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Performance Measurement: 'House' Model

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A constantly changing business environment with its continuously faster and harder impacts particularly on small enterprises reflects in their struggle to reach a high performance in order to be able to survive. A difficult position of small enterprises, their efforts to improve it by implementing a performance measurement system accompanied at the same time with a distrust and skepticism of their management acted as an impulse for a research project, the results of which the author of the paper applied in her dissertation thesis.

The paper is focused on the research project and its development, it highlights its conceptual framework, the aims of particular parts, project proceeding: environment of the enterprise, measurement system, subsystems of measurement system (processes), entities of measurement system (metrics), analysis of models, creation of a 'House' model and its verification.

Fields of Research: Small Business, Crisis Management, Performance Measurement

1. Introduction

The performance issue is examined in various academic fields; experts in the field of accounting, economics, human resources, marketing, operation management, psychology and sociology, these all examine independently the ways of enterprise performance measurement. However, no significant conformity exists in what are the most important themes and theories regarding the performance measurement.

A former focus to performance in the financial field is based on an external view of the performance, often directly related to the importance of an enterprise share price. It may also reflect a situation when markets were quite calm at least by the half of the seventies of the last century. Therefore, there was no need to acquire extended knowledge of how a profit was generated, and managers were satisfied with a limited analytic model provided by financial statements.

Now, the situation is different. Most markets in advanced economies are saturated and global competitors govern requiring thorough knowledge of how a profit and cash flow are acquired (and, more generally, how the performance is "created" no matter how it is defined), and thus to gain an ability to forecast coming events and to react quickly. Furthermore, globalization of competition has resulted also in its extension: price based competition (leading to the emphasis on cost minimization) has shifted to a more complex set of customer's expectations comprising quality, deadlines observance, after-sales services, flexibility, functions of products, period of product launching at the market, and so on.

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Considerable research indicates that, since enterprises are forced to immediate reactions, managers are frequently unsatisfied with the traditional tools of evaluation. They frequently feel overloaded by information, but not by relevant performance data.

The author has become familiar with the environment/surroundings of small enterprises not only theoretically by teaching the subject 'Small and Medium-Size Enterprises Management', but she has also acquired many-year-long experience in practical cooperation with enterprises, which she utilizes, inter alia, also in the subject 'Crisis Prevention and Management'.
The author made efforts to use her up till now acquired theoretical knowledge and practical experience in the mentioned research project and also in her doctoral dissertation thesis. She endeavored to come to the results applicable in practice especially by small and medium-size enterprises that do not have funds for their own research.

The submitted paper in which the author presents briefly the main items and results of her research work should serve as a challenge to cooperation for the persons interested in the same field, to exchanging their points of view, and acquiring stimulation for further work on the developed "House" model.

After a short evaluation of satisfaction with the performance measurement systems the issues of research are formulated. In the next part of the paper the author's view of measurement system model and its levels is explained. In Conceptual Framework the objectives and results of particular parts of the project (and those of her doctoral thesis) are described.
Particular parts are focused on relationship between the performance measurement system and environment from which the features influencing the system occur, particular performance measurement systems, subsystems of the performance measurement system (processes in the enterprise) and indicators (metrics), i. e. the entities of the measurement system.
Based on study of the mentioned materials the 'House' model was developed. Its description and the procedure of its creation together with the description of verification its functionality by means of its application in a chosen business entity is the content of the last part of this paper.

The author's view of the model and its levels is also graphically represented in the Figure No. 1.
Three enclosures have been added to the paper graphically depicting the suggested "House" model, the evaluation of the stakeholder strategy and causal linking inside the performance measurement system in the chosen firm.

2. Satisfaction with the Performance Measurement Systems

IMA (Institute of Management Accountants) carried out a research of opinions of its one and half thousand members as regarded the performance measurement systems (Denton, 2002).
The IMA review of 2001 shows that 80% of its respondents has reported the execution of changes in the systems of performance measurement in the course of the last three years. The changes varied from radical changes (rejection of a current system) to growth changes (measurement addition or exclusion). 33% reported changes as a main measurement system renovation. 31% from the respondents reported that their current performance measurement system was less than adequate or even insufficient in a support for enterprise management objectives and initiatives. Only 15% considered the performance measurement systems to be very good or excellent for a communication strategy. Balanced scorecards were evaluated much better by the users.

