Very large



**Fig 1:** A block-scheme of the factoring innovative BSC process indicators model in terms of its separate elements

**Table 5:** The Computation Results of the Factors Impact the Outcome Innovative BSC Element Indicators Variance

Outcome indicators	Absolute Variance

The innovative BSC element indicators forecast are of the purposeful nature. In case of the objective conditions

the values of the innovative BSC element indicators forecast is targeted at the primordial determination and/or correction of the target values of the innovative BSC element indicators. The determination of the specific values of their 1<sup>st</sup> level or the development of the events ... aimed at the elimination of the variance emerged between outcome and target values of the innovative BSC element indicators in the future. Notice, that the forecast commences with the general (outcome) indicators, the factoring ones being derived from them. The results of the forecast of the innovative BSC element indicators values are presented in the form of a table (table 6).

**Table 6:** The Results of the Forecast of the Innovative BSC Element Indicators Values

Indicator	Factual value	Target value	Variance		Comments
			Absolute	%	

The ASIA aspects imply proper strategic aspects, tactical aspects and operational aspects.

Within a strategic aspect of the applied strategic innovative analysis evaluated, diagnosed and forecast are final values of the innovative BSC element indicators for the period of the developed strategy in effect, i.e. their strategic values.

Within a tactical aspect of the applied strategic innovative analysis evaluated, diagnosed and forecast are interim values of the innovative BSC element indicators at the year end, i.e. their tactical values.

Within an operational aspect of the applied strategic innovative analysis evaluated, diagnosed and

forecast are interim values of the innovative BSC element indicators at the end of each month, i.e. their operational values.

All the ASIA aspects mentioned are interrelated and agreed: the results of the analysis of the operational innovative BSC element indicators values impact on their tactical values and the results of the tactical value analysis impact on the strategic ones.

The instruments of the ASIA methods encompass an aggregate of methods ensuring that the analysis is carried out and its goals are attained.



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The basic ASIA method may include methods of absolute, relative and average values, comparison, grouping, graphical and table methods, correlation and regression analysis, cluster analysis, factoring, as well as expert evaluation method.

### **3.2 Information Base of the Applied Strategic Innovative Analysis**

The ASIA information base is the innovative BSC element, the formation comprising a number of steps.

#### **3.2.1 Definition of the Strategic Innovative Process Goal**

The formation of the innovative balanced scorecard element indicators commences with the innovation managers to define the main strategic innovation process goal and its particular specific strategic aims basing on the key problem of the innovation process in compliance with the strategy adopted and consisting in the following: ‘which goals concerning innovative process do they have to set to attain the aims of a subsequent operation process and after-sales service as well as customer and financial ones respectively?’

It is obvious, if the organization has been set a long-term goal to reach sound financial results the latter will have to arrange, in the first place, the innovative process so that they will manufacture innovative products and provide innovative services to be appreciated by future clients.

It should be noted, that during the process of the innovative balanced scorecard element indicators the strategic goals of the innovative process are clarified, the critical parameters of their attainment are defined, while strategic goals included in the innovative BSC element are special and unique for every organization within specific conditions of time and location irreplaceable by other ones. This enables to transfer an innovative element of general strategy i.e. innovative strategy, into a number of the specific goal statements related to the innovative BSC element.

In addition, notice, that the strategic goals of the innovative process and their indicators, on the one hand, govern the aims of the subsequent operation process and after-sales service as well as their clients’ and financial aims and their indicators, on the other, they are considered as basic to govern the goals and indicators of the last BSC element – that of the training and personnel development.

When defining the strategic goals of the innovative process it is important to reach a significant and strong competitive advantage by means of the creation of the entirely new, innovative business-processes. It is these newly revealed business-processes that ensure the organization to reach its competitive superiority and the key innovative problem to be solved.

Although the strategic goals of the innovative process are special and unique for each organization within specific conditions of time and location, still, the strategic innovative process goals, in many respects universal for all types of organization, can be provided as an example.

