

# ENTERPRISE DIAGNOSTICS AS PART OF COMPANY MANAGEMENT

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*This paper deals with the key factors of enterprise diagnostics and describes research findings by abstract models. Enterprise diagnostics deals with the recognition and evaluation of all aspects of company processes and with the therapy devices (measures to improve the initial stage), facilities for a better recognition and effective regulation of the complicated processes of company management. It is considered to be a young science, therefore it draws from experiences of other sciences and continually improves the systematization of its method. The aim of the article is to show results of research (realization of stage analyses) in this topic area, our own deductions and to trigger a discussion which would raise enterprise diagnostics to a qualitatively higher level.*

**Keywords:** enterprise diagnostics, diagnosis, therapy, problem, healthy company.

## 1. Features of enterprise diagnostics, its development and present state

A company, as an object created by people, is a living, dynamic and open system, i. e. an organism. Like other living organisms, only those stay alive that are able to respond and adapt to changes in the surroundings, i. e. to the new conditions. For a company, it is necessary to observe, evaluate and test the ways in which it is adapting to external and internal influences that verify the regular and the particular diagnostics.

**Enterprise diagnostics is a science about identification and evaluation of**

- the level of a company's functioning as a system,
- a company's total value (financial standing),

- the strong and weak sides of a company,
- problems and critical events,
- unused chances and potentials.

Formulation and verification of approaches, methods and techniques that allow the realization of these activities is also part of enterprise diagnostics [6].

Enterprise diagnostics presents a process consisting of parts (recognition and research of actual stages, their valorisation, comparison with testing criteria, evaluation of comparison, diagnosis and therapy) whose result is an assessment of the diagnosis, i. e. the present stage of a company and the design of its therapy – the way how to eliminate defects and achieve equilibrium. The correctly specified diagnosis generally guarantees a successful final therapy.

The beginnings of enterprise diagnostics reach back to the first half of the 20th century and William Kent is considered its first promoter. His follower Elton Mayo tried to elaborate a consistent method of diagnostics and settle the therapeutic methods for limitations detected in a company. This subject was further dealt with by János Kornai (Hungary) and Jozef Kašík (Czechoslovakia) with a number of colleagues from Faculty of Economics, VŠB-TU of Ostrava.

At present, the dominant subject dealing with the problematic of enterprise diagnostics is the VŠB-TU in Ostrava, which is building knowledge from the past and cooperates mainly with the Faculty of Operation and Economics of Transport and Communications, University of Žilina, and also with Akademia Ekonomiczna in Krakow and universities in Bratislava. The authors dealing with this topic report the results of their

research at international conferences which are organized by Faculty of Operation and Economics of Transport and Communications, University of Žilina, every two years.

## 2. Enterprise diagnostics as part of company management

Management as a science belongs to social sciences. It presents an extensive set of theoretical knowledge and practical experiences arranged according to certain points of view.

M. Michalka thinks that enterprise diagnostics is a young science of company management [6].

Enterprise diagnostics as a scientific discipline must have an object of research, relation with the other science disciplines, terms, definitions, models, methods and techniques and reflection in practice (Fig. 1).