Key challenges for performance measurement are intangible assets. 60% of respondents in the IMA review state that innovation is a key part of the enterprise mission statement. Still, more than 50% found the measurement systems to be insufficient or less than adequate in this field. Totally, less than 10% of respondents considered performance indicators for intangible assets to be very good or excellent. A recent KPMG study of US and European enterprise and

government executives has revealed that one of the most frequently reported common disappointments is a lack of data integrity and system inability to produce useful information to support decision-making. Furthermore, the study has revealed that the performance measurement systems are not related to the strategic measures of the enterprise depending on delayed or advanced indicators being wrongly integrated with internal and external information, and relying too much on financial indicators (Aken, Coleman, 2002).
Despite the enhanced interest of practitioners in BSC implementation, there is a lack of broad empiric data. A research concentrated on the balanced scorecard implementation and application in the Czech business environment found that more than a half of addressed companies were satisfied with the current system of indicators (Anonymous, 2003). A reason for satisfaction were the systems used such as TQM (24% of respondents), management by objectives (MBO) (22%), activity based management (ABM) (15%), customer relationship management (CRM) (15%), shareholder value (10%), and, particularly, ISO (73%).
Furthermore, it was revealed that, although enterprises were satisfied with the current system of indicators, some weaknesses could be found there. The most serious is a failure to observe a development and no application of information technologies (80% of enterprises), and a failure to follow enterprise processes (60% of enterprises). The activity of employees is not in compliance with an enterprise strategy at almost one third of satisfied enterprises. A not functional communication, both vertical and horizontal, is the last significant weakness of satisfied enterprises.

The highest importance in monitoring of performance of Czech enterprises is given, as expected, to finance. Also information from the field of marketing and personnel sector has appeared to be of great importance. The most neglected field in measurement of performance is that of information technologies. Thus, by not managing enterprise information systems, Czech enterprises are subjected to a risk of absence of sound quality and real-time available information. A study output is a heartwarming finding that a term BSC is not a strange word for our managers even though only 26% of respondents have implemented or try to apply the BSC system. The most frequent reason of a lack of interest in BSC was the satisfaction with the current system of indicators (51%) followed by the lack of resources, bad registration ability of other than financial indicators, and their unacceptability by executives. Comparing the acquired values to the research in Austrian enterprises (stated in the same study) or research in German enterprises (Weber et al., 2003), a percent statement of reasons for resistance to BSC does not differ too much.

3. Research Issues

Objective of research: a proposal of the model of measurement of enterprise performance measurement

Development of a particular proposal requires that the author would deal with two principal research issues:

- What are the properties of a useful enterprise performance measurement system?

An answer supposes a research of requirements and suppositions in a process of development of a system for measurement of performance, the system itself and in a process of specification of the indicators and its attributes.

- Can it be supposed that standards to evaluate performance applicable for any enterprise can be developed?

An answer supposes a research of attributes of available enterprise performance evaluation and their comparison.

The practical objective: A verification of the usability of a proposed model by applications of its relationships in a chosen business unit (enterprise).

4. Measurement System Model

The performance measurement system model is considered in four levels:

- A RELATIONSHIP BETWEEN THE PERFORMANCE MEASUREMENT SYSTEM (SYSTEM II.) AND SYSTEM I., AND SURROUNDINGS OF THE SYSTEM I.

Employees, their attitudes – measurement system acceptance or rejection, top management approach to the introduction of a measurement system, a technical, technological and moral support to the measurement system introduction, business policy of the enterprise, and so on (included in the system I.) as well as a position and influence of competitors, legislation, national policy, a situation in the region, and so on (situated in the surroundings of the system I.) are features significantly affecting the entire procedure and the way of measurement of performance.

- SYSTEM II.

A performance measurement system: this system is understood as a unit providing interconnection of indicators in particular measured subsystems of the system I. as well as among the subsystems. It enables to measure the performance of the enterprise as a whole. Individual performance measurement in individual subsystems without mutual relationships to the others will not result in a potential analysis and the determination of ways of how to improve the performance of the enterprise (system I.) as a whole. On the contrary, it can happen that the efforts aimed at improving the performance in a subsystem may be to the detriment of performance of the other one, which, in its final consequence, can result in an adverse impact to the performance of the whole.

