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Changes in the methodology of business model design

Změny v projektování modelů podnikatelských subjektů

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Abstract: The paper provides a summary of some results achieved through research carried on within the framework of the institutional research project MSM 411000012 "Resource-based Approach to Competitive Advantage Building". Interim results have led to partial changes in the methodology of business model design. The methodology is adapted with the application of strategic management principles and thus provides for consideration of changes within the external environment and the influence of these changes on the internal structure of a business. Methodological steps and their purpose are briefly described in the paper. The paper concludes with recommendation for the application of the adapted methodology.

Key words: competitive advantage, strategic management, business modelling

Abstrakt: V příspěvku jsou v syntetické podobě shrnuty některé poznatky z řešení výzkumného záměru MSM 411000012 „Zdrojový přístup k tvorbě konkurenční výhody". Dosavadní řešení výzkumného záměru vedlo k úpravám metodického postupu projektování modelů podnikatelských subjektů. Upravená metodika je zasazena do kontextu principů strategického řízení a umožňuje zohlednit změny ve vnějším prostředí a jejich vliv na vnitřní uspořádání podniku. Jednotlivé metodické kroky i jejich účel jsou v příspěvku stručně popsány. Příspěvek uzavírají doporučení pro užití upravené metodiky.

Klíčová slova: konkurenční výhoda, strategické řízení, projektování modelů podnikatelských subjektů

INTRODUCTION

An essential constant in a business development is change. The ability to accommodate change is a basic criterion of managerial success. The behaviour a business defined as an organisational system within the environment of national economy depends on the type of ownership relations, natural-technical and human resources, and level of managerial processes.

The aim is thus to create the environment of the national economy inclusive of rules for a functioning market mechanism in order to enable every organisational system not only to survive, but to be developed providing efficient usage of its resources in accordance with social requirements. In the frame of strategic management, it is necessary to adjust a business structure and operations to the conditions of external environment. It is necessary to use not only generally valid principles of modelling, but to respect changes of external environment during the processing of new business models.

MATERIAL AND METHODS

The aim of the proposed principles of business modelling within the context of external changes is to provide for:

- efficient functioning of all the entrepreneurial, decision making, administrative, service, consultancy, and advisory subjects;
- efficient utilisation of ownership relations, natural-technical and human resources as well as managerial processes.
- the setting up and maintenance of the equilibrium among the above mentioned subject and between these subjects and the external environment. External environment changes, after exceeding the sensitivity threshold, activate either the defensive mechanisms of a business internal environment or causes adequate changes in their internal environment, both in their general structure and particular structures.

Methodical approaches:

The systems theory, principle of analogy, methods of induction and deduction, and behavioural models are basic methodical approaches to the business modelling. In addition to these general methods and approaches, it is also possible to apply strategic management methods, enabling the specification of analysis of internal and external environmental conditions in a business, as well as methods dealing with deviations of business equilibrium to its internal and external environments.

RESULTS AND DISCUSSION

The procedure of business modelling is very demanding on its own and it should be a matter of teamwork. On the basis of gained experience, it is possible to recommend the following methodology of business modelling, which consists of ten phases:

1 Business identification.

This basic and starting phase includes
– determination of initiator and business establishment
– its capital and professional equipment and availability
– determination of basic stakeholders.

2 Vision and goals formulation.

Business vision and mission determine its purpose and meaning. Business goals are then the specification the business mission in both horizontal and vertical division. The business goals specify the business mission on operational levels.

3 External environment analysis.

Successful development of a business is conditioned by creating equilibrium with the external environment. For that reason, detailed knowledge of it is necessary. The common base of external environment analysis is qualitative and quantitative evaluation of the external environment, as well as transfer of qualitative characteristics into quantitative ones and their comparison and assessment.

4 Internal environment analysis.

Harmony of a business with the external environment is conditioned by the balance between the utilisation of business resources and its processes and the evolutionary tendencies of the environment.

Analysis includes:
– an analysis of the level of current resources, their structure; and analysis of processes in the case of reorganisation
– an analysis of potential resources and processes.

The conclusions of internal environment analysis can be summarised in the strengths and weaknesses overview of the business; these can be assessed against the external environment (opportunities and threats) and based on SWOT analysis, general prospects of the business success can be derived.

5 Specification of the basic parameters of resources and processes.

A business is characterised by
– configuration structure, which is typical especially for the resource-based approach
– process structure, which, on the contrary, is typical for management-by-objectives (MBO) approach.

6 Specification of organisation and management structure using methods of organisation theory.

7 Determination of basic organisational norms, which create a phase space for implementation of particular configuration and process structures.

8 Choice of successful project and strategy variant.

The resource-based and MBO approaches and the finding of competitive advantage through cost-leadership or differentiation lead necessarily to alternative solutions. It is possible to choose the most efficient variant by using decision-making methods.

9 Determination of trajectory to meet the set goals and objectives.

10 Formulation of the business mission, which briefly and clearly formulates aims and future vision, determines methods of goal achievement, ways of meeting customer requirements, relation to stakeholders, and forms of gaining competitive advantage.

The above described methodology has to be applied with regard to particular conditions, especially concerning changes in the internal and external environments. In the frame of the agrarian sector, it is especially necessary to take into account changes which have taken place recently. These changes are provided with the use of SWOT analysis of rural development and multi-functioning agriculture (see Hrabankova, Brandova 2001).

Strengths:

– provable and documented separation of the territory in intensive areas with powerful agriculture and in the areas with extensive agriculture where the farming is oriented especially to the countryside maintenance and to the development of out-of-production functions of agriculture,
– experience with mass production technologies and procedures of farming in intensive areas including qualified labour,
– higher average size of agricultural farms,
– positive course of transformation from the point of development of the labour productivity in the sector,
– sufficient knowledge - except for those of marketing - of the managerial staff, and the knowledge of the need of the sustainable development of rural areas,
– attractiveness of the countryside in the extensive areas of mostly mountainous type and foothills type and its exploitation for recreation and active spending of free time, high recreational potential of the rural areas,
– outstanding large scale protected areas (national parks, protected landscape areas), natural reserves and cultural sights,
– considerable area of afforestation exceeding one third of the state territory with outstanding representation of mountainous forest,
– sufficient water sources on most territory, sufficient supply of the rural areas with electricity,
– the Czech agriculture forms a part of relatively developed socio-cultural environment of Central Europe,

- the transformation of forest businesses into market-oriented businesses and established competitive environment,
- almost completed process of restoration of the ownership rights to the forests,
- economic effectiveness of the forests management as a whole,
- contribution of the forests as renewable resource, the growing significance of its out-of-production functions.

Weaknesses:

- lower technical-technological competitiveness of the agricultural sector and processing industry in certain industries, even when costs are comparable with costs in the EU countries,
- unsatisfactory sales of agricultural products, relating especially to delayed payments for delivered agricultural products, and with the pressure of foreign supermarket chains on the primary producers and processors,
- loss of positions in the foreign markets, decrease of goodwill of the trademarks, absence of strong export companies, permanent decrease of the share of domestic food in the internal market and increase of the negative balance of the agricultural trade,
- insufficient co-ordination of activities among the individual entrepreneurs in agriculture, insufficient co-ordination of the development programs of the rural areas,
- obsolete technical equipment, unsatisfactory maintenance of the buildings, internal debt of the sector, especially concerning the soil production and its maintenance, restriction of use of fertilisers and pesticides, insufficient facilities in most villages,
- lack of investment sources, high debt and restricted access to credit for farmers,
- lack of starting capital for new activities,
- low capital merger of primary agricultural producers with the processing industry and trade following continuous outflow of capital from agriculture and from the rural areas,
- low level of added value of the agricultural products,
- not yet sufficiently elaborated agricultural policy on regional level,
- slow speed of restructuralisation,
- extending of the areas of set-aside land (including the maintained ones),
- slow renewal and need of intensification of prevention in the areas struck by natural calamities,
- insufficient legal conscience of farmers, not yet completely stabilised legal frame for farming,
- large number of private owners of small area forests, with the process of their association just starting,
- insufficient ecological stability of forest ecosystems (inertia of action of immisions influence, long distance transfer of harmful substances, unfavourable composition as to the type and age of part of the forests),
- low exploitation of wood as a continuously renewable raw material,

- high share of labour in the costs of the forest management, low labour productivity.