The innovative process comprises two steps:

- a. To determine the size of the market, type of consumer preferences, as well as pot-forma prices for new goods and services;
- b. To develop new goods and services.

The strategic goals of the first step of the innovative process imply the following:

- Revealing customer demand acceptable in terms of new products development as customer future value.
- Working out cutting-edge innovative products acceptable to customers and overcoming likely rivals.

As a rule, the second step of the innovation process is connected with the following strategic goals to be reached:

- To run an in-deep scientific research of the entirely new products and services creating customer value;
- To exercise an applied research for the conventional technological processes feasibility to manufacture next generation goods and services;
- To develop purposefully new goods and services to be marketed.

Underlining our brief description of the strategic goals of the innovative organization process it should be noted that the innovative process being the first and the foremost one of its business-processes the attainment of its strategic goals facilitates an implementation of the strategic business goals of the subsequent internal business-processes of the operational process and after-sales service.

#### **3.2.2 Construction of the Strategic Innovative Process Map**

The strategic goals of the innovative process are not independent and isolated from each other, visa versa, as it has been mentioned above; they are interrelated having a strong interactive impact. To define and record the cause and effect links between separate strategic innovative goals is one of the basic tasks of the innovative balanced scorecard element. The cause and effect links defined reflect an availability of the dependence between the separate strategic innovative goals. During the process an intuitive innovation managers insight on the cause and effect availability between separate strategic goals of the innovative process are transformed into actual ones and

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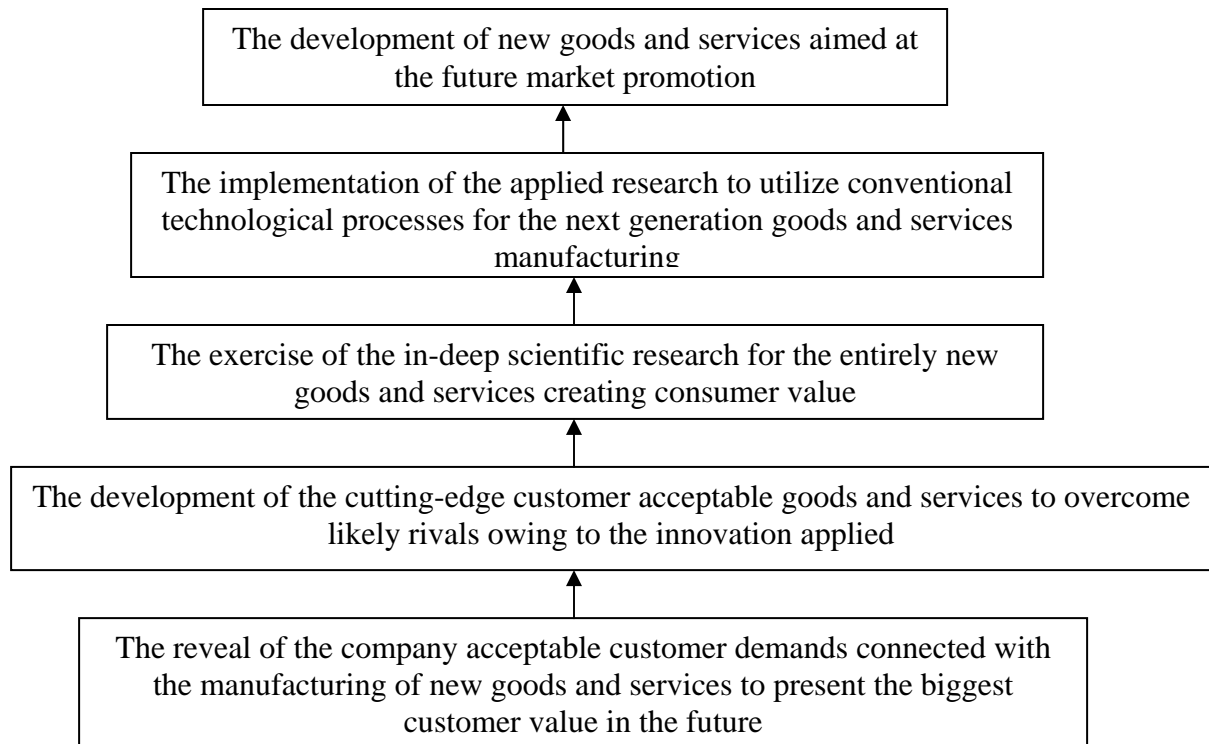
reflected (recorded) in the strategic innovative process map.