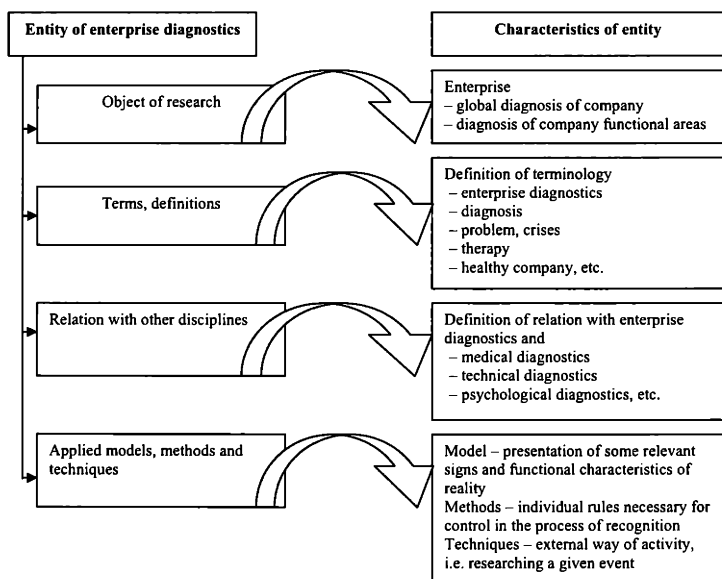


Fig. 1: Entities of enterprise diagnostics

### *2.1. Object of research in enterprise diagnostics*

The object of research in enterprise diagnostics is a company. The characteristic of a company depends on the approach. It can be defined as general, from the aspects of macroeconomics or microeconomics, a systemic approach, from the viewpoint of the Trade Act.

In general, the company can be defined as an object created by people, which serves for uniting human sources, tangible and intangible components, and financial means for the optimal achievement of aims whilst keeping all principles of efficiency of the means and time [8].

The company as a human creation is imperfect, with lots of mistakes and defects.

Enterprise diagnostics, and above all applications of the process of diagnostics, needs company definition as a system because of its complexity. It is necessary to identify its single parts (entities, elements) and their interactions (feedback), the reason being the required abstraction from irrelevant features and relations. In general, a system is understood as a definite set of elements and relations among them, which as a whole show certain characteristics or behaviour.

A company is an institutional organization based on the production of goods or offering services for fees. As elements and relations of a company, it is possible to mention inputs and outputs, primary and auxiliary processes and materials, financial and informational flows.

Types of systems:

- physical systems – lifeless systems, where physical laws are sufficient for understanding relations among the system's elements
- living systems – organisms – are more complicated systems than physical systems, because their main characteristic

– vitality – isn't possible to deduce correctly by definition of its structural parts social systems – are the methodological principle of recognising real or abstract logical units and their structures as an interaction of parts [8].

Company is a dynamic system, because it develops in time, responds and adapts to changes in the surroundings. Its stability is secured only in a certain time segment. For a company's survival, vitality is necessary.

Company is an open system, which is manifested in its relations to the surrounding elements. Relations to them are necessary for a company's existence because a company always exists in a certain time and space reality. The surrounding elements are the subjects and objects that influence the company and are influenced by a company. First of all, for a company, it is important to analyse several elements of its surroundings and predict the development of the basic relations and contexts. The surrounding elements are presented in Fig. 2.

Classification of company's surroundings:

- Macro-surrounding (indirect): its basic elements are the political, economic, natural, demographic, social, technical factors. A characteristic mark of macro-surrounding activity is its relation to all companies in the state.
- Direct surrounding: suppliers, clients, creditors, competitors, banks, advisory, advertising and financial agencies, etc.

Surrounding elements represent the external effects on a company, which in terms of diagnostics are separated into opportunities, current (neutral) effects and dangers.

The present globalisation tendencies and turbulent development stress the importance of company surroundings and the necessity to predict its development tendencies.

The systemic approach to the enterprise implies several problems, which are:

- the integral parts of a company are people (living elements) and artificial

materials (lifeless elements) which are in relative interaction.