Opportunities:

- restructuralisation of agriculture for the purpose of the maintenance of sustainable and non-sustainable natural resources, better allocation of agricultural production in order to improve its quality, safety and animal welfare conditions and to decrease unit production cost including added value increase,
- young farmers support, organic agriculture support and small rural entrepreneurs support,
- possibilities of environmental protection agricultural programmes utilisation in relation to Council Orders No. 1257/99 (EEC),
- modernisation and improvement of technological processes in agriculture, processing industry modernisation and its capacity restructuralisation,
- introduction of product regional certification,
- support and development of partnership when realising rural development projects, co-operation with non-agricultural entrepreneurs and small holders,
- multifunctional agriculture activity demand,
- multifunctional forest role improvement,
- land arrangement outer instrument existence for landscape renewal and creation and its ecological stability increase,
- enforcement of non-productive forest functions by government support,
- small forest holders association into effective holdings,
- communication with public focused on forest significance and forest products, especially wood,
- water management development and quality improvement of water management infrastructure,
- capability of co-operative production structure to adapt to market economy conditions,
- regional sources utilisation and multifunctional agriculture development possibility utilisation,
- agri-tourism and rural tourism development,
- agri-production utilisation for non-food-processing usage and sustainable energy resources (still being suppressed by the existing energy conception of the Czech Republic),
- agri-production and sales informational system improvement,
- project selection and allocation of activities providing strategic agriculture development pillars including forestry and water management and taking part in pre-accession support within the SAPARD programme.

Threats:

- rural population ageing especially in less favoured areas,
- lack of job opportunities in the rural areas,
- deepening traffic service problems,
- rural technical infrastructure missing,
- lack of capital available in businesses,

– lack of government funds to co-finance programmes and projects following or so-called financial needs necessary for "starting" new projects,
– lack of natural catastrophe prevention means,
– more extensive frequency calamity production,
– unfavourable macroeconomic development of national economy,
– slow restructuralisation and modernisation process in agriculture, slow non-effective technology, increasing production costs, non-utilised buildings increasing overheads,
– insufficient land arrangement support, soil cultivation and landscape improvement,
– soil erosion threats and surface water drain increase, non-coordinated counter-flood technological and ecological measures,
– unsuitable human resource structure in agriculture (high average age, structurally unsuitable labour force qualification),
– decrease in the agriculture field of study interest,
– insufficient and delayed reaction to the advancing world agrarian market globalisation, uncertain future,
– lack of means of young family support in rural areas.

CONCLUSIONS

The success criterion is in the art of change management, not only within company re-organisation but also in the new business model design. It relates to the art to respect specific conditions within generally valid conditions, to understand and apply development tendencies of business resources and their configuration.

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Nominal and effective manifestations of some trade policy instruments

Nominální a reálné projevy některých nástrojů obchodní politiky

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Abstract: The paper deals with the custom tariffs comprehensive manifestation on industry structure of national economy using nominal and effective tariffs. It was shown that nominal tariff increase of one product can decrease effective tariffs of others commodities. Consequently, it is difficult to provide market protection of one industry without decreasing market protection of other ones.

Key words: trade policy, nominal and effective tariffs, market protection

Abstrakt: Článek se zabývá komplexním působením celních tarifů na odvětvovou strukturu národního hospodářství s využitím nominálních a reálných celních sazeb. V článku je dokladováno, že zvýšení nominálních tarifů jednoho produktu sníží reálné tarify jiných komodit. Pak je obtížné poskytnout ochranu trhu jednoho odvětví bez reálného snížení ochrany trhu jiných odvětví.

Klíčová slova: obchodní politika, nominální a reálné celní tarify, ochrana trhu

INTRODUCTION

In connection with the approaching term of the Czech Republic accession into the European Union, the contributions and disadvantages of free trade are still more intensively analysed in comparison with non-liberalised trade relations. The EU applies many protective tariff and non-tariff measures of economic and administratively-technological character towards its trade partners. Businesses of the associated countries will have an opportunity to enter the EU market with their access to the EU, however, the current EU 15 countries will export their products on the markets of the newly accepted states as well. Trade in the framework of the enlarged European Union will become an internal trade which is relatively stabilised according to the EU principles. The EU trade policy towards the third countries will, however, apply many protective measures also in the future, notwithstanding all liberalisation tendencies.

The aim of this contribution is to analyse economic manifestations of one of the older instruments of the trade policy – custom tariffs for the branch structure of national economy with the use of nominal and real custom tariffs. The knowledge mentioned in the article has arisen in the frame of solving the IVZ MSM 411100013 "Effective integration of the Czech agrarian sector into the frame of the European agrarian structures – the prerequisite of sustainable development".

ANALYSIS OF THE NOMINAL AND REAL CUSTOM TARIFFS

One of the significant parts of the foreign trade influence on domestic economy investigation is the analysis of structural changes invoked by foreign-trade relations. An answer to this question can be derived from supply functions in research of custom tariffs influence which enables to explain how the custom duty of particular products affects the product level in other branches and countries. From Chart 1, it has resulted that import tariffs for clothes originally used in Portugal in bilateral relations with England increased their prices at the Portugal (P) accession into the EU. The result was an increase of clothes production in (P) and decrease in vine production. However, at the same time it decreased the clothes prise in England (A) by decrease of their production through the fall of foreign demand an this in turn increased the vine production in England.

In the Figure 1, the curve OJ^* represents a supply function (P). A supply function (A) is represented by the curve OJ. In the initial situation without protection measures, an equlibrium situation described by the point W comes, if the relative clothes price for (P) and (A) is given by the OP_w line slope. The clothes import in (P) in amount OV is paid by the vine export into (A) in the amount VW. When (P) uses import custom duties and the returns are allocated in the vine branch, the relative
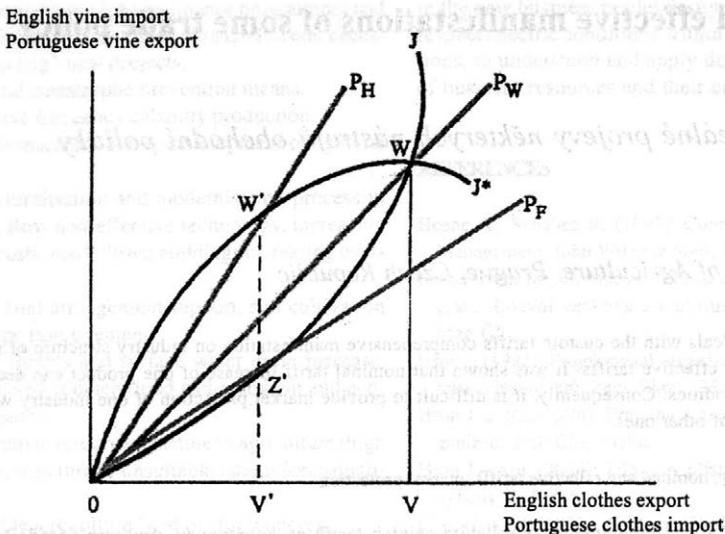
Figure 1. Custom tariffs in two-product foreign trade

clothes price in (P) is given by the steeper slope of OP_H. In (A), the relative price is given by a slower slope of OP_F. The custom tariff is $W'Z'/Z'V'$. The equlibrium for (P) is now W', in which the vine supply (P) is $V'W'$ and its demand for clothes import is OV'. The custom tariff measured by vine is $Z'W'$. Because it is completely consumed in the vine branch, (P) supply of vine is lowered to $V'Z'$. The equlibrium for (A) is Z', in which (A) supply of clothes is CV' and demand for vine $V'Z'$ is satisfied by export from (P).