As an example provided is a strategic map of the innovative process reflecting an interrelation of the predetermined strategic goals being mostly universal for all types of the organizations (figure 2).

The strategic innovative process map is viewed as a graph-like document, or a block-scheme, reflecting the cause and effect links between the separate strategic goals of the innovative organization process the strategic goals of the innovative process being presented as separate blocks and the cause and effect links between them as arrows. The strategic innovative process map is one of the components of the strategic internal business-processes map and that of the general strategic map respectively.

The construction of the strategic innovative process maps to form the innovative BSC element is essential as they:

- Reflect interrelated and interactive character between separate strategic goals of the innovative organization process;
- Explain reciprocal effects emerging from the strategic goals of the innovative process to have been implemented;
- Form executives' awareness of the interaction and importance of the separate strategic innovative process goals;
- Facilitate a unified understanding of the innovative organization strategy;
- Explain the value of the managerial innovative process indicators;
- Encourage deeper understanding and better ties of the strategic innovative process goals;
- Assist in building cooperation between the heads of various organization departments involved in the innovations;
- Create a model explaining the ways to reach an innovative success in the organization activity.



**Fig 2:** An example of the strategic innovative process map

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### 3.2.3 Selection of the Innovative Process Indicators

The construction of the strategic innovative process map having been completed enables to select indicators of innovative balanced scorecard element. The innovative process indicators are needed to express precisely and unambiguously the content of its strategic goals and the level of their achievement. Measuring strategic goals facilitates the development of the object managed in the selected innovative direction. To ensure the unified understanding of the set strategic innovative process goals to be achieved each of them should include as many as two (rarely – three and/or four exclusively) indicators.

The consideration of a large number of the estimated innovative process indicators enables to understand at an early stage which indicators the innovative BSC element should encompass. To employ certain innovative process indicators within an innovations management system their description in terms of definition, formulae and parameters is to be available. The existing innovative process indicators would have to be assessed from the point of their usefulness (e.g. data sources,

indicators measurement frequency, target values availability, etc.). As for unavailable innovative process indicators an accounting procedure of their values should be worked out in advance.

Let us consider, as an example, certain general indicators of the innovative process measuring its strategic goals mentioned above (the reveal of the company acceptable consumer demands connected with the manufacturing of new goods and services to present the biggest customer value in the future; the development of the competitive customer acceptable goods and services to overcome likely rivals owing to the innovation applied; the exercise of the in-deep scientific research for the entirely new goods and services creating consumer value; the implementation of the applied research to utilize conventional technological processes for the next generation goods and services manufacturing; the development of new goods and services aimed at the future market promotion) and bring them together into table 7.