- MEASUREMENT SUBSYSTEMS

Subsystems, in which measurement is performed, are processes taking place inside an enterprise (system I.). A level of execution of the processes (their performance) determines the performance of the enterprise. Therefore, developing a measurement system, the relationship and interconnection of the processes should be taken into account.

- INDICATORS

The indicators (metrics) are understood as features of a system of measurement of enterprise performance, i.e. the system II. (System II in Fig No. 1), while causal and correlation relationships apply: A change in a value of one indicator influences a value of another indicator in another measured subsystem as part of the system I. by which the author determines a particular enterprise.

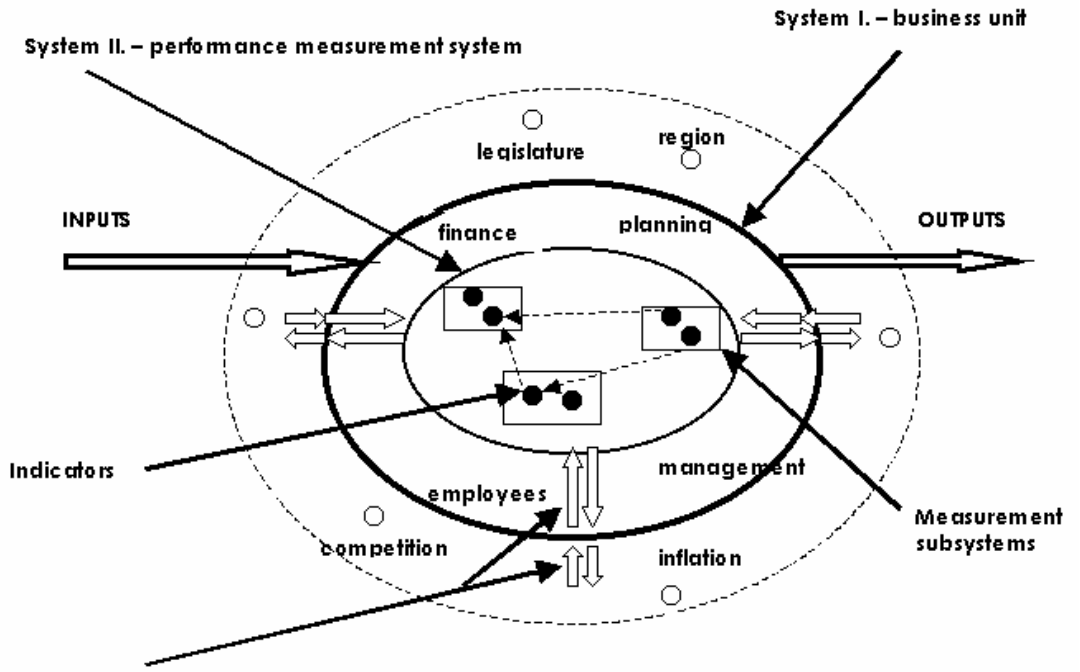

Fig. No. 1: Four levels of the performance measurement system model

5. Conceptual Framework

Determining a current status of the issue under consideration, the author in her project is going to concentrate on individual model levels as having been considered in the previous text.
An initial step following the evaluation of the current status of the issue under consideration will be the explanation of the current business environment. It is necessary to identify the environment in which the model will be developed and then situated. The present business environment with the coming of the new economy and related discontinuities has a vital influence on the development of performance measurement systems. The business environment creates preconditions to forming and establishing both internal (inside the enterprise – System I) and external features (occurring outside the enterprise – System I) that substantially influence creation, introduction and use of the performance measurement system (System II.).
It is necessary since the time when the myths of stability are falling down and enterprises of formerly steadfast position are leaving the market, requires new approaches to management as well as to measurement.

The aims of the Part observe a relationship between the performance measurement system and the surroundings from which elements influencing the system occur:

- to determine the most significant features characterizing pending changes in the current business surroundings since they set forth preconditions to establishment of elements substantially influencing the creation, introduction and use of the measurement system
- to identify a relationship between a turbulent environment/surroundings of the economy and requirements for the enterprise performance measurement.