The impact of custom tariffs of one product on the production extent in other branches can be explained also on the base of relative input prices. By increase of the domestic prices e.g. of steel by a custom tariff for imported steel, the supply of the automobile industry will be limited as well as the production of other branches production, which depend on steel consumption. If the steel custom tariff is high enough, it can more than balance the protective influence of customs on the automobile industry and on the other steel using branches. The non-direct effect of custom tariffs can be reckoned by computing the real custom tariff for every econom activity – production of products or providing of services. This rate measures protection provided by every economic activity more precisely and thus also the way how a custom tariff influences the allocation of domestic resources.

For explanation of the real custom tariffs calculation, let us consider the production of meat products in small economy. Suppose that 1 ton of wood for smoking and 2 tons of fats are consumed for 1 ton of meat products. Because of the small size of the considered economy, prices in the world markets are given: meat production 100 USD/t, wood 35 USD/t and fats 20 USD/t.

Suppose that the country will impose 50% custom tariffs on the imported meat products. Price in the domestic market will increase from 100 to 150 USD and meat industry will not be operating at a loss until wages and costs of other factors are not higher than 75 USD. Let us explain this problem in other way: 50% custom tariff for imported meat products is equivalent to 200 % custom tariff in relation to the value added in meat industry. It will increase the disponible resources to satisfy wage demands and payment of other costs from 25 to 75 USD per 1 ton which is the increase by 50 USD or 200%. Acceptable custom tariffs from value added represent the real custom tariffs in the meat industry. The example documents that it can be completely different from the nominal (ordinary) custom tariff for the imported meat production.

Other possibility consists in both clearance of the imported fats and imported meat products, in both cases let us suppose 50 % custom tariff. Material cost necessary for production of meat products will increase to 95 USD [(2 × 20) × 1,5 = 60 + 35]. Processing branches of meat industry will not experience a loss if wages and costs of other factors are not higher than 55 USD [150 – 95 = 55]. The additional custom tariff for the imported fats reduces the real tariff for meat industry from 200 to 120%. To satisfy wages and other costs, the resources will increase from 25 to 55 USD per ton, i.e. by 30 USD instead of the original 50 USD at clearance of only the meat products.

Two conclusions result from these calculations. First of all, if we investigate the way custom tariffs influence production and profit in domestic branches, we should use the real custom tariffs instead of the nominal ones. Second, real custom tariffs in a particular branch depend on the structure of its costs and on the level of the nominal custom tariffs of both its production and its inputs.

DERIVATION OF REAL CUSTOM TARIFFS

For their derivation, let us suppose:

Imported goods x, produced by labour L whose wage is w and the capital K revenue of which is r, consumes intermediate production in the amount y_i. The world price of goods x is p and of intermediate product p_i

In competitive conditions

$$p\,x = w\,L + r\,K + \Sigma\,p_i\,y_i \qquad (1)$$

Value added in production x is defined

$$V = w\,L + r\,K = p\,x - \Sigma\,p_i\,y_i \qquad (2)$$

If a_i is a fix amount y_i required per production unit x, then

$$y_i = a_i x \qquad (3)$$

and

$$V = (p - \Sigma\,p_i\,a_i)\,x \qquad (4)$$

F the equations (3) and (4), the extent of added value results per production unit without application of custom regulation.

$$v = V/X = p - \Sigma\,p_i\,a_i \qquad (5)$$

With the application customs t for import x and custom tariffs t_i for imports of intermediate production, value added per production unit x is

$$v' = (1 + t)\,p - \Sigma\,(1 + t_i)\,p_i\,a_i = v + (t\,p - \Sigma\,t_i\,p_i\,a_i) \qquad (6)$$

and the difference in value added represents

$$v' - v = t\,p - \Sigma\,t_i\,p_i\,a_i \qquad (7)$$

If we divided the equation (7) by v, we will learn the real custom tariff T for the branch x.

$$T = \frac{v'-v}{v} = \frac{tp - \Sigma\,t_i\,p_i\,a_i}{p - \Sigma\,p_i\,a_i} = \frac{1 - \Sigma\,t_i\,c_i}{1 - \Sigma\,c_i} \qquad (8)$$

where $c_i = (p_i\,a_i/p)$ and represents the share of intermediate production in the goods price x. If we take t from both sides of the equation, we get the relationship:

$$T - t = \frac{\Sigma\,(t - t_i)\,c_i}{1 - \Sigma\,c_i} \qquad (9)$$

from which it results:
(i) When all t_i equal t (uniform custom tariffs), the real custom tariff equals to the nominal custom tariff.
(ii) When most of t_i are higher than t, the real tariff is lower then the nominal custom tariff.

Table 1. Nominal and real tariffs of chosen commodities

Commodity groups	USA		EU		Japan	
	nominal	real	nominal	real	nominal	real
Food, beverages, tobacco	4.7	10.2	10.2	17.8	25.4	50.3
Textile	9.2	18.0	7.2	8.8	3.3	−2.4
Clothes	22.7	43.3	13.4	19.3	13.8	42.2
Leather products	4.2	5.0	2.0	−2.2	3.0	−14.8
Shoes	8.8	15.4	11.6	20.7	15.7	50.0
Wooden products	1.7	1.7	2.5	1.7	0.3	−30.6
Furniture	4.1	5.5	5.6	11.3	5.1	10.3
Paper and paper products	0.2	−0.9	5.4	8.3	2.1	1.8
Prints	0.7	0.9	2.1	−1.0	0.1	−1.5
Chemicals	2.4	3.7	8.0	11.7	4.8	6.4
Oil and oil products	1.4	4.7	1.2	3.4	2.2	4.1
Rubber products	2.5	2.0	3.5	2.3	1.1	−5.0
Minerals	5.3	9.2	3.7	6.5	0.5	−0.5
Glass and glass products	6.2	9.8	7.7	12.2	5.1	8.1
Iron and steel	3.6	6.2	4.7	11.6	2.8	4.3
Non-iron metals	0.7	0.5	2.1	8.3	1.1	1.7
Metal products	4.8	7.9	5.5	7.1	5.2	9.2
Non-electric devices	3.3	4.1	4.4	4.7	4.4	6.7
Electric machines	4.4	6.3	7.9	10.8	4.3	6.7
Transport means	2.5	1.9	8.0	12.3	1.5	0.0

Source: Baldvin et al. (1994)

(iii) When most of t_i are lower than t, the real custom tariff is higher than the nominal one.

(iv) The real custom tariff increases with the increase of nominal custom tariff of a branch product and decreases with the growth of nominal custom tariffs of branch inputs.