**Table 7:** Certain General Indicators of the Innovative BSC Element

Strategic goal of the innovative process	Measuring indicators
The reveal of the of the customer demand acceptable in terms of new products development as customer future value	<ul style="list-style-type: none"> <li>• Types of customer preferences acceptable in connection with new products production feasibility;</li> <li>• Rating of each type of customer preferences acceptable in connection with new products production feasibility;</li> <li>• An approximate volume of the market for new goods and services presumed to be manufactured;</li> <li>• Pro-forma prices for anticipated new products.</li> </ul>
The development of the of the cutting-edge innovative products acceptable to customers and overcoming likely rivals	<ul style="list-style-type: none"> <li>• Number of innovative products prototypes before the launch;</li> <li>• Time taken for the innovative product development;</li> <li>• Extent of ferreted out customer preferences in terms of innovative products.</li> </ul>
The exercise of the in-depth scientific research of innovative goods and services creating consumer value	<ul style="list-style-type: none"> <li>• Number of innovative products;</li> <li>• Proportion of innovative products within sales volume;</li> <li>• New products introduction opposite to planned or rival product.</li> </ul>
The implementation of the applied research and development and production of the next generation product feasibility study be means of conventional technological processes	<ul style="list-style-type: none"> <li>• Feasibility of production process;</li> <li>• Number of the feasible next generation products manufacturing by means of conventional technological processes.</li> </ul>
The development of new goods and services aimed at the future market promotion	<ul style="list-style-type: none"> <li>• New products promotion rate;</li> <li>• Proportion of new products immediately meeting customer demand;</li> <li>• Sales losses from undue marketing caused by initial design adjustments</li> <li>• Break-even time-period</li> </ul>



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**3.2.4 Definition of the Target Innovation Process Indicators Values**

Having completed the selection of the innovative BSC indicators their target values are to be defined. It

should be noted that as soon as the target value of every innovative process indicator is stated one and another of its strategic goals are considered to be completely described. The target values of the innovative process indicators are to be rigorous but fully achievable.

The target values of the innovative process indicators in terms of the methods are determined by means of preliminary development with further dispute and agreement reached during meetings and combined with building of the business-plan model.

However the following principle has to be obeyed: a balance of the strategic innovative process goals is to be reflected by the balance of the target values describing them.

**3.2.5 Development of the Strategic Innovative Events**

As soon as the target values definition of the innovative BCS element have been completed the relevant strategic innovative events may be developed. The strategic innovative events assume the events relevant to the strategic innovative process goals determined for the innovative balanced scorecard element. The strategic innovative events enable to specify the strategic goals of the innovative process and link the innovative strategy with innovative managers' operational objectives. Thus the key idea of the innovative balanced scorecard element is realized, i.e. a transfer of the innovative strategy into the specific innovations management actions since the innovative BSC elements commences operating as soon as the strategic innovative events are implemented.

As regards the strategic innovative events such operations may encounter as the development and

manufacturing of new goods and other resources-consuming events irrelevant to the innovative operational activity. Other events, such as long-term research and development works can be attributed to the group.

The strategic innovative events result in the base for the distribution of resources within the innovation strategy implementation. In other words, a definition of the strategic innovative events implies a comparison of the anticipated strategic innovative process goals and feasible ones, and the resources available. Thereby the organization is being tested for the strategic innovative process goals feasibility. The work may entail a revision of the strategic innovative process goal defined before the development of the strategic innovative events.

As a rule, neither organization owns sufficient resources and research and development capacities to implement all the strategic innovative events considered resulting in setting up priorities. In this case a compliance of the innovative events with the strategic goals of the innovative process enables to assess them from the point of view of their contribution into the implementation of the developed innovation strategy. The work facilitates to reach a consensus concerning a sequence of the strategic events implementation in terms of resources and appropriate research and development capacities availability.

It should be noted, that strategic budgets are drawn up basing on the developed strategic innovative events. Thereby the strategic innovative planning is linked with the operational planning (first and foremost with the budgeting).

The developed innovative balanced scorecard element is presented by a table (table 8).

**Table 8:** Innovative Balanced Scorecard Element of the Organization Development

Key problem of the innovative balanced scorecard element	Strategic goal of the Innovative process	Innovative process indicator	Target value	Strategic innovative event
Which goals concerning innovative process should be set to attain the aims of the succeeding operations process and after-sales services and their customers' and financial aims respectively?				

