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## **Foreword**

### **Tradition and Innovation – International Scientific Conference of (Agricultural) Economists Szent István University, Gödöllő, 3-4 December, 2007**

Tradition and Innovation – International Scientific Conference was held on December 3-6, 2007, in the frames of the anniversary programme series organized by the School of Economics and Social Sciences of the Szent István University. The aim of the conference was to celebrate the 50th anniversary of introduction of agricultural economist training in Gödöllő, and the 20th anniversary of the School of Economics and Social Sciences, which was founded in 1987.

The articles published in the special edition of Bulletin 2008 of the Szent István University were selected from the 143 presentations held in 17 sections of the conference and 30 presentations held at the poster section. The presentations give a very good review of questions of national and international agricultural economics, rural development, sustainability and competitiveness, as well as the main fields of sales, innovation, knowledge management and finance. The chairmen of the sections were Hungarian and foreign researchers of high reputation. The conference was a worthy sequel of conference series started at the School of Economics and Social Sciences in the 1990s.

## **Előszó**

### **Tradíció és Innováció – Nemzetközi Tudományos (Agrár)közgazdász Konferencia Szent István Egyetem, Gödöllő, 2007. december 3-4.**

2007. december 3-6. között a Szent István Egyetem Gazdaság- és Társadalomtudományi Kara (SZIE GTK) által szervezett jubileumi rendezvénysorozat keretében került megrendezésre a Tradíció és Innováció – Nemzetközi Tudományos Konferencia, amelynek célja volt, hogy méltón megünnepelje a gödöllői agrárközgazdász képzés fél évszázada történet elindítását, s ugyanakkor a Gazdaság- és Társadalomtudományi Kar 1987-ben történt megalapításának 20. évfordulóját.

A Szent István Egyetem által kiadott Bulletin 2008 évi különszámában megjelentetett cikkek a konferencián 17 szekcióban elhangzott 143 előadásból, illetve a poszter szekcióban bemutatott 30 előadásból kerültek kiválasztásra. Az előadások jó áttekintést adtak a hazai és nemzetközi agrárközgazdaság, vidékfejlesztés, a fenntarthatóság és versenyképesség kérdései mellett az értékesítés, innováció, tudásmenedzsment, pénzügy fontosabb területeiről is. Az egyes szekciók elnöki tisztjét elismert hazai és külföldi kutatók töltötték be. A konferencia a Gazdaság- és Társadalomtudományi Karon az 1990-es években elkezdett konferencia sorozat méltó folytatása volt.

Dr. László Villányi  
Dean / dékán



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## FORECASTING MODELS IN MANAGEMENT

ŠINDELÁŘ, JIŘÍ

### Abstract

This article deals with the problems of forecasting models. First part of the article is dedicated to definition of the relevant areas (vertical and horizontal pillar of definition) and then the forecasting model itself is defined; as article presents theoretical background for further primary research, this definition is crucial. Finally the position of forecasting models within the management system is identified. The paper is a part of the outputs of FEM CULS grant no. 1312/11/3121.

**Keywords:** management tools, subjective and objective methods, managerial process

### Introduction

Current market environs can be distinguished with high competition, discontinuity of changes, considerable complexity and mainly extreme dynamics. These aspects, which can be seen as only general proclamations, have great impact on key business functions: price policy (possibly whole supply-demand area), innovations, personal management and many others. A company is exposed to external impulses of opportunity and threats that were not usual in history. And only if the company should be safely governed, all managers have to be able to expertly estimate future development of key variables. With respect to the fact, that article objects at managerial implications of forecasting procedures, it is at the beginning suitable to define basic categories and terms:

**Forecasting** gathers experiences and findings about origin and content of ideas showing the future made by rational and logical mental procedures. It is interested in logic of these procedures and informational values of visions (so called forecasts) arouse for human acting [Petrašek, 1994]. Tvrdoň [Tvrdoň, 2004] further distinguishes: forecasting may be understood in the widest sense as a part of theory about future knowledge; in narrower sense, the forecasting is observed as a part of methodology in concrete sciences. Considering the theme of the article, the forecasting will be further understood in narrower, that is methodological sense.