Concretisation of the equation (8) according to the above mentioned example is the following:

t = 50% (nominal rate for meat products)

t_1 = 0% (import of wood is not liable to customs)

c_1 = 0,35 (share of price of wood for smoking in the price of meat products)

t_2 = 50% (custom tariff of fats)

c_2 0,40 (share of fats price in the price of meat)

Accordingly,

$$T = \frac{50-\left[(0\times0.35)+(50\times0.40)\right]}{1-(0.35+0.40)} = \frac{50-20}{0.25} = 120 \qquad (8)$$

which corresponds with the previous calculation.

In practice, there are values T from negative to positive, only rarely they equal 0. For the illustration of custom tariffs in the USA, the EU and Japan their nominal and real values are shown regarding commodity aggregations in the Table 1.

From the table, it is obvious that real tariffs are in many cases higher than nominal because tariffs for a finished product are higher than for intermediate product, less frequently they are lower, when custom tariffs for inputs are higher than for the resulting product and in nine cases, the real tariffs are negative. The structure of custom protection damages these branches. It is occurs also in economies at a lower degree of development where custom tariffs for domestic inputs are so high that the branches depended on these inputs are considerably handicapped.

DISCUSSION

In the last decades, framing of the modern agricultural policy, the level and influence of protective measures on the relevant branch and economy in its summary is discussed among experts and lay public. Quantification of the domestic market protection rate belongs to demanding economic tasks regarding the possible distortion and inaccurate interpretation. Similar situation is in the USA and the EU markets protection by means of custom tariffs. With the qualification of their working, their nominal and real influence is not often considered. From the analysis, it resulted that in the USA, the nominal tariffs at 4.7 % level were in its real value at the level of 17.8% while the formal-nominal value was 10.2%.

From the analysis, it is clear that countries can protect their market by much more developed system than it is accepted in reality.

CONCLUSION

The presented procedure of the real custom tariffs calculation has in some cases its week sides considering that the calculation needs to observe some limitations. First, the pertinent economy is of a small size and does not influence world price, further there is supposed an insignificant substitution among particular inputs; other instruments of trade policy (quotas, subsidies etc.) are not considered. Second, detailed econometric models are worked out for research of the protective effects which explains what will change in each branch when custom tariff of one item changes.

From the analysis of real custom tariffs, it results that the real influence of any custom tariff depends on many other custom tariffs. Above all, an increase of the nominal custom tariff of one product can decrease the real tariff of other commodity. Then it is difficult to secure market protection for one branch without decreasing market protection in other branches.

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Modern data processing and statistical data analysis

Zpracování dat a jejich moderní statistická analýza

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Abstract: A research project "Data Processing and Mathematical Modelling in Agriculture" (Identification Code MSM 41100010) is being dealt with within the Faculty of Economics and Management, Czech University of Agriculture, Prague. Authors of this paper are hereby presenting selected outcomes of the project, obtained during 1999–2000 by the members of the Department of Statistics of the Faculty. The research project, the title of which is same as that of the branch of doctoral study at the Faculty, brings new suggestions towards raising the quality of research work of the five Departments who share the project. Moreover it brings new notions for raising the quality of teaching within the PhD and MSc study levels at the Faculty as well as suggestions as concerns selection of topical problems to be researched in the Doctoral and Master degree diploma theses. Current computer software technical capacity multiplies the availability of external data and it offers an almost unlimited choice of statistical analysis procedures. At the same time, the danger of a wrong procedure choice and of unqualified handling of data increases. Therefore, authors of the paper are introducing an information on a contemporary statistical data analysis technique called "Data Mining", in accordance with the first real outcomes of the research project. Besides that, they are looking into possibilities of application of the multivariate statistical analysis methods, at the same time stressing the necessity of a qualified approach to the analysis of properties of the data under study.

Keywords: data processing, statistical analysis, statistical software, data mining, multivariate statistical analysis, exploratory data analysis

Abstrakt: Na provozně ekonomické fakultě České zemědělské univerzity v Praze je v letech 1999–2003 řešen výzkumný záměr „Zpracování dat a matematické modelování v zemědělství" (identifikační kód MSM 41100010). Autoři daného příspěvku uvádějí vybrané výsledky řešení dosažené v období 1999–2000 řešiteli z katedry statistiky. Výzkumný záměr, jehož název je shodný s oborem doktorského studia na fakultě, přináší nové podněty ke zkvalitnění obsahového zaměření výzkumné práce pěti kateder, které se na jeho řešení podílejí. Dále přináší dosaženými výsledky řešení nové poznatky pro obsahové zkvalitnění výuky doktorského i inženýrského studia na fakultě i podněty pro výběr aktuálních témat doktorských disertačních prací i diplomových prací. Současné technické možnosti softwaru počítačů přinášejí mnohonásobné zvýšení dosažitelnosti aktuálních externích dat a téměř neomezenou škálu nabídek procedur pro jejich statistickou analýzu. Roste však současně i nebezpečí výběru nevhodných procedur statistické analýzy dat a jejich nekvalifikovaného použití. Proto autoři příspěvku v souladu s prvními vlastními výsledky řešení výzkumného záměru uvádějí informaci o moderní technologii statistické analýzy dat označované „data mining". Dále se zabývají možnostmi využití metod vícerozměrné statistické analýzy a zdůrazňují nutnost kvalifikovaného rozboru vlastností dat před jejich statistickým zpracováním.

Klíčová slova: zpracování dat, statistická analýza, statistický software, technologie „data mining", vícerozměrná statistická analýza, průzkumová analýza dat

INTRODUCTION

The Ministry of Education, Youth and Physical Training, Czech Republic, contributed in 1999 in order to support the research activities of the Universities in the Czech Republic, by approving the selected research projects, among which also the project "Data Processing and Mathematical Modelling in Agriculture" stood. Research leader of the project is Professor V. Brabenec of the Department of Statistics, Faculty of Economics and Management, Czech University of Agriculture, Prague,

the research team includes 22 teaching and research staff members from five Faculty Departments covering the doctoral level of study. These are the Departments of Statistics, of Information Engineering, of Operation Research and Systems Analysis, of Commerce and Finance, of Information Technology.

AIMS AND METHODS

The rapid development of computer use is bringing about many topical tasks and questions for research

work. From the viewpoint of statistical data analysis, enabling the users to obtain objective information for all the levels of decision making and management, there is the foremost task of
– assessment of the properties and informative powers of the data under analysis as well as assessment of the possibilities of their correct statistical analysis in order to give recommendations and conclusions,
– selection of adequate statistical procedures in order to obtain answers to the final questions of the practical research exercises.

One of the modern procedures of statistical analysis – suitable particularly to vast populations of external data – is the technique called "Data Mining". It includes all the stages of information collection mentioned above.

Other ways of obtaining new, good quality information from statistical data analysis are offered by some less known and so far less employed statistical procedures included in statistical methods software. They are, e.g., the multivariate statistical analysis methods and the wide scale of methods of the so-called Exploratory Data Analysis (EDA).

RESULTS

As an indirect outcome of the research activities of the research team members, raising of their qualification levels can be mentioned, too. During the past two years, three of the members successfully finalized promotion to full professors and one member was promoted to associate professor level. The foreign evaluation of the research project by the end of 2000 gave a positive assessment and a recommendation to proceed.

Besides raising the quality of statistical data analysis as mentioned above, other problems are under study in the research project:
– introduction of information systems in the agricultural environment
– study and introduction of geographical information systems
– systems for data protection and security
– systems for ISO international standards introduction into Czech legislation
– verification of the "soft technologies" use for decision support
– non-productive function of agriculture appraisal for accounting
– systems for data recording, preserving and operative use.

The research project outcomes covering the fields mentioned above have been presented during 1999–2000 by several tens of papers at international scientific conferences in the Czech Republic and abroad, published in scientific journals and collections, and they also brought many new notions and suggestions towards improvement of the syllabi of the departments participating.