### 3.3 Sequence of the Applied Strategic Innovative Analysis Implementation

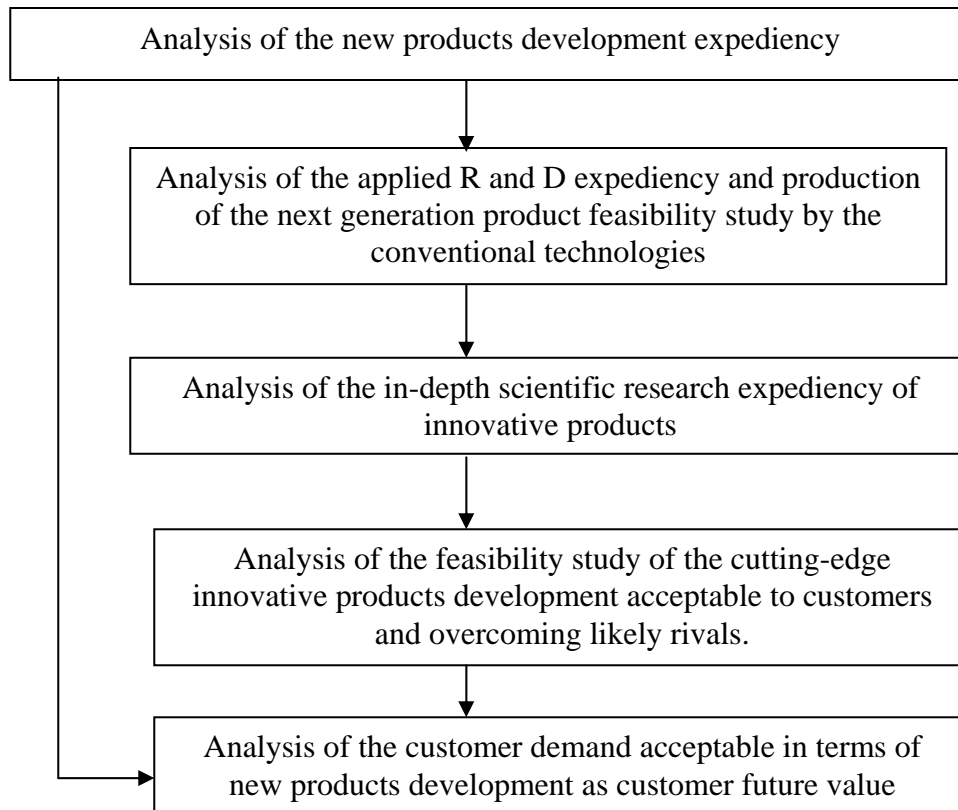
The applied strategic innovative analysis as a kind of the applied strategic analysis is carried out in compliance with the principle of deduction encompassing research

firstly general indicators of the innovative BSC element then specific ones.

The complex elements of the ASIA are the following:

- a. Analysis of the new products development expediency.
- b. Analysis of the applied research and development expediency and production of the next generation product feasibility study by means of the conventional technologies.
- c. Analysis of the in-depth scientific research expediency of innovative products.
- d. Analysis of the feasibility study of the cutting-edge innovative products development acceptable to customers and overcoming likely rivals.
- e. Analysis of the customer demand acceptable in terms of new products development as customer future value.

The overall sequence of the applied strategic innovative analysis is built on the principle of the analysis mentioned above and its ASIA elements and specified as a block scheme (figure 3).