- the parts of a company are static and dynamic elements. Specific elements

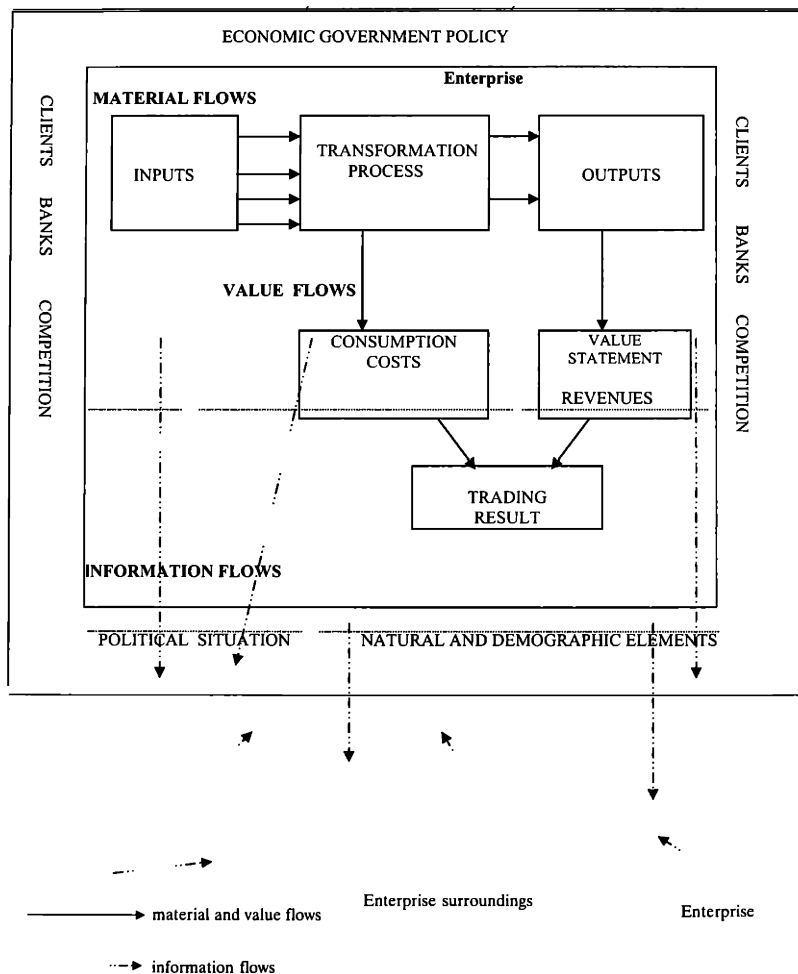


Fig. 2. Graphical model of open dynamic company system

and relations are present relatively always, others are signalized by frequent changes. The description of a company may be accurate only with unchanging elements and attributes.

- living elements (staff, owners) may cause an uncertain company's behaviour.
- openness of the system – definition of borders between the system and its surroundings (effects of social, informatics and material-energetic elements and their carriers (staff) of the company).

An important role in the systemic approach belongs to modelling by which it is possible to capture the components of a company (inputs and outputs), processes (primary and supported), and internal flows (material, financial, information). An important part of the company model is capturing the relations inside the company and relations between the company and the surrounding elements, which are shown in Fig. 2.

The enterprise as a system is specified by behaviour, i. e. it has an estimated and semi-finished system of goals. The first step in the hierarchy of enterprise goals is a top one, which

is specific by its generality to all companies. It is the long-time development and growth of a company in quantitative and qualitative references. The second goal – strategic targets – are specified (together with the third goal) by partial aims. A system of company goals can be modelled, e. g., according to Fig. 3.

## 2.2 Basic named set exercised in enterprise diagnostics

Specific concepts are characteristic of several enterprise research areas. For the area of enterprise diagnostics, these are the following: diagnostics, diagnosis, problem, crisis, enterprise, healthy enterprise, process, enterprise processes, method of enterprise diagnostics. Their definition is necessary for the most precise and best-tuned specification.

The definition of the basic concepts used in enterprise diagnostics is necessary for the right orientation in the area. The research and evaluation of the available settings shows that the concepts of enterprise diagnostics and diagnostics of company may be regarded as synonyms.

### **Enterprise diagnostics = diagnostics of company**

deals with recognition and evaluation of all aspects of company processes and activities, such as

- the level of company's functioning as a system,
- the company's total value (financial standing),
- strong and weak sides of the object,
- problems and critical events,
- unused chances and potentials.