Aims and capacities of the "data mining" technology

Data processing by means of the "data mining" techniques currently is a rapidly developing inter-branch discipline. Its aim is the widest utilization both of external and internal data in order to obtain exhaustive information and conclusions for decision-making, based on them. Frequently there are extensive data masses gathered for different purposes and so far not fully exploited, that are very informative for various levels of management and decision-making. The "data mining" technology arose by means of combining and expanding methods and techniques taken over from database forming, mathematical statistics, economics, marketing research and other user branches and disciplines. It is aimed, in general, at obtaining new, so far unknown information on the properties of statistical units and the data measured on them, for use in a wide scale of exercises of both theoretical and applied research. This general definition of aims of the "data mining" procedures receives a concrete shape when it comes to solving a given task in a given area. Such a solution with use of statistical data analysis includes, as a rule, separate steps as follows:
a) task formulation and definition of fundamental questions that are to be answered by the solution,
b) definition of data needed for the solution and ways of obtaining these,
c) analysis of data properties, their stability in time and their quality as to the contents of error possibly arising from data collection methods and the chance to remove such error,
d) selection of suitable methods of statistical data processing, the results of which facilitate obtaining the answers to the fundamental questions of the solution,
e) ways of performing the statistical data processing proper and a fully informative presentation of the results,
f) obtaining of conclusions, recommendations and decisions from the results obtained by statistical data processing and possibly assessment of sources of errors, stability in time and general validity of the results,
g) proposals as to continuation, repetition or expansion of the task under study and its possible economic receipts.

When using the "data mining" techniques to examine a concrete problem, answers to four fundamental questions have to be always given first:

1 From where do we mine the data?

For statistical data analysis, data can be collected either non-automatically, both internal (from experiments, marketing research etc.) and external ones (from the information in research reports, Czech Statistical Office sources, ministries, professional journals etc.). The automatically collected data can be promptly accessible both from internal databases (of companies, banks, insurers etc.) and external ones, these first of all from the Internet. With the external databases it is recommendable to look into the problem of relatively most suitable data for the task.

2 For who do we mine data?

This question is best answerable when there is the order maker for the task or for the task solution results, for example for marketing research results or for the forecasts of economic development, inflation, unemployment etc. In many cases, the researcher (research body) offers the statistical data analysis results (development of the share market, forecasts of demand and supply of concrete commodities) to the users after the research is finished.

3 How do we mine data?

Especially when collecting internal data, it is recommendable to look into proper ways of obtaining them, to minimize errors and to maximize representativity. To this end special techniques of sample surveys, marketing research and experimental design have been developed (in agriculture, medicine, etc.). Also when collecting external data (e.g., from databases), it is useful to verify not only their properties, but if possible also the ways of collection to be able to assess representativity, stability in time and sources of possible errors (in connection with the data collection technique).

4 How do we mine the information from data?

In all the tasks needing or admitting statistical data analysis, as "information" only the correctly expressed conclusions based on the statistical methods employed, can be called. The basic "tool" for "mining the information from the data" is a properly employed statistical method. It means, it is not enough, for example, to use regression and correlation analysis mechanically, but it is necessary to choose the best fitting regression function, after properly assessing the properties of both the dependent and independent variables and applying the methods of regression diagnostics. The wide offer of statistical application software brings the users often to underestimating the assumptions of applicability of the separate methods, and/or to non-respecting their limitations. An incorrect application of statistical procedures brings errors and incorrect conclusions from the data processing results.

There are specialized, generally applicable software products for the "data mining" technology ("Enterprise Miner Software" – SAS Institute, "Clementine" – SPSS). A relatively high price of these derives from their specialized nature. Often therefore it is more economically beneficial to create a specialized programme for the solution of a practical task, in co-operation of the order-maker with the programmer and an expert on the given problem. The software products called "the expert systems" that can be employed very successfully, e.g., in distant sensing or air-plane photography of the Earth (agriculture, climatology, geology, etc.), confront very low applicability in the very variable conditions of the agrarian sector.

In connection with the preparatory stage for admission of the Czech Republic to the European Union as well as with the rapid development of computer technology use, it can be expected that data collection, transmission and statistical analysis within the information systems will be receiving a more and more important role in all sectors of the society life.

A tentative classification of the basic statistical methods

The software packages for statistical data analysis (STATGRAPHICS, SAS, SPSS, MINITAB, etc.) usually give a very detailed multi-stage classification of statistical procedures. The brief overview below classifies the statistical methods according to the areas of information that can be derived from the results of their application (Table 1).

Ways and limitations of use of multivariate statistical analysis methods

Table 1. Classification of the basic statistical methods

INFO RECEIVED	METHODS
Data property description	Basic statistical measures, outlier testing, frequency distributions
Data property generalization, hypothesis testing on data properties	Estimation theory, hypothesis testing (on means, variances, proportions)
Dependence description between Quantitative properties	Regression and correlation analysis and their application (supply and demand functions, production and cost functions)
Dependence description between qualitative properties	Frequency analysis in the contingency table
Description of development and fluctuations in time series	Time series analysis (descriptive measures, smoothing of time series, extrapolation of time series)
Complex assessment of data properties and of the population unit properties	Multivariate statistical methods (analysis of the correlation structure, multivariate classification methods)
"Deterministic" information for use in economics, sociology, statistical services, etc.	System of official statistics

The most frequently applied methods forming the wide scale of statistical inference procedures supply a very simplified picture of the properties of statistical units, that can be described by a multivariate quantity. The facts described are usually reduced to a univariate problem, by analyzing only one or a small number of statistical variables that are often selected only subjectively. That does not bring a complex knowledge of the statistical units under study and an assessment of multiple mutual relationships between the dimensions of the multivariate quantity, either.

The methods of multivariate statistical analysis remove that disadvantages mentioned, of considerable simplification of the reality under study. However, a mechanical interpretation of their results brings other risks and chances of inaccurate or incorrect conclusions. Both the less known data properties or small data sets (as related to the number of dimensions studied), and low respect to limitations of the use of methods, can be the sources of inaccurate results. In spite of that, the methods can bring many notions on the data properties and the units described, utilizable for a further analysis, particularly with less explored systems of variables.

The algorithm of multivariate statistical analysis methods employs a data-forming multivariate quantity, but the methods differ considerably as to what fundamental questions they can supply answers to and hence in the types of exercises for the solutions of which they are suitable.

The most frequent basic classification of the multivariate statistical methods is as follows:
– methods of multivariate statistical classification
– methods of covariance and correlation structure analysis.

Methods of multivariate statistical classification can subdivide a set of statistical units into homogeneous subsets, within which the units are most similar to each other, while units from different subsets are most dissimilar. The methods can be most successfully applied in exercises, where the units tend to create naturally distinct subsets. CLUSTER ANALYSIS and DISCRIMINANT ANALYSIS belong to this group.

Cluster analysis employs the original data from the whole population under analysis without any adjustment. The hierarchical procedure joins two most similar units into one subset (cluster) in every subsequent step, (later the two most similar clusters). The analyst can as a rule decide subjectively, into how many clusters the population is to be divided. Also there is an objective criterion of good quality clustering that can help to assess the quality of the outcome. A good quality result is such that makes all units within one cluster more similar (closer) mutually, than any two units from different clusters.