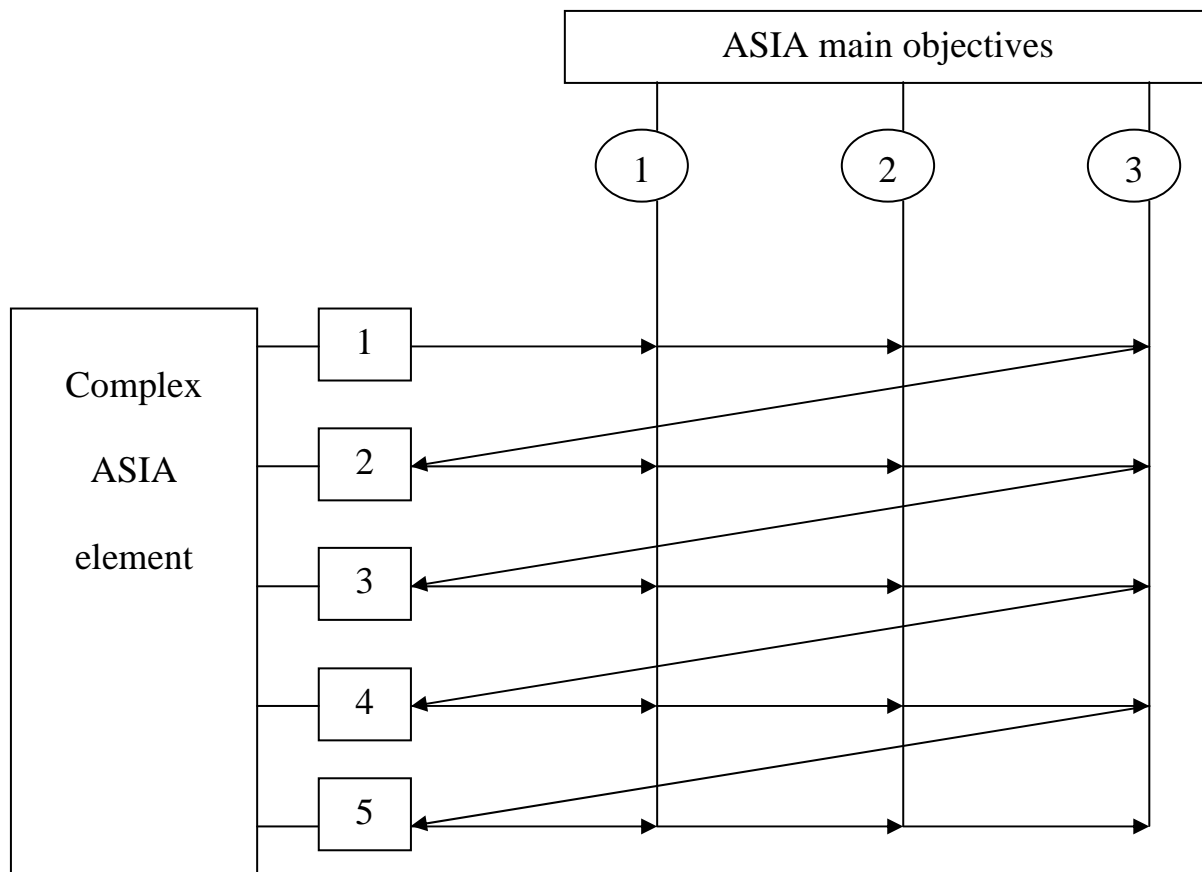


**Fig 3:** Sequence of the applied strategic innovative analysis exercise

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According to Figure 3 the procedure of the applied strategic innovative process indicators analysis commences, firstly, from the analysis of the new products development expediency. Secondly, the applied research and development expediency and production of the next generation product feasibility study by means of conventional technologies are analyzed. The third step is to analyze in-depth scientific research expediency of innovative products and analysis of the feasibility study of the cutting-edge innovative products development acceptable to customers and overcoming likely rivals, as the fourth step. Finally, analyzed is customer demand acceptable in terms of new products development as customer future value.

A more detailed process of the ASIA analysis exercise can be presented by means of considering its main objectives i.e. diagnostics of the variance and the forecast of the innovative BSC element (figure 4).