After that the author is going to deal with the performance of a particular enterprise, and the systems of its measurement. A purpose of the performance measurement, factors endangering

the measurement systems or problems related to the development of systems will be the initial items for a new model proposal. Clarifying reasons for building up measurement systems, a synthesis of requirements for a successful measurement system has been carried out, and common problems related to the measurement system have been presented.

The aims of the Part dealing with a particular performance measurement system:

- to gather in practice the most frequent potentials of performance measurement systems endangering
- to systematize desirable attributes of measurement systems

Another model level comprises performance measurement subsystems. They are considered to be processes taking place in the enterprise. For purposes hereof, attributes of the processes were determined so that the sets of indicators to be evaluated by the measured subsystems will become evident.

The aims of the Part dealing with the performance measurement subsystems:

- to define a view of a process as a performance measurement subsystem

Indicators are essential features of the performance measurement system. An examination of requirements for sound quality indicators to become a part of a useful system will be necessary for a model creation, too. Following a synthesis of requirements for a sound quality indicator and identification of problems related to creation of a useful indicator, a creative synthesis is supplemented by a following part dealing with the construction of indicator. Practical questions are presented there that should be answered if the indicator is to bring a benefit. The author does not state the scheme is comprehensive. Following the definition of the indicator, a useful indicator creation is not a simple process.

The aims of the Part will concentrate on indicators, i.e. entities performance measurement systems:

- to systemize undesirable and desirable properties of an indicator
- to establish a theoretical base – indicator definition scheme (a summary of questions)
- to document a relationship between measurement and management

The last research field prior to appropriate model proposal are large-scale problems regarding models, constructions or frames of performance measurement systems. A significant heterogeneity, different properties and application potentials are evident there.
This part is vital for the creation of a performance measurement system and of subsequent proving the feasibility of a proposed model by the application of its basic relationships in a chosen business entity.
There is a great number of approaches, models, constructions or frames of measurement systems. Some of them are quite similar some of them are considerably different. However, each of them brings some value. A large-scale project part presents some already existing models of systems of measurement of performance (such as EFQM, ISO, Baldrige Model, Six Sigma, Skandia Value Scheme, IC - Index Approach, Skandia Navigator, BSC, Intangible Assets Monitor, Knowledge Assets Map, Value Dynamics Framework, Vital Resources, Macro Process Model, Expatriate Value-added Map, Action-Profit Linkage, Performance Prism, Accountability Scorecard, Technology Broker, SMART, The Results and Determinants Framework, Tableau de Bord).
The chosen models were compared, their essential features were determined, their benefits and weaknesses were identified. It can be stated that, together with changes in the business environment, also performance measurement systems will be continuously developed.

The aims of the Part dealing with the investigation of some existing performance measurement systems:

- to build up an idea of the heterogeneity of approaches and models and their potential applications by a synthesis of positives and negatives and a mutual comparison

Searching the mentioned areas, stimuli to a creative approach to a particular performance measurement system proposal and its following application were gained.

6. A Model Proposal and Its Functionality Verification

Having studied the mentioned materials, or because of a scope not specified here, it was decided that **stakeholders** will be an essential component for developing a model. Most models deal with key stakeholders even though they concentrate on customers and employees only. It was decided to include all key stakeholders in the model since all of them, although at a different rate, influence the performance of the enterprise.

Furthermore, a conception of theory of stakeholders and theories of shareholders was considered. The conclusion is that, despite a great number of critics, a position of **shareholders** will be preferred, since they bear the biggest risk, while their remuneration is not frequently adequate. Other groups of stakeholders will be considered: as **employees** (identified with resources), **customers,** and the last large group summarily called as the **surrounding.** A supplier takes a specific position in this big group. Although other stakeholders in the group of the surrounding are various their influence cannot be underestimated since also from that surrounding originate features that influence a performance measurement system (system II.).

The model is based on a conception of a so-called psychological agreement from the beginning of the 1960s – a stakeholder wants something from the enterprise and offers something to it. Through the model it is possible to find a way of how to mutually satisfy both contrary streams of requirements.