Since there are several measures of similarity of statistical units and of clusters, the cluster analysis virtually is a body of methods. As the objective ones (most frequently employed), those methods can be taken that are based on measuring the distances between the cluster means (defined by the mean vectors of dimensions included in the multivariate quantity). The cluster analysis does not require information on the probability distribution of the multivariate quantity or its dimensions; hence the quality of result depends first of all on whether the population under study naturally tends to create distinct clusters. Let us note that the cluster analysis can help to identify an extreme outlier of the multivariate quantity – a unit extremely different in the values of the dimensions forms then a separate cluster.

Discriminant analysis subdivides the population of statistical units described by the multivariate quantity into two or more predefined subsets (e.g., heifers of a given breed and heifers without a defined breed). The discriminant function

$$D = b_1 x_1 + b_2 x_2 + \dots + b_k x_k$$

for a multivariate quantity with dimensions $X_1, X_2, \dots X_k$ defines the discriminating interface between the subsets "the best possible way around". The outcome of the discriminant analysis helps assess with what probability the statistical units belong to one of the subsets and also to file new units (that have not been included in the original population) into one of the subsets with a smallest possible error. It is also possible to find out from the analysis outcome how the separate $X_1, X_2, \dots X_k$ dimensions contribute to the discrimination of statistical units.

Methods of covariance and correlation structure analysis help to discover and study mutual relationships and dependences between the variables forming the multivariate quantity and to assess the information "importance" of the variables according to this criterion.

The methods help us derive also many other important informations about the data properties particularly in less explored variable systems. The outcomes can bring a considerable reduction of dimensionality of the problem under study, where out of a large number of mutually correlated variables, described by the correlation (covariance) matrix, a considerably reduced and more easily interpretable result is obtained.

There is a number of conditions regarding the quality and properties of data input when using these methods. The most frequently required ones are:
– multivariate normal distribution of the mother population out of which the sample under study was drawn,
– approximately linear relationship between pairs of dimensions of the multivariate quantity,
– the condition $n > k^2$, where k = number of dimensions, n = sample size,
– when studying qualitative phenomena with an ordinal scale a sufficient number of levels of each of these is needed in order for the correlation coefficient (the intermittent result) to have a sufficient information power.

Separate methods have still other individual limitations.

Canonical correlation analysis is employed when the dependence of one of the groups of variables (those explained ones) on another of the groups (those explanatory ones) is to be measured by means of a single

measure (the coefficient of canonical correlation) or by means of a small number of other measures of "residual canonical correlation" (if the values of them are still statistically significant). It can be, e.g., a dependence of a number of properties of descendants on a number of properties of ancestors, or of variables measuring the intelligence levels on variables measuring the physical capacities, etc. Each of such groups of variables is represented by one canonical variable, defined as a linear combination of the original variables.

Principal component analysis is formally similar by its outcomes to another method – the factor analysis, even when the approach to data properties explanation is different. If certain simplification is admitted we can say that it is aimed at the explanation of the main diagonal of the covariance (correlation) matrix. Hence it explains the variances of the original great number of dimensions by means of a considerably smaller number of hypothetical variables called "principal components". It can be said that the principal component analysis transforms the variables directly measured (the variances of which it explains) into a smaller number of hypothetical variables expressing a common, and usually directly immeasurable information (e.g., the soil productivity level, the intelligence level etc.). Hence, it is noted that the principal component analysis is suitable for informationally homogeneous systems of variables where the information supplied by a greater number of variables is transformable into a "common denominator" called the principal component.

Factor analysis is oriented at explanation of the non-diagonal elements of the correlation matrix, i.e., at discovering and assessing multi-dimensional mutual relationship between the variables forming the multivariate quantity, when these variables can show weaker and/or stronger mutual approximately linear relationships (described by the correlation coefficient values in the correlation matrix). Hence it is also suitable for informationally heterogeneous and less explored variable systems, the numbers of which increase together with the development of computer networks.

Factor analysis is one of the most efficient methods as regards learning the properties of variables forming the multivariate quantity. The factor analysis model describes the system of a large number of variables X_1, X_2, ... X_k as a linear combination of a considerably smaller number of fictitious variables F_1, F_2, ... F_c, where $c < k$, called COMMON FACTORS, and other fictitious variables, U_1, U_2, ... U_k, attached at each of the X variables and measuring the part of the variance of the respective X variable, not explained by the common factors. The assumption of a correct result of the factor analysis is zero correlation of the F common factors and zero correlation of the U variables called the UNICITIES.

DISCUSSION

The zero correlation of the common factors in the factor analysis result cannot be secured in advance. A best approximation to this condition is offered by the result of the so-called rotated solution of the model where the correlations between the common factors are minimized. The analyst can affect the solution by stating how many common factors having a decreasing range of "importance" are to be included in the final solution.

The outcome of the factor analysis model makes it possible to form groups of variables (so-called classes of variables united by the common factor with an important value of factor loading), showing numerous mutual relationships and supplying in this sense an aggregated information on the properties of variables forming the multivariate quantity. The result obtained is usable for a qualified selection of an optimal subset of variables for subsequent statistical analyses (e.g., for regression and correlation analysis).

Ways of application of exploratory data analysis

A statistical analysis should always start by an at least approximate check of completeness and material correctness of the data available. A very efficient tool making such a preliminary analysis possible is offered by the exploratory data analysis (EDA). This analysis, representing the core of procedures making up the "data mining" technology, is aimed at easy orientation within the data processed, at discovering the specificities of the data and verifying validity of the assumptions that are needed for deriving inferential conclusions as concerns the mother population. The data exploration hence supplies information on important properties and anomalies of the populations analyzed and it also offers an instruction how to proceed in the subsequent more advanced or inferential analyses.

Model paradigms both of the classical and exploratory data analyses contain the same steps, however, they differ by the ranking of these and by the different importance attached to each. In the classical statistical analysis the separate stages are ordered in the sequence

Problem $\Rightarrow$ Data $\Rightarrow$ Model $\Rightarrow$ Analysis $\Rightarrow$ Conclusions

while in the exploratory analysis they are ordered in the sequence

Problem $\Rightarrow$ Data $\Rightarrow$ Analysis $\Rightarrow$ Model $\Rightarrow$ Conclusions.

The exploratory analysis takes data as the most important aspect and based on fundamental assessment of their structure, anomalies and possible outliers then suggests a suitable model. It is to say, that, validity of most of the EDA procedures and corresponding conclusions usually is not subject to some limiting assumptions (e.g., of distribution normality) about the analyzed data satisfied and there is also the important circumstance that the EDA uses up the information supplied by the data more fully as compared with classical analysis.

The EDA has a wide choice of statistical techniques available – both the quantitative ones and the graphical ones in particular. Of the graphical tools, there are histograms, polygons, bihistograms, Pareto diagrams, run sequence plots, various types of pie charts and some of the special EDA graphical instruments are very useful too – the boxplot, the stem-and-leaf display, or the normal probability plot. The boxplot (Box-and-Whisker Plot, in full) is a graphical representation of the so-called five number summary, i.e., it represents the minimum, the lower quartile, the median, the upper quartile and the maximum of the population given. This seemingly simple graph, representing the data in the shape of an oblong and two lines coming out of it to the left and to the right (see more detail in Department ...1999), offers an extraordinarily valuable information, not directly available from the frequency distribution tables or from the histograms or polygons, either. A complete idea of the level, variation, symmetry or asymmetry of the given population and of possible presence of distant observations (outliers) can be obtained very clearly from the boxplot. A useful extension of the basic boxplot version is offered by multiple boxplots, allowing for a graphical comparison of several populations, and so-called notched boxplots suitable not only for the description of characteristic features and peculiarities of the population studied, but at the same time being a starting point of certain inferential conclusions formulation.