**Fig 4:** A block scheme to exercise the applied strategic innovative analysis

The figure 4 shows that considering the innovative element indicators to be grouped into the outcome and factoring ones the analysis starts from the comparative assessment of the outcome indicators and is completed with

the forecast of the factoring indicators of the company acceptable consumer demands connected with the manufacturing of new goods and services to present the biggest customer value in the future.

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In addition, assuming “intersection points” of the analyzed innovative BSC element objectives groups and the applied strategic innovative analysis being defined as some

kind of the ASIA fragments we are able to build a matrix (table 9).

**Table 9:** Matrix of the ASIA Fragments

Complex ASIA element (I)	Main ASIA objectives (j)		
	Comparative evaluation of the innovative BSC element indicators (1)	Diagnostics of the innovative BSC element indicators variances (2)	Forecast of the innovative BSC element indicators (3)
Analysis of the new products development expediency (1)	Comparative evaluation of the new products development expediency indicators.	Diagnostics of the new products development expediency indicators variances.	Forecast of the new products development expediency indicators.
Analysis of the applied research and development expediency and production of the next generation product feasibility study by means of conventional technological processes (2)	Comparative evaluation of the indicators of the applied research and development expediency and production of the next generation product feasibility study by means of conventional technologies.	Diagnostics of the indicators variances of the applied research and development expediency and production of the next generation product feasibility study by means of conventional technologies.	Forecast of the indicators of the applied research and development expediency and production of the next generation product feasibility study by means of conventional technologies.
Analysis of the in-depth scientific research expediency of innovative products (3)	Comparative evaluation of the in-depth scientific research expediency of innovative products indicator.	Diagnostics of the in-depth scientific research expediency of innovative product indicators variances.	Forecast of the in-depth scientific research expediency of innovative product indicators.
Analysis of the feasibility study of the cutting-edge innovative products development acceptable to customers and overcoming likely rivals (4)	Comparative evaluation of the indicators of the feasibility study of the cutting-edge innovative products development acceptable to customers and overcoming likely rivals.	Diagnostics of the indicators variances of the feasibility study of the cutting-edge innovative product development acceptable to customers and overcoming likely rivals.	Forecast of the indicators of the feasibility study of the cutting-edge innovative product development acceptable to customers and overcoming likely rivals.
Analysis of the customer demand acceptable in terms of new products development as customer future value (5)	Comparative evaluation of the indicators of the customer demand acceptable in terms of new products development as customer future value.	Diagnostics of the indicators variance of the customer demand acceptable in terms of new products development as customer future value.	Forecast of the indicators of the customer demand acceptable in terms of new products development as customer future value.

Denoting elements of the matrix as  $pi_n$  ( $I = 1, 2, 3, 4, 5; j = 1, 2, 3$ ), enables mathematically describe the ASIA content by means of the formulae:

$$PN = \sum_{i=1}^5 \sum_{j=1}^3 pn_{ij} \quad (1)$$

where PN is a sum of the ASIA fragments;

I is an index of the complex ASIA elements: 1 – analysis of the new products development expediency, 2 –

analysis of the applied research and development expediency and production of the next generation product feasibility study by means of the conventional technologies, 3 – analysis of the in-depth scientific research expediency of innovative products, 4 – analysis of the cutting-edge innovative products development feasibility study acceptable to customers and overcoming likely rivals, 5 –

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analysis of the customer demand acceptable in terms of new products development as customer future value;

j is an index of the basic ASIA objectives: 1 – comparative evaluation of the innovative BSC element indicators, 2 – diagnostics of the innovative BSC element indicators variances, 3 – forecast innovative BSC element indicators.

The author assumes that the introduced matrix (table 9) and formulae (1) may be considered as matrix and

mathematical models of ASIA respectively visualizing their composition and economic contents.

Examples of the outcome and factoring indicators analyzed per every complex ASIA element are provided in table 10.