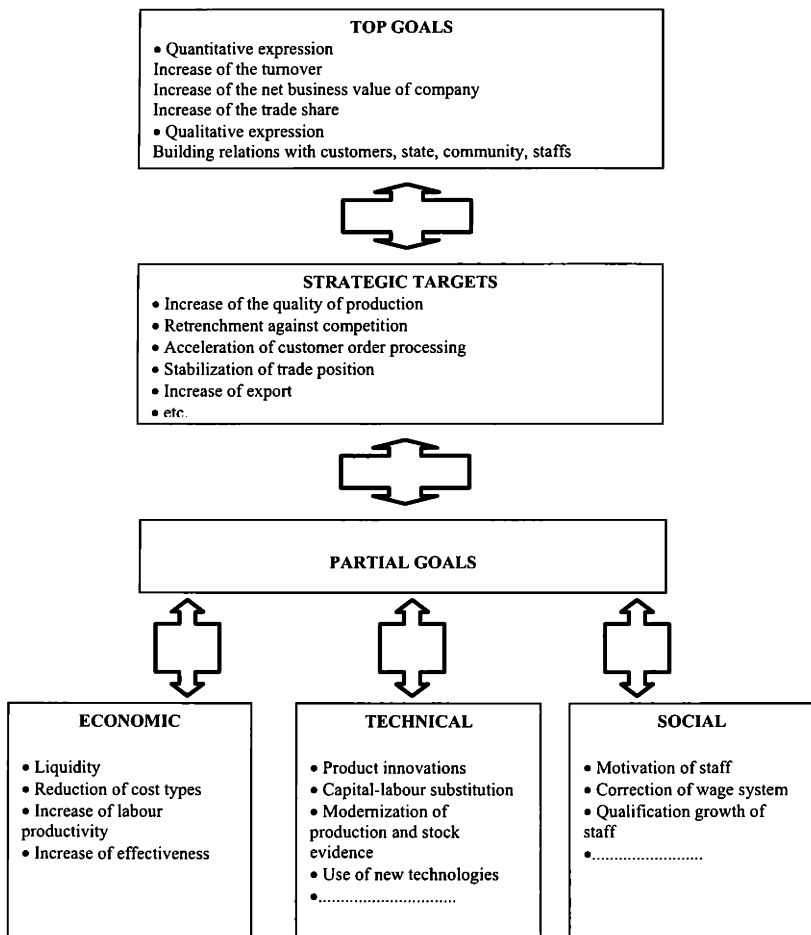
The approaches, methods and techniques that allow realization of activity are part of diagnostics as a special theory of company management [6].

### **Diagnosis**

Introduces results of diagnostic processes, sets initial conditions in which a company is situated [6].

### **Problem Crisis**

is an unwanted, time-limited process of separate events that threaten the existence of a company. From the aspect of area, we differentiate between global crisis (whole company) and partial crisis (financial, sale, personnel, etc.) [5].



*Fig. 3. Structure of company's goals*

**Healthy enterprise**

is a company that keeps a dynamic balance between

- chances and risks,
- inputs and outputs,
- costs and revenues,
- long-term and short-term targets,
- private and social utility, etc.

A healthy enterprise by adaptability criteria responds to varying surroundings and conditions [5].

**Enterprise**

is a living, open and dynamic system that presents institutional production organization based on production of goods or rendering services for fee.

**Process**

is the element of company behaviour that shows what the enterprise is doing or should do. The process may consist of simpler elements – activities [8].

**Enterprise processes**

secure the performance of enterprise targets and are reasons for its existence. They mostly depend on enterprise features (industrial concern, agricultural, commercial, banking institution). The primary processes of industrial enterprise are supply, production and sale [2].

**Diagnostics process**

is a process that consists of the following activities:

1. Initial phase (selection of diagnostics object, selection of behaviour characteristics, formulation of testing criteria).
2. Description of situation and behaviour development of diagnostic object.
3. Diagnostics test.
4. Diagnostics analysis.
5. Diagnostics synthesis.
6. Final phase.

*Or*

1. Research and knowledge of the present situation.
2. Evaluation of the situation.
3. Comparison of detected results with optimal ones.
4. Evaluation.
5. Setting the diagnosis.
6. Therapy.
7. Final phase.

### **3. Analogy of enterprise diagnostics with other scientific disciplines**

Enterprise diagnostics as part of company management has an interdisciplinary character and is based on knowledge of scientific disciplines (economy, mathematics, cybernetics, medicine and technical diagnostics). Enterprise diagnostics is a young aspect of company management, therefore in its development it uses

experience of other sciences, mainly of medicine, technical and psychological diagnostics.