The stem-and-leaf display is a special semi-graphic tool suitable for fast visual assessment of the structure of the given population. This procedure represents a combination of the numerical technique of data grouping (frequency distribution shape) and a graphical technique (histogram shape). As compared to these techniques, it has the fundamental advantage of possibility to re-construct the original data. It also allows for an easy identification of outliers and for a fast access to the so-called rank statistics and the five-number summary.

If the results of exploratory data analysis support the assumption of good quality of data and of an approximate normality of the distribution, then the information contained in data can be summarized by means of the classical moment statistics and it is permissible to employ parametric procedures in inferential operations. However, if exploratory analysis discovers any disproportions in the data (significant deviations from normality of the distribution, outliers, non-homogeneity of the populations compared, etc.), then suitable robust statistics should be employed for summarization purposes, inferential conclusions should be based on adequate non-parametric procedures and possibly a certain adjustment of data should be effected. Deviations from distribution normality or non-homogeneity of variances can often be successfully corrected by means of some data transformations. Practically, e.g. logarithmic or square-root transformations have proved themselves useful and the modern statistical programme packages (the SAS, e.g.) often employ the class of so-called Box-Cox transformations (see Department...1999 for more detail).

When using the transformations, it is imperative to proceed carefully, since they need not be always successful, the interpretation of data transformed can be difficult, and the results of inferential analysis done on the data transformed need not agree with the results for the original data.

Considerable problems in statistical processing can be caused by the so-called outliers. This term usually stands for values (considerably different from most of the data under analysis) situated below the lower quartile or above the upper quartile at a distance exceeding 1.5 times the quartile range. Those values can either arrive from erroneous data or they are based on observations from a different population. On the other hand, however, they can be correct and consistent with others.

Outliers that can easily be detected, e.g., by the boxplot, have to be thoroughly checked. Evidently erroneous data have to be corrected or removed. Correct observations are not removed but they require special attention and may possibly be analyzed separately, since they represent some extraordinary case and they are more interesting and more important than the other data, to the analyst. It is often useful to correct the effect of outliers by a special technique called winsorization, or by the so-called trimmed statistics.

In order to employ all the capacities of the EDA techniques and other statistical procedures presented in this paper efficiently, it is necessary for the analyst to have a suitable statistical application software available. The SAS statistical programme system has been extensively employed for the purposes of the "Data Processing and Mathematical Modelling in Agriculture" research project. This system is currently taken for the best, very prospective and universally applicable statistical environment.

CONCLUSIONS

During the first two years of the term has the solution of the "Data Processing and Mathematical Modelling in Agriculture" research project brought many new notions, expanding the space for both the fundamental and the applied research in the Departments participating and enabling the Departments to modernize both the contents and the forms of teaching at the Doctor and Master levels of study in the sense of new computer technology and its practical use.

The authors of the paper present ways as well as possible risks of fast expansion of use of the statistical application software and of the rich supply of topical external data accessible, e.g., on the Internet. They briefly mention the possibility of an additional exploitation of data by means of the "data mining" techniques and they introduce some of the respective statistical procedures.

The authors pay attention to the multivariate statistical analysis methods use for obtaining additional objec-

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tive information for decision-making. At the same time they underline the need to perform analysis of data properties and they recall the risks that can arise from an incorrect or unsuitable use of a statistical method.

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Structural changes of Czech economy in the period of the transition process

Strukturální změny české ekonomiky v období transformace

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Abstract: The article is concerned with changes of the CR economy structure, especially in the changes of processing industries from the point of view of their share in GDP, employment, export and foreign direct investment influence on the external competitiveness of the Czech economy.

Key words: economic structure, export, FDI, competitiveness

Abstract: Příspěvek je věnován změnám ve struktuře ekonomiky ČR, především změnám ve zpracovatelském průmyslu a to jak z hlediska podílu odvětví a HDP, tak jejich podílu na zaměstnanosti, jejich podílu ve vývozu a vlivu přímých zahraničních investic na vnější konkurenceschopnost české ekonomiky.

Klíčová slova: ekonomická struktura, vývoz, přímé zahraniční investice a konkurenceschopnost

INTRODUCTION

The transitive process is the subject of many analyses but most of them are focused on economic or social results. Technological and structural transformations determining the economic transformation achievement are included in the transition process. Technical and structural transformations also influence both national and international competitiveness. The accentuation of ownership transformation and selected privatisation form (the coupon privatisation) in the CR did not lead to the interest in the desired technological and structural changes. They were supposed to go together with the change of ownership. Therefore, the needed structural policy and technical and technological development support policy really was not applied in the CR before the social democratic government coming in. Permanent difficulties with economic growth and long-term exterior non-equilibrium led to a greater interest in the given problem.

GOALS AND METHODS

If we define competitiveness as an ability of firms and economy to produce goods and services which are able to penetrate the national and international markets, we can analyse it from the point of both microeconomic and macroeconomic view.

Each of the two views is influenced by many determinants and has various screening forms. The goal of this article is to analyse structural changes, which means the changes in the industries contribution to GDP and total employment. The next goal is to describe CR export changes in which structural and competitiveness changes are expressed on the national level. Direct foreign investments influence structural changes and the external competitiveness changes for many reasons. Therefore, we are interested in them.

The dominant method used in this article is the time comparison method of data and comparison of Czech economy with other transitive economies.

RESULTS

1. The economy structure change is a long-term and difficult process. The economic structure has been slowly adapted to developed economies structures, the share of industry in GDP has decreased and the services contribution to GDP has increased. In the services industry, there are still reserves for the future growth. The agricultural sector contribution to GDP has considerably decreased (by 55%), the processing industries part has decreased too. Building industries share is constant and the services industries part has increased.

1.1 Changes in the processing industries could be seen as important from the point of economic growth and export view. The changes went through intensively at the beginning of 90s.

Changes in industries were unequal and completely insufficient from the technological structure point of view because the medium low-tech industries still dominate.

2. The SITC commodity classes 5-8 (5 Chemicals and related products, n.e.s., 6 Manufactured goods classified chiefly by material, 7 Machinery and transport equipment, 8 Miscellaneous manufactured articles) dominate in the Czech export. The commodity structure evolution had two phases in the 90s: The share of products with a higher rate of processing had decreased up to 1993 and was substituted by raw materials and foodstuffs in the Czech export. Since 1996, the most important item has been the SITC Class 7 which dynamises export. High-tech products represented 8% share of export at the end of 90s.

3. Foreign direct investments flow was uneven in a greater part of the transitive period, both in volume and in the industry structure. Industries were not the basic goal of foreign direct investments in the 90s. Only at the end of the century, the more important part of FDI was allocated to industry. Therefore we can expect a better export efficiency of the Czech economy. FDI inflow to agriculture and forestry is still very small.

DISCUSSION

Characteristics of the economy structure and its changes

Economic structure, that means industry branches structure of the economy, influences the national economy growth and economy competitiveness in the foreign markets. If the share of high productivity industries rapidly increases, the economy productivity as a whole will grow too. If the competitive industries have taken up a bigger part in the economy, then the competitiveness measured by export or net export is higher too.

The economy structure change is a long term and painful process as it is shown on the CR example. It is well known that the Czech economy structure was not in equilibrium with the great part of war and heavy industry, dependent on raw material import at the beginning of

Table 1. Industries shares on GDP and employment in %

Branches	Share in %			
	GDP		employment	
	1990	1999*	1990	1999*
Agriculture	3.5	3.6	11.8	5.3
Industry	41.5	39	37.9	33.0
Construction	11.5	4.0	7.5	7.5
Services	43.3	53.2	42.7	54.3
– trade, hotels, restaurants	12.2	14.5	11.5	18.4
– transport, communication	5.9	8.7	6.9	7.1
– financial intermediation	3.9	8.7	0.5	1.9
– commercial services	9.7	11.3	7.1	8.4
– others	11.4	9.8	16.7	18.5

Source: Czech Statistical Office 2000, * statistical foresight

the transitive period. Services and similar branches were only little developed. Exports were oriented to the Eastern markets (CMEA markets). Big enterprises dominated in the Czech economy. The Table 1 shows the changes in the industry share (in GDP creating).