**Forecast** can be defined as systematically derived recall with reliable assessment about future state of reality, which will happen under certain circumstances and also in certain time. It is usually composed of set of alternative possibilities of future and different approaches towards them. Opposite to the simple prediction, the forecast was reached by application of forecasting methods, on basis of conducted activity, with usage of scientific knowledge [Buřita, 2001]. Halaxa (in [Tvrdoň, 2004]) offers similar view: forecast is understood as an expert statement connected to unknown future event; it' s content is probable recall of future with relatively high degree of certainty. Both definitions are clear enough so that other explanation is not necessary.

Basic device for future forecasting are **forecasting methods**. Those represent complex theoretical and practical rules leading to creation of forecast with certain information value [Buřita, 2001]. Tvrdoň [Tvrdoň, 2004] in this context adds: forecasting methods used in the construction of economic forecasts proceed from finding, that economic development has it' s

objective rules, logic and order. During relatively short period many heterogeneous forecasting methods and techniques were elaborated. It is caused mainly by the richness of the macroeconomic phenomena (which make the subject of forecasting), different degree of complexity, in connection to business and macroeconomic strategies, different length of projected period and by individual attitude towards authors' team. This high number of parameters led to creation of wide and very heterogeneous set of forecasting methods, for which established terminology, appearing out of their character, is used:

1. **Subjective methods** (qualitative, judgmental) come from experiences, judgments and opinions of experts [Buřita, 2001]. It is discussing methods based mainly on questioning of experts – competent expertise, whose characteristic sign is transaction of solution of forecasting duty for the most part on the questioned; surely it is not the reason for widespread use of these methods. Complex of the questioned then represents forecasting team and quality of the forecast relies primarily on it's composition [Tvrdoň, 2004]. Subjective methods (due to it's intelligent – heuristic base) present much higher usage in creation of active, explorative forecasts compared to objective methods (polar thought, that is the fact that objective methods provide much higher usage in creation of passive forecasts, can be accepted only in terms of possibly lower work difficulty, that means higher effectiveness).

The most frequently mentioned methods in this group are: **Delphi method, brainstorming, document analysis method, analogy method, questioning method** and others.

2. **Objective methods** (quantitative) in contrast with qualitative methods apply statistical analysis of past data in different temporal views. Forecaster identifies the way of forecasts with usage of historical data, to which forecaster adds suitable mathematical model and by means of model formulae predicts points in future. This attitude presupposes that already identified way for forecast continues also to the future [Buřita, 2001].

There are two main groups of objective methods [Buřita, 2001]:

- **Time series**
- **Econometric or causal**

Definitions and typology mentioned above respect wide range of scientific consensus, similar can be found in works of reputable foreign authors – e.g. [Armstrong, 2001] or [Delurgio, 1998].

### **Objective and methodic**

**Objective:** Main objective of the article is to define forecasting models (stressing their difference from current forecasting devices) and to identify their position in terms of management systems.

**Methodic:** Two main sets of methods were consequently applied to reach the above written objectives. In the first phase, wide document analysis was performed and some modeling methods were used. In the second phase conclusions were derived in sense of article objectives by using methods induction, deduction and synthesis of facts.

**Methods used:** document analysis method, modeling method, synthesis of facts method, inductive and deductive methods.

## Results

According to the author, the newly evolved research element of forecasting models can be defined from the point of two dimensions: horizontal and vertical. Meanwhile the first defines forecasting models using moment of ignition of forecast information, the second one presents definition using utilization of derived information.