**Table 10:** Examples of the Analyzed Outcome and Factoring Indicators per Every Complex ASIA Element

Complex element of the applied strategic innovative analysis	Indicators analyzed	
	Outcome	Factoring
1. Analysis of the new products development expediency	<ul style="list-style-type: none"> <li>• Proportion of new products immediately meeting customer demand;</li> <li>• Sales losses from undue marketing caused by initial design adjustments</li> </ul>	<ul style="list-style-type: none"> <li>• New products promotion rate;</li> <li>• Break-even time-period</li> </ul>
2. Analysis of the applied research and development expediency and production of the next generation product feasibility study by means of conventional technological processes	<ul style="list-style-type: none"> <li>• Number of the feasible next generation products manufacturing by means of conventional technological processes</li> </ul>	<ul style="list-style-type: none"> <li>• Feasibility of production process</li> </ul>
3. Analysis of the in-depth scientific research expediency of innovative products	<ul style="list-style-type: none"> <li>• Number of innovative products;</li> <li>• Proportion of innovative products within sales volume;</li> <li>• New products introduction opposite to planned rival product</li> </ul>	<ul style="list-style-type: none"> <li>• In-depth research and development feasibility</li> </ul>
4. Analysis of the feasibility study of the cutting-edge innovative products development acceptable to customers and overcoming likely rivals	<ul style="list-style-type: none"> <li>• Time taken for the innovative product development;</li> <li>• Extent of ferretted out customer preferences in terms of innovative products</li> </ul>	<ul style="list-style-type: none"> <li>• Number of innovative products prototypes before the launch</li> </ul>
5. Analysis of the customer demand acceptable in terms of new products development as customer future value	<ul style="list-style-type: none"> <li>• Approximate sales of anticipated new products manufactured;</li> <li>• Approximate profit from anticipated new products sales</li> </ul>	<ul style="list-style-type: none"> <li>• Types of customer preferences acceptable in connection with new products production feasibility;</li> <li>• Rating of each type of customer preferences acceptable in connection with new products production feasibility;</li> <li>• Pro-forma prices for anticipated new products</li> </ul>

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#### **4. THE APPLIED STRATEGIC INNOVATIVE ANALYSIS DEVELOPMENT AND PRACTICAL APPLICATION PERSPECTIVES**

The applied strategic innovative analysis as a new instrument based on the innovative BSC element to research strategic aspects of the organization economic activity defines its general contours as a new lead of scientific research and practical activity presents some kind of theoretical basis for further ASIA development and above all for its practical application.

The following may be considered to be basic trends of the further Applied Strategic Innovative Analysis development:

- Further ASIA development assuming its elaboration and specification in terms of certain BSC elements of individual steps strategic goals of the innovative process;
- ASIA methods development for different companies in different industries;
- ASIA spread to include current activities, being innovative BSC element derivative;
- Simulation and software development to apply ASIA for innovative organization activity management.

#### **5. CONCLUSIONS**

To complete the treatment of the Applied Strategic Innovative Analysis concept we draw the following conclusions:

- Applied strategic innovative analysis as a kind of the applied strategic analysis may be considered as a sufficiently effective instrument to research strategic aspects of the innovative organization activity in present-day environment entailing innovative BSC element indicators' comparative assessment, variances diagnostics and their forecast within the steps and strategic goals of the innovative process implemented;
- ASIA encompasses an analysis of the new products development expediency indicators; analysis of the indicators of the applied research and development expediency and production of the next generation product feasibility study by means of conventional technological processes; analysis of the indicators of the in-depth scientific research expediency of innovative products; analysis of the feasibility study indicators of the cutting-edge innovative products development acceptable to customers and overcoming likely rivals; analysis of the indicators of the customer demand acceptable in terms of new products development as customer future value.
- ASIA analysis commences with comparative evaluation of the of the new products development

expediency outcome indicators and is finalized with factoring indicators forecast for the customer demand acceptable in terms of new products development as customer future value;

- ASIA results in ability to be employed for the long-term, medium and short-term management decisions in the field of the innovative organization activity.

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