Accepting the knowledge from medical diagnostics is predetermined by the fact that person and enterprise have different elements and relations as systems, but a lot of targets and behaviour are identical or similar; e. g. the top target of a company is its long-term survival and growth, and the primary target of person

is to live to a high age in mental and physical wellness. The object of medical diagnostics is to diagnose the disease and identify it in appropriate terms. The object of enterprise diagnostics is to recognise problems in a company and their symptoms. J. Kašík, a M. Michalko et al. – authors of the book “Enterprise diagnostics”, suggested an analogy of enterprise diagnostics with medical, technical and psychological diagnostics.

No source of information about pains and illnesses is present in the practice of enterprise diagnostics. The symptoms and statements have to be newly described or detected within each diagnostic process in an enterprise. Existence of an integrated set of generalized, evaluated and classified information about the reasons and statements of illnesses of the human organism is a great challenge for all experts who deal with the health and sickness of an enterprise [6].

The target of technical diagnostics is to test the functionality of individual components of technical facilities. In technical diagnostics, enterprise diagnostics is based on, e. g., the following facts:

- the scope of technical diagnostics problems is wide and related to other technical fields; the scope of enterprise diagnostics problems is still wider, because of its results from all aspects of enterprise activities;
- it is possible to effectively diagnose technical facilities when we can segment them into elements (knobs, components) that carry out specific functions. The necessity of systemic approach to an enterprise (components, relations-processes) follows from the aspect of enterprise diagnostics;
- technical diagnostics (determining the technical status of equipment) uses non-destructive methods. The process of en-

terprise diagnostics cannot be realized with termination of all processes and implied a normal running of company operation. If a deeper diagnosis is required, it is necessary to build a model of functional part of the enterprise system and to use simulation methods.

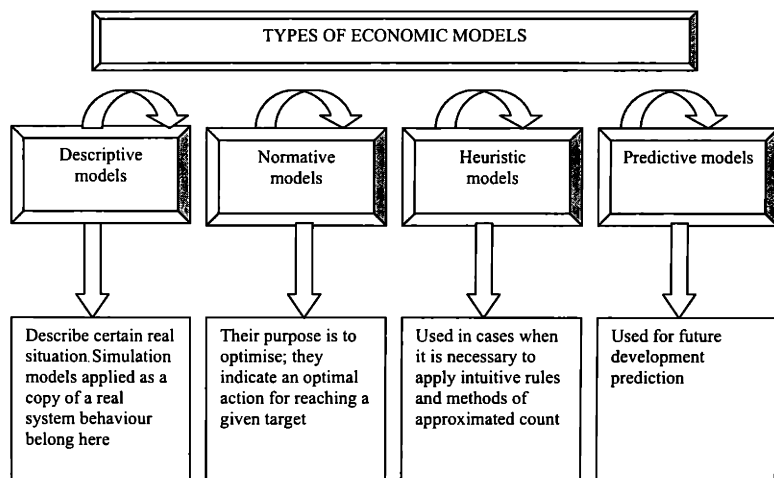
#### **4. Models, methods and techniques of enterprise diagnostics**

The research of economic reality through enterprise diagnostics is realised on economic models, because the process of diagnostics is realised within the normal running of a company. A model is based on economic information; eventually it can be a purposeful presentation of some essential signs and functional features of reality with the help of selected expressive facilities. A model gives answers to the questions that have induced its construction. It is possible to define four basic types of economic models (Fig. 4).

Enterprise diagnostics uses methods and techniques (tools) mainly to describe the stage and development of an object, i. e. of a company as a whole or of its separate functional areas. Methods and techniques make it easier to understand the behaviour of the object under diagnostics. Methods are individual rules which are necessary to follow in certain processes of knowledge. Induction, deduction, abstraction, modelling and comparison belong to basic methods used in economic theory [7]. Beside these basic methods, enterprise diagnostics uses methods of economic analysis, mathematical-statistical methods, methods of mathematical and operation analysis.

Under the term ‘technique’ we usually understand an external concept of activity, i. e. research of a given case [1]. Application of research, analysis, synthesis, experiment and veri-





*Fig. 4. Types of economic models*

fication has its place in the techniques of enterprise diagnostics.