### *Horizontal pillar of definition of forecasting models – difference using moment of ignition of forecast information*

Horizontal definition of forecasting models comes from so called the moment of ignition (genesis) of final forecast information. Essentially one talks about decomposition of forecasting procedure in direction to their classification from the basic units. As it was said in the introduction, generally the basic units of forecasting are forecasting methods. Nevertheless, are they really the most basic units? At least in the area of subjective methods one has to refuse such a consideration. The headline of definition of forecasting methods and their typology used in the first chapter suggests that aggregation and synthesis of people knowledge, emotions and thoughts – mental models happen within them; either in form of expert opinion in the Delphi method or in form of brainstorming impulses. To define the term mental model itself one can use work of many authors, but the classical one remains the definition of Kenneth Craik [Craik, 1943], who in his break-through publication in year 1943 postulated, that the mind constructs "small-scale models" of reality that it uses to anticipate events. Mental models can be constructed from perception, imagination, or the comprehension of discourse. They underlie visual images, but they can also be abstract, representing situations that cannot be visualized. Each mental model represents a possibility. Mental models are akin to architects' models or to physicists' diagrams in that their structure is analogous to the structure of the situation that they represent, unlike, say, the structure of logical forms used in formal rule theories. Kleiner [Kleiner, 2007]) well extends this definition with regard to theme of article: mental models refer to semipermanent tacit "maps" of the world which people hold in their long-term memory, and the short-term perceptions which people build up as part of their everyday reasoning processes. According to some cognitive theorists, changes in short-term everyday mental models, accumulating over time, will gradually be reflected in changes in long-term deep-seated beliefs. Delimitation of the forecasting mental models can be done simply by extending Craik's classical definition: **forecasting mental models are "small-scale models" of reality created by human mind that are used to anticipate future development.** It is obvious that these models make the basic, pioneer elements of forecasting procedures in the area of subjective methods, which are so far minimally worked out in the scientific literature.

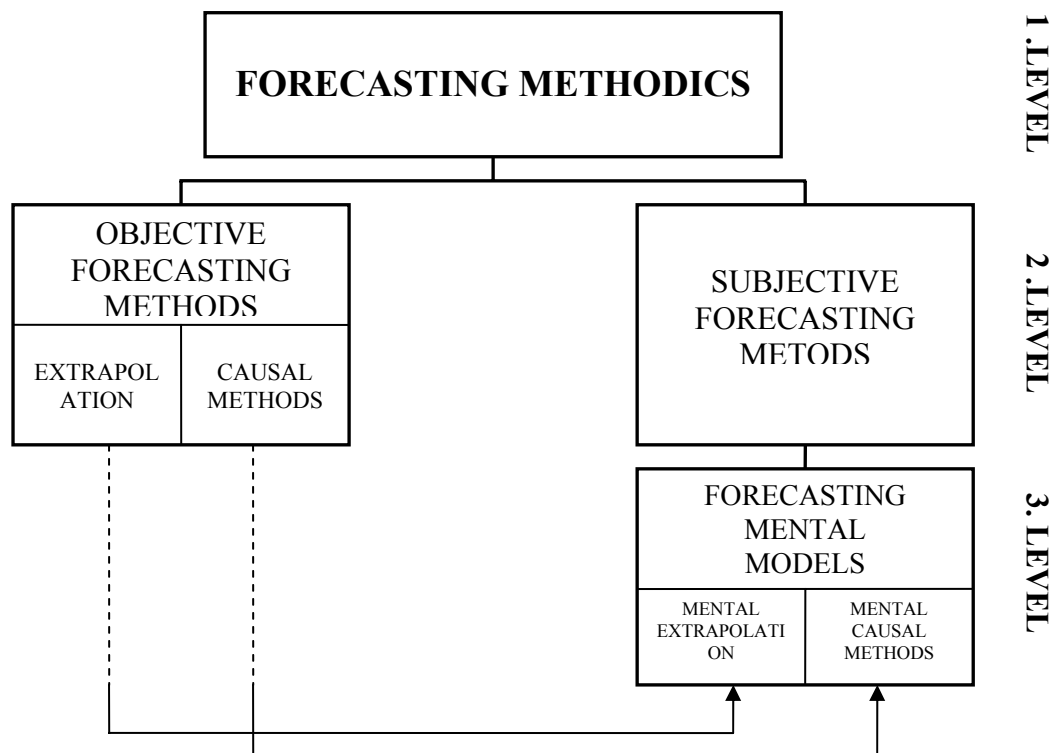
What is the situation in the second group of forecasting methods – objective ones? Of course, one may perform decomposition to the separate units of calculation algorithm. However, owing to the character of objective forecasting methods and to the theme of article, such process would result into meaningless, scientifically unimportant conclusions. Far more interesting fact is application of the two basic types of objective methods (extrapolation and causal method) in the area above written forecasting mental models. It is not possible to ignore the reality that the mentioned dichotomy of objective attitudes presents – in reality – two basic attitudes in forecasting. **And that is in the subjective area as well.** In other words, it is possible to make a conclusion (which has rather character of research hypothesis), that also in case of mental models one can implement division of other two units: **mental extrapolation and mental causal modeling.** The individual mental model is afterwards created again by the combination of these two mental operations. To sum up this thought, the