Following numerous variants, for a graphic representation of a model and in order to indicate mutual relationships such a form of a house has been chosen that, in author´s opinion, precisely presents an idea of the model: employees as a base of the enterprise, processes forming creative, efficient component of a particular enterprise, protected by walls, pillars of the enterprise represented by strategies and resources in processes being converted. Process results and outputs are intended to stakeholders, from which the most important – shareholder – creates a roof of the house (enterprise).
An enterprise performance measurement system proposal is presented in the Annex No. 1.

A position of a **shareholder** on the top of the model is not accidental. He is eminently interested in excellent performance of the enterprise, particularly in output based on a chosen financial indicator. Two groups in the model were considered: an owner, the holder of a part, it is a typical shareholder. The other group consists of other capital providers although they are not real shareholders.
Other stakeholders contribute to shareholders to be satisfied: satisfied customers, employees, surrounding, i.e. suppliers, public, government institutions, and so on. Due to their satisfaction, the results required by shareholders are achieved. Moreover, an enterprise expects to receive something from those stakeholders. For the customers, suppliers and governmental institutions to be satisfied, processes should take place in the enterprise. Processes fulfill a chosen strategy and require resources of the enterprise. Strategies and resources serve as pillars vital for processes to be implemented.

On the model base another stakeholder - **employee** – was placed. Also his position is not accidental. While shareholders are considered to be an element that covers the model the employees including their knowledge and skills serve as a base for enterprise functioning. It was considered not only a physical number with some qualification structure but also employees as an intellectual capital. At this point, overlapping of employees as stakeholders and also employees as one of the enterprise resources occurs. A model and relations in it are governed by the effort to depict imply relationships and simple presentation of causal relations so that it is understandable

also to small and medium-size entrepreneurs. As for them, it is supposed mostly the absence of economic knowledge and, further, it is supposed a more simple organization chart including not too much complex and branched activities.

Some potential indicators and directions of strategies, resources and processes application as for individual stakeholders were presented. This list can be considered to be something like inspiration, guideline to consideration of the appropriate environment of any particular enterprise. Indicators differ in any enterprise depending on its activity, size, vision and age. They decisively are changeable they will develop like the particular enterprise, too. New 'customized' indicators shall be created to a particular enterprise. This part of the project will be developed.

A choice of particular indicators is fully dependent on particular conditions. It is only possible to present recommendations regarding a number of indicators. The effort to comprise as much as possible by measurement results in the introduction of a higher number of indicators that can become contra productive. Clogging by data that often are not interpreted in mutual relationships does not bring a required result but, on the contrary, it shall only mean the cost. On the other hand, a too small number of indicators need not necessarily to provide required cognitive ability for decision-making by managers. According to author's opinion, two or three indicators at requirements and offer of a stakeholder, one or two indicators for strategies, resources and processes, is sufficient for a small and medium-size enterprise, particularly taking into account he identifies indicators for each key stakeholder chosen by him.

A fulfillment of a model for particular chosen key stakeholders is the first stage for a performance measurement system development. The next step should concentrate on particular stakeholders in a point of view of other stakeholders. It will be found that some indicators will be equal (but they can draw from different bases) and, on the contrary, can evoke an undesirable response in some limit case in a system model of another stakeholder. To put in compliance particular requirements, processes, strategies and resources created in indicators while keeping causal relationships shall mean another stage in development of the whole system, which is already a completely individual matter. Commonly it can be indicated as a simple flow chart, which example is presented in the Annex No. 2.

The functionality of a proposed model was verified by its fulfilling by particular key indicators with particular mutual relationships to the conditions of a chosen business entity. A small family firm acting in the field of civil engineering and wood exploitation and processing, was chosen. Choosing particular indicators, the first step for relationships of a stakeholder – enterprise was to clarify answers to the questions Why to measure, How to measure and What to measure. Here Neely's et al. approach (2001) was applied.
The clarification of answers to these questions in the mentioned sequence helps to identify suitable indicators. These two ones were gradually identified for each relation of an enterprise – chosen key stakeholder, chosen strategy for mutual satisfaction, efficiency of a process providing a strategy and required resource. An answer to the question what to measure for the indicator to be simple, understandable, clear and to bring expected information was complicated and much work demanding. Identified key indicators were completed in a flow chart created already before, performing comparisons for indicators to be in compliance for chosen stakeholders. Causal relationships inside the performance measurement system in a chosen enterprise are presented in the Annex No. 3.