## 5. Conclusions

The article is a result of summing up and documentation of the basic definitions and relations of enterprise diagnostics. It includes the global diagnostics of a company and the diagnostics of its individual functional parts. For enterprise diagnostics to support effectively the general business success, it needs to diagnose a wide scale of enterprise activities. In conclu-

sion, it is necessary to point out that enterprise diagnostics is not an economic analysis. Enterprise diagnostics includes all relations and connections of an economic event, also its evaluation, comparison with test criteria, valuation of the comparison, giving a diagnosis, and therapy.

This article is an introduction to the area of enterprise diagnostics, which invites other related publications and may lead to information exchange.

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### Summary

The article is focused on enterprise diagnostics, which is one of the areas studied in cooperation by universities such as VŠB-TU of Ostrava, University of Žilina, Akademia Ekonomiczna in Krakow and university in Bratislava. It summarizes the results in the area. Firstly, features of enterprise diagnostics and its development are described, followed by characterization of their entities and the definition of the object in enterprise diagnostics. Enterprise diagnostics is a young aspect of company management: it deals with the recognition and evaluation of all aspects of company processes and with the subsequent therapy. Tools for a better recognition and effective regulation of the complicated processes of company management are proposed. The definitions of the basic concepts used in enterprise diagnostics are

given and the analogy of enterprise diagnostics with other scientific disciplines is shown. The basic concepts of enterprise diagnostics are: diagnostics, diagnosis, problem, crisis, enterprise, healthy enterprise, process, enterprise processes, methods of enterprise diagnostics. The analogy with other scientific disciplines can be found mainly in medical, technical and psychological diagnostics. The models, methods and techniques of enterprise diagnostics are presented. At this stage of research, there are no actual examples of company processes that could be verified by empirical data assertion mentioned in the paper, but a wider discussion in this area is still going on, so all views, suggestions or notes are welcome as they the basic knowledge of enterprise diagnostics to a qualitatively higher level.

## ĮMONIŲ DIAGNOSTIKA – JŲ VALDYMO DEDAMOJI

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### Santrauka

Straipsnyje analizuojamos įmonių diagnostikos problemos, kurios yra mokslinių tyrimų, vykdomų bendradarbiaujant su universitetais partneriais (Žilino universitetu, Krokuvos ekonomikos akademija, Bratislavos universitetu), dalis. Apibendrinami ir pateikiami šio bendradarbiavimo, tiriant įmonių diagnostikos problemą, rezultatai. Pirmiausia straipsnyje nagrinėjamos įmonių diagnostikos ypatybės, raida ir esmė, apibrėžiamas tyrimo objektas. Autorė pažymi, kad įmonių diagnostika yra jauna jų valdymo proceso dalis. Įmonių diagnostikos priemonėmis analizuojami ir vertinami procesai, vykstantys įmonėje, ir siūlomos adekvacijos „terapijos“ priemonės, darančios veiksmingą įtaką sudėtingiems įmonių valdymo procesams. Pateikiama ir kitų įmonių diagnostikai artimų metodų, kurie taikomi kitose mokslinėse srityse. Apibrėžiamos pa-

grindinės sąvokos, būdingos įmonių diagnostikos sričiai: diagnostika, diagnozė, problema, krizė, įmonė, sveika įmonės būklė, raida, įmonės raida, įmonių diagnostikos metodas. Analogų įmonių diagnostikai galima rasti tokiose mokslinėse srityse – medicininė, techninė ir psichologinė diagnostika.

Straipsnio pabaigoje pateikiami įmonių diagnostikos modeliai, metodai ir technika. Be to, pažymima, kad šioje problemos tyrimo stadijoje nepateikiami faktiniai duomenys, įmonėse vykstančių procesų pavyzdžiai, kurie galėtų būti patvirtinti remiantis straipsnyje pateikiamais empiriniais duomenimis. Ši mokslinių tyrimų sritis yra vis dar diskusijų objektas, todėl visos nuomonės, pasiūlymai ar pastebėjimai yra sveikintini ir gali pakelti žinių apie įmonių diagnostiką lygį į aukštesnę pakopą.

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