author points back to the objective forecasting method and it can be stated that in this area no further typologies will be done.

In case that the area of mental models was defined as the original level of forecast procedures, in the next level must necessarily remain the forecast models on their own. These were already defined, and therefore the author refers back to the relevant part of chapter one.

The last level of forecasting procedures, so broadly described, is the area of forecasting methodic (sometimes as well “composite forecasts” [Armstrong, 2001]). These may be defined on the very general level as integration of forecasting methods [Sanders et al. 2004]. Basically, one is referring to application of several methods in a particular system for derivation of sought forecast. Obvious advantage (but possible disadvantage) in forecasting methodics are effects coming out of the combination of forecasting methods, Armstrong [Armstrong, 2001] in this connection observes: despite the objections, combining forecasts is an appealing approach. Instead of trying to choose the single best method, one frames the problem by asking which methods would help to improve accuracy, assuming that each has something to contribute. Many things affect the forecasts and these might be captured by using alternative approaches. Combining can reduce errors arising from faulty assumptions, bias, or mistakes in data. Dozens more examples are possible to find in, e. g. [Nikopolous et al. 2003] or [Sanders et al. 2004].

Forecasting methodics presents the last diagnosed level of horizontal classification; the final situation (representing the end of this chapter) may be expressed in following schema:



**Scheme no. 1: Horizontal classification of forecasting procedures**

Source: own research.

***Vertical pillar of definition of forecasting models – difference according to the usage of information***

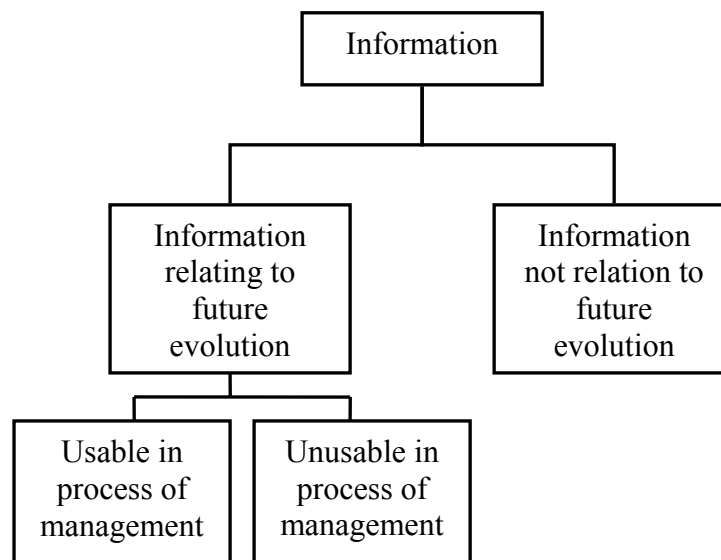
The second view of the area of forecasting procedures, which will allow construct an aggregate definition of forecasting models in management, lies in a distinction of the

information usage derived with forecasting procedures. The “information” itself may be defined from different point of views: more practical one creates a part of information management: the information is understood as data, to which its user ascribes a particular meaning in the process of its interpretation [Vodaček et al. 1997]. Meanwhile, cybernetic attitude understands the information as a quantity reflecting numeral reduction in entropy within a system after receiving particular message [Hron, 1988]. The author respects both attitudes, however, with respect to the composition of scientific thought in this article, the cybernetic one is preferred.