At the next stage, it was necessary to make a precise definition for each indicator, disabling any deviations in interpretation, since only in this way a particular indicator will be useful and will not decrease a value of a developed measurement system. To provide more detailed interpretation, a particular process on a lower hierarchic level will be chosen, on which the simulation of a potential development of indicators of its outputs in connection with changes in conditions at the input can be made. This part of research project should be developed, too.

7. Conclusion

The emerging competitive environment creates a press to revaluate a nature of enterprise reporting and execute changes in performance systems measurement. The performance and its monitoring has become not only a tool of competitiveness but also enterprise existence precondition. A measurement of performance of an enterprise is an integral component of a way how to find a condition the enterprises is situated in, and what will lead it to act in a way which will help it to survive and benefit. It is natural that enterprises will be more interested in the performance measurement particularly supported by the new information technologies.

The mentioned research project joined the proposal to already existing number of models and approaches. It will reflect the effort of enterprises to provide reproduction of enterprise processes, first of all in order to survive and not to have to use a crisis management tool.

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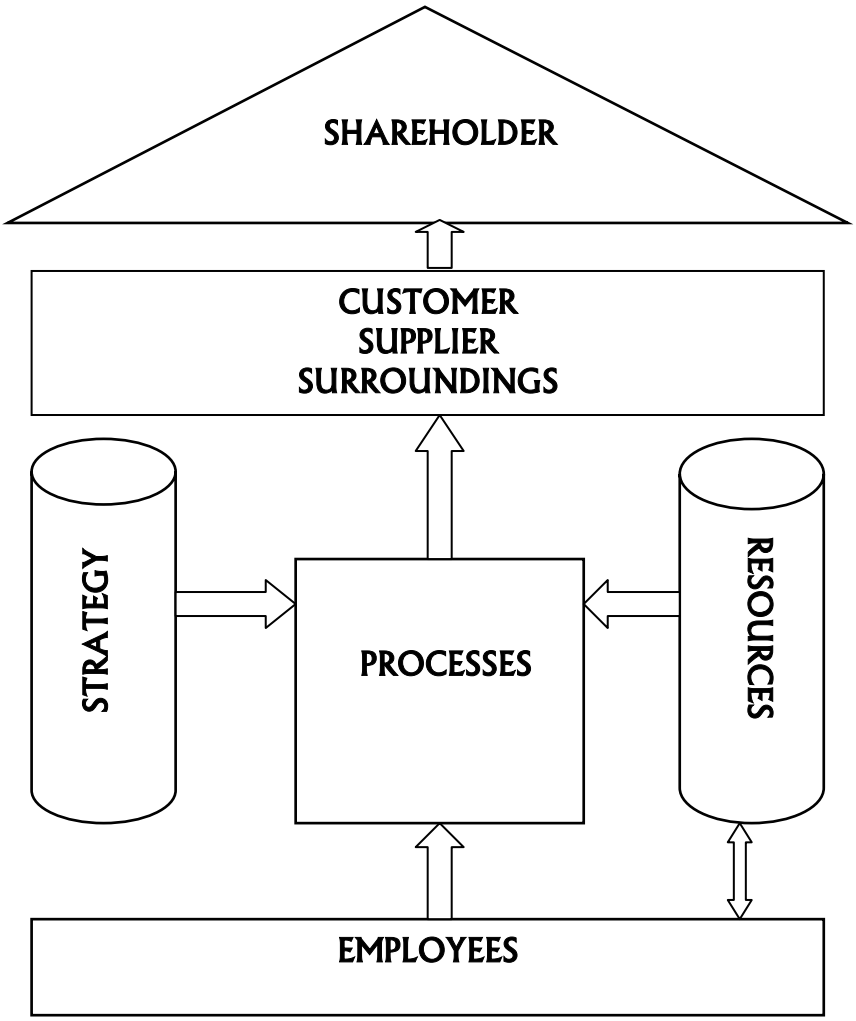
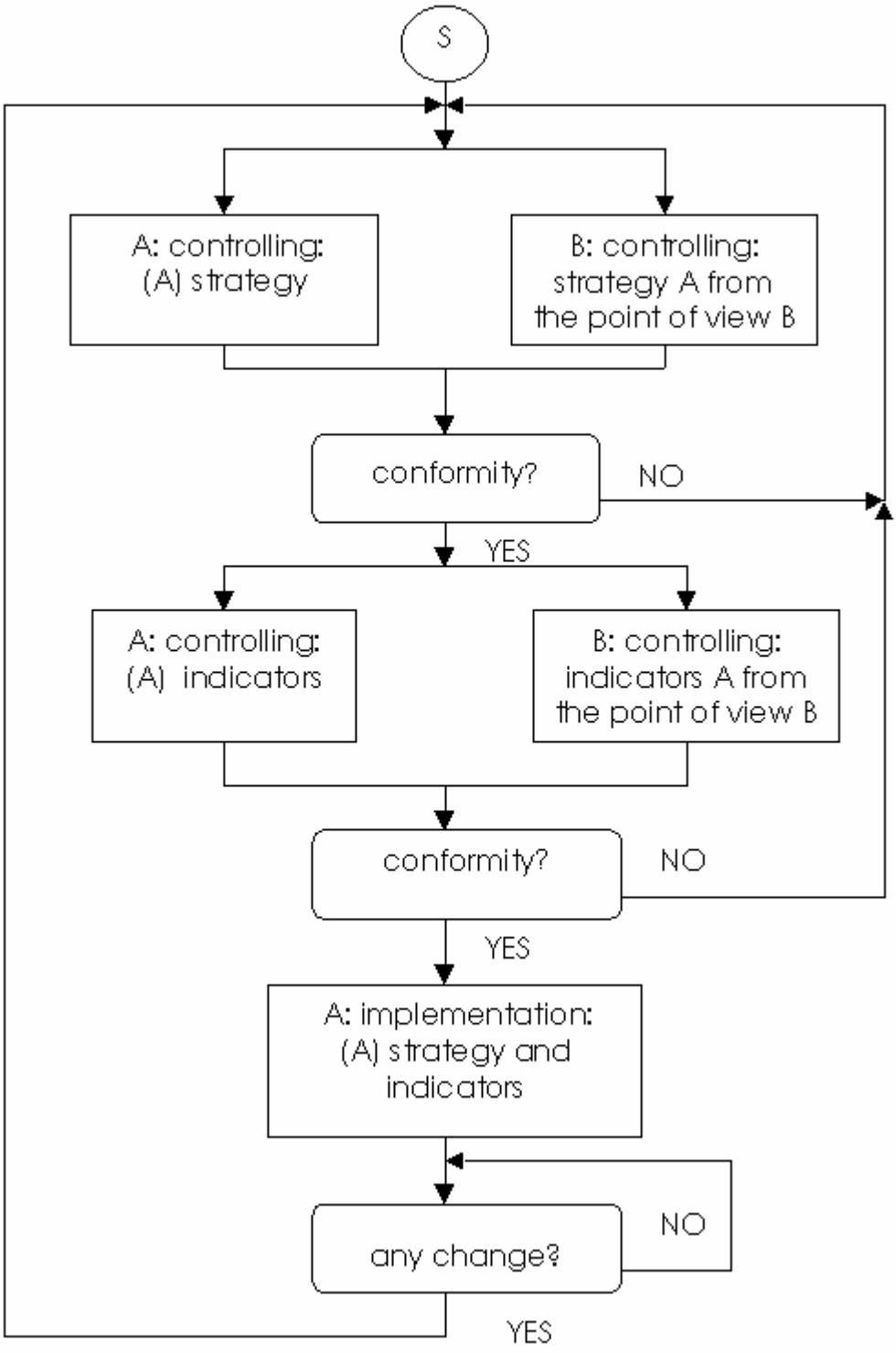
Annex No. 1: An enterprise performance measurement system: 'House' Model



Annex No. 2: Flow Chart: Cooperation: The evaluation of the strategy of stakeholder „A“ from the point of view of the stakeholder „B“



Annex No. 3: The performance measurement system in the chosen firm: relationship: cause - result