‘Information’ (standing on its own) is possible to classify with inexhaustible ways, hence the following classification is created purely with purpose in the objective of consolidation of vertical aggregate definition of forecasting models in management. Information is within the frame classified according to several criteria:

- 1) Is information connected to future progress?
- 2) Is information exploitable in the process of management?

The scheme designed below represents the final vertical determination of forecasting models in management:



**Scheme no. 2: Vertical classification of information purpose**

Source: own research.

### ***Definition of forecasting models***

After the construction of both pillars in the research area (that is the forecasting procedure and classification of information), one may approach the actual derivation of the definition of aggregation:

- with all above mentioned procedures in case of the horizontal view of the area of forecasting models in management: forecasting mental models, forecasting methods and forecasting methodic
- from the vertical point of view in forecasting models in management, one can use information related to future progress and to exploitability in the process of management

The definition, which is the main theme of the article, appears as soon as one aggregates both restrictive conditions: one understands forecasting models in management as fragrant

procedure that serves to derive information about future progress of variables used in process of management.

***Position of forecasting models in the frame of managing systems***

If one wants to be really engaged with studying of forecasting in managing, or more precisely, in organizing consequences, it is more than advisable to proceed from the systematic conception of organization, which can provide complex, synthetic, integrated, coordinated and interdisciplinary solution [Hron, et al. 2002]. The initial step in application of the systematic view is to carry out decomposition of system/company that is on a particular level for a research of informational process necessary. Before the actual beginning, it is suitable to generalize the forecasting procedures as a part of managerial process, that can be characterized as purposely organized succession of separate activities, which transforms incoming sources (data and information, potential of workers, raw materials, materials etc.) into a required outputs (intellectual solution, products, services etc.) [Vodaček et al. 1997].

In this moment, one can approach the actual definition of system – that can be specified as purposely defined set of components and structures between them, and they show either particular features or particular behavior as a complex [Vodaček et al. 1997]. In this case, one presupposes a model of standard behavior of business organization, but for what remains, it is not significant. For other research thoughts about the defined system is primarily much important configuration of components (in other words subsystems):

- managing subsystems
- components of managing subsystems (Px)
- subsystems in different level
- staff subsystem<sup>1</sup>

and structures between them:

- managerial processes (MPx) – within a company – isolated components/processes of virtual character created temporarily by managing activity
- all other existing links are links carrying information.

Hereafter, Vodaček [Vodaček et al. 1997] in this connection draws the reader 's attention to the importance of the structure that is the composition or the way of organization of components and structures. In the presupposed model is used managerial structure of hierarchy without any other specification.

No sooner than now, one may express the proposed system graphically (scheme no. 3):

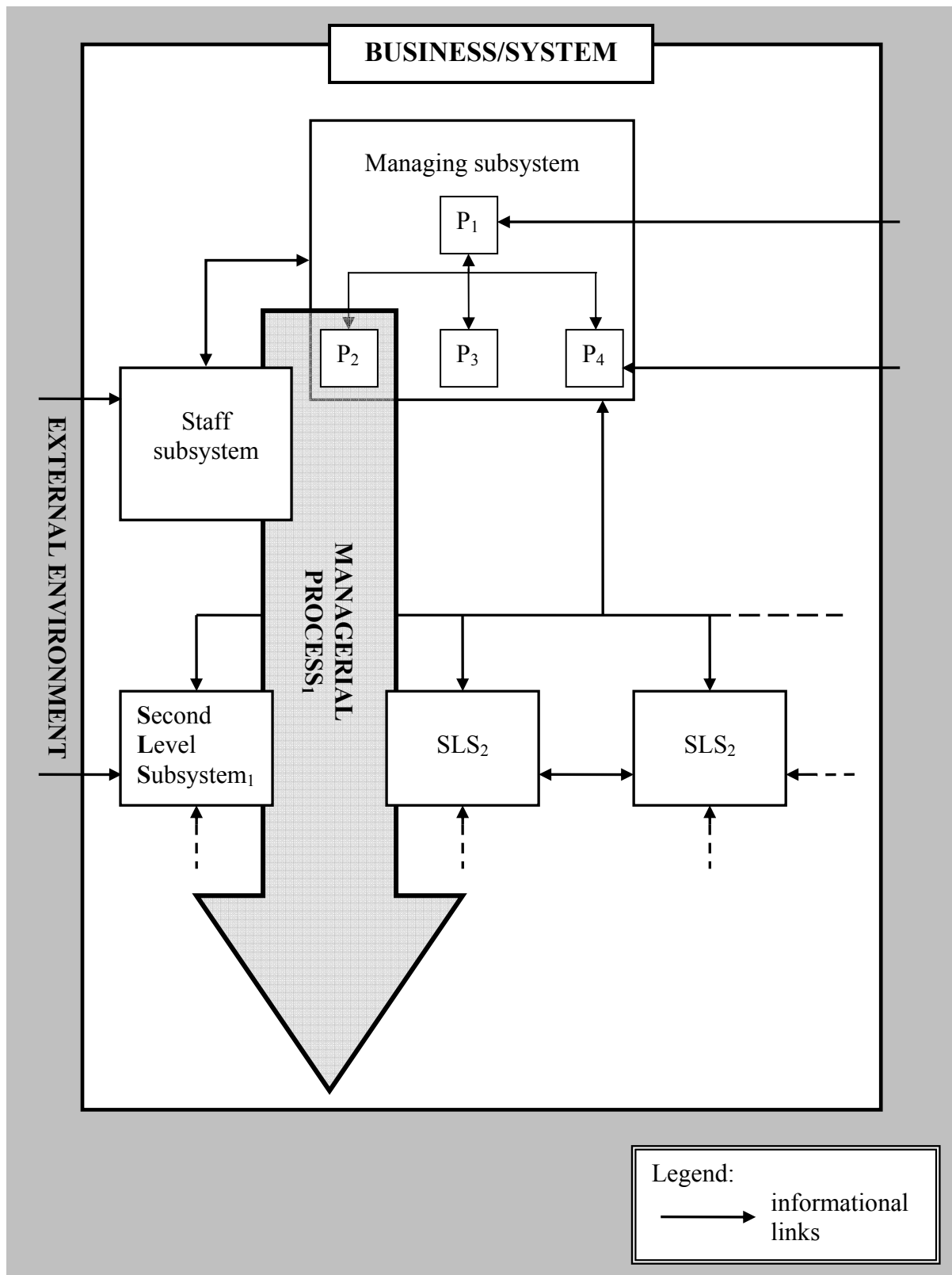
Problems of managing systems is for the most part problems of an informational need (will to behave with higher certainty) [Fiedler et al. 2005] and means of its saturation. System communicates (realizes information flow) with external environment as well as with its internal subsystems and elements, some of which perform staff tasks as it was stated above. Acquired information<sup>2</sup> is then exploited in managerial processes, in which, despite their virtual character, the transformation and synthesis of information occur. If one will follow the general methodology of information transformation (according to [Vodaček et al. 1997]), he may also realize decomposition of these processes and draw attention to higher distinctive level, where these general parts (subsystems) of process can be detected:

- selection or acquisition and decoding of information
- processing of information
- interpretation of results

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<sup>1</sup> These units (subsystems) acquire and mainly transform information for managerial purpose; by this they prepare working conditions for line managerial units (subsystems) [HRON 1988].

<sup>2</sup> In the context of information management one would talk rather about data, for details e.g. [Vodaček et al. 1997].



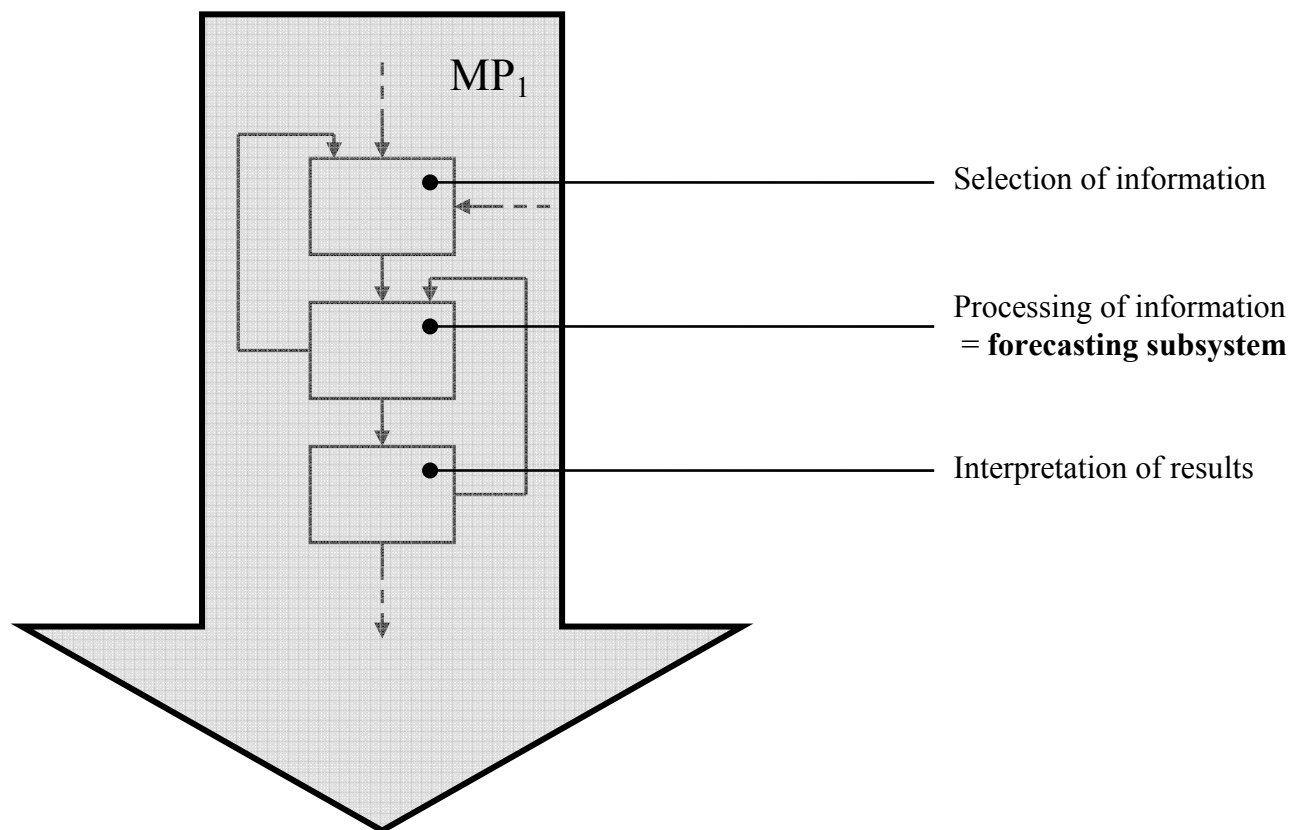
**Scheme no. 3: Business system with managerial processes**

Source: own research.

Configuration of components and links within the frame of managerial processes is usually somehow complicated and hardly generalized; it is hence useful to focus only on the area of forecasting procedures that means on forecasting subsystem. That can be identified in accordance with above described methodology as a “processing of information” part.



Therefore it is necessarily anticipated by choice and decoding of information and it is followed by interpretation of results. However, the relation among these three variables is not set only by the sequential vertical links of information, but also by the character of feedback impedance [Hron, 1988]. This matter can be easily justified: informational choice itself is heavily influenced by complements and links contained in subsystem of forecasting. Similar relationship logically governs between forecasting subsystem and the last phase of information transformation – interpretation of results. Final situation is graphically described below:



#### **Scheme no. 4: Decomposition of managerial process**

Source: own research.

In the previous scheme, the forecasting models in management represent content of forecasting subsystem, which means their position within the frame is utterly defined. They have a character of components of managerial processes, that has direct impact on behavior and form the point of view of the metasystem level their outputs crucially determine concreteness and inconcreteness of management system.

#### **Discussion and conclusions**

The presented article answers two main questions: What are the forecasting models in management like? What is their position within the management system? With respect to the fact, that these questions represent the very beginning of research of forecasting models, following answers will be needed:

- What is the content of the forecasting models?
- How are the individual models used in practice and what are they complex relations to the stable forecasting methods?

- How do the individual models reduce the inconcreteness within the management systems?
- What are the basic economic operational parameters and determinants of individual models?

In research area, suitable enough appears to be application of system approaches, as well as focus on the reduction of inconcreteness, which is really the desirable output of these models, within the management systems. Diagnostics of this is as well one of the most presupposed added value of the project.

Aside from positive results, one can await as well results somehow negative – well, the difference between forecasting models and forecasting methods necessarily has to be one of the research hypotheses. Nevertheless, it is inevitable to note, that even denial of the chosen way enriches the scientific community. But this and other questions can be answered only by the planned primary research.

## References

- ARMSTRONG, J. A. [2001] Forecasting principles. International Journal of Forecasting. ISSN 0169-2070.
- ARMSTRONG, J. A. [2001] Combining forecasts. International Journal of Forecasting. ISSN 0169-2070.
- ASHBY, W. R. [1961] Kybernetika. Praha: Orbis. ISBN unassigned.
- BUŘITA, L. [2001] Prognostické metody a jejich využití v rezortu MO. Brno: Univerzita Obrany. ISBN unassigned.
- DELURGIO, S. A. [1998] Forecasting principles. New York: The MacGraw – Hill companies, Inc. ISBN 0-256-13433-2.
- FIEDLER, J., HORÁKOVÁ, J. [2005] Komunikace v řízení. Praha: CREDIT. ISBN 80-213-1295-5.
- HRON, J., TICHÁ, I. [2002] Strategické řízení. Praha: CREDIT. ISBN 80-213-0922-9.
- HRON, J. [1988] Teorie řízení. Praha: CREDIT. ISBN unassigned.
- NIKOPULOUS, K., ASSIMAKOPULOUS, V. [2003] Theta intelligent forecasting information system. Industrial Management and Data Systems. p. 711/726. ISSN 0263-5577.
- PETRÁŠEK, F. [1994] Základy hospodářské prognostiky, část I.. Praha: VŠE v Praze. ISBN 80-7079-281-7.
- SANDERS, N. R., RITZMAN, L. P. [2004] Integrating judgmental and quantitative forecasts: methodologies for pooling marketing and operations information. International Journal of Operation & Production management. p. 514/529. ISSN 0144-3577.
- TVRDOŇ, J. [2004] Ekonometrie. Praha: CREDIT. ISBN 80-213-0819-2.
- VODÁČEK L., ROSICKÝ A. [1997] Informační management. Management Press, Praha. ISBN 80-85943-35-2.
- CRAIG, C. [1943] Mental models. Online: <http://www.jaist.ac.jp/>. 10.11.2007.
- KLEINER, R. [2007] Psychology of organizational learning. Online: <http://www.solonline.org/>. 10.11.2007.

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