In the Table 1, we can see the decrease of the industry share in GDP, the increase of services part, decreasing of building industry part and stagnating behaviour of agriculture.

Similarly, the share of employment in industry and especially in agriculture (by 55%) decreased and the contribution of services industries increased (Table 1, 3 and 4). These changes have to be seen as connected with participation coefficient decreasing.

The trend of services share increasing both in GDP and in employment is clear. It is similar even in other transitive economies. There are expressed also other specific features. For instance, the Polish agriculture share in economy is permanently high, the services share in the total employment in the CR and Poland is low, the highest industry value added and the lowest agriculture gross value added are in the CR and so on. The data regarding services show especially that the share of these industries in GDP and employment will grow also in the next period. That growth can be very slow according to the production potential of the Czech economy, high qualification of workers, industrial tradition, and accumulated industrial experiences in industry as a whole even in the middle technological level industries.

It is necessary to pay attention to individual industries when examining the economy competitiveness impacts of industries changes. Manufacturing industries changes are known to be connected with the transitive economies ability to penetrate the foreign markets. Small development or low competitiveness of these industries help to the external non-equilibrium or its deepening with all impacts on the national economy or economic indicators.

Checking the industry structural changes comparison in transitive economies in 1990–1997 (Structural Report 1999, Table 2), we see the important differences in transitive economies both in changes in intensity and in time. The structure of the CR industry changed considerably especially during the first transitive years 1990–1992.

Table 2. Structural change of industry in the period 1990–1997

	1990/1992	1993/1997
Hungary	3.97	7.84
Poland	2.45	1.47
Czech Republic	3.21	1.46
Slovakia	2.43	2.92
Slovenia	1.31	1.7
Bulgaria	2.82	n. a.
Rumania	2.56	1.68

Source: Structural Report 1999, WIIW 1999, p. 21

Table 3. Industries achievement in the period 1990–1997 in CR (industries growth rates to national average in %)

	1990–1992	1993–1997
Food products, beverages, tobacco	9.3	−1.0
Textile products		−7.0
Leather products		−11.9
Products of wood		−4.7
Paper products	1.4	1.4
Coke, petroleum products	−6.7	0.4
Chemical products	13.6	−1.0
Rubber, plastic products	−8.8	6.9
Other non-metallic products	3.0	−0.1
Basic metals		−0.5
Manufacture of machinery	−12.8	−2.1
Electrical machinery and optical apparatus	−7.2	7.8
Transport equipment		6.4
Other manufacturing products		−1.8

Source: Countries in Transition, WIIW 1999

Changes involved especially engineering, transport machinery, optical and electronic goods. Production has grown mainly in chemistry, paper industry and food, beverages and tobacco production in this period.

The production of coal, electrical and optical machines, rubber and plastic products and machines and oil products refining decreased. It was connected with the loss of the CMEA markets and the inability of enterprises to change the qualitative features and safety norms of these products in short term. The Eastern markets loss could not be rapidly substituted by other markets. In the next period of 1993–1997, industry has become the economic growth locomotion. Industries which contributed to this growth and which did not contribute to it had exchanged (Table 3).

The reason of the food industry change could be found in low income elasticity of basic foods, limited access of the industry to foreign markets and high share of international chains in food sales and problems of the home producers with entering the chains.

Decrease in the textile industry is again connected with the insufficiently developed commercial relations with Western markets and with the uncontrolled imports of cheap Chinese and Vietnamese textile products. Low building industries growth is expressed in the low growth of timber industry and contemporary foreign imports. Coal production and oil products refining has decreased due to lower energy consumption and also due to finishing of the cheaper oil imports from the former USSR. On the contrary, the rapidly expanding transport industry leads to increasing the rubber and plastic goods production.

If we use industries classification according to 7 technological levels, which means high tech, medium high tech, medium low-tech and low-tech etc., which is based on three indicators: research expenses share in value added, research share in production and that of research and development expenditures sum incorporated in intermediate products and production investments, then processing industries change could be evaluated as insufficient with the dominant medium low-tech industries share and with the necessity of the majority of industries shift at least to medium high-tech.

Characteristics of export and its changes

Structural and technological level of economy is directly connected with the export ability, therefore the next part of this article is concurred with the problem. The commodity classes 5–8 are dominant in exports from the CR (Table 4), their share in the CR export is about 89%.

Change of the territorial structure was seen simultaneously with the commodity structure change. The share of products with the higher grade of processing had decreased until 1993 and was substituted by intermediate products, raw materials and food. Since 1996, the export of machines and transport equipment has become the most important item. It is moreover a very dynamising export item. It includes automobile industry, tram and trolley export, power plant equipment, building and metal processing machines. It is very important that the high-tech products class had 7,4% share in export in 1998 and their share has increased. (High-tech products import was 12% in 1999 year.)

All products of the Class 0 (Food and live animals – according to the SITC) showed decrease in export. Share of the tobacco products in export has slowly increased in the Class 1. Share of the oil seeds and oil plants in export has slowly increased in Class 3. Share of fats and oils in export has increased in Class 4. Share of all products in Class 5 has decreased except subclasses 55 and 58. The most important export share increase has been shown in the class 7 (machines and transport equip-

Table 4. Commodities classes shares and export development in %

SITC group	1995	1999
0	4.818	2.853
1	0.803	0.844
2	5.163	3.641
3	4.226	2.760
4	0.156	0.104
5	9.279	7.11
6	32.227	25.988
7	30.403	42.669
8	12.774	13.791
9	0.095	0.125

Source: Foreign Trade Yearbook (1997), Developement of Foreign Trade (1998, 1999)

Table 5. Territorial structure of foreign trade in %

Group of countries	Share export		Share import	
	1989	1998	1989	1998
Transition countries	56.4	26.7	60.0	23.1
– CEFTA countries	–	19.9	–	14.1
Developed countries	29.8	69.1	27.8	72.0
– EU countries	14.3	64.2	14.9	63.3
– EFTA countries	–	1.8	–	2.3
– Other developed economics		3.1		6.4
Developing economics	13.8	4.2	12.2	4.9
Total	100	100	100	100

Source: Czech statistical office

ment). Share of furniture and its parts export has increased in Class 8.

Imports on the enterprise level were difficult in the 90s. Even if the import structure was good, exports from the imported investments did not follow because part of the investments went to the infrastructure and part to the environment sphere. Return of investments to the infrastructure will be experienced in the middle- run or in long run. Environmental investments are important but their effect on export growth or economic growth is not quantifiable.

The territorial structure change partly shows improvement of the qualitative features of the Czech export. Countries of the EU-15 share in the CR export was about 30% and in the Czech import about 28% in 1989, these shares were 64% in the CR export and 63% in the CR import in 1998. More exact data are shown in the Table 5.

Table 6. Foreign direct investment in the CR

Indicator		1996	1997	1998	1999
Part A					
Total	%	100	100	100	100
	mil CZK	38 774.8	41 251.4	81 947.5	168 743.9
Part B by territory					
USA	%	17.68	7.63	10.15	11.51
	mil. CZK	6 854.9	3 145.6	8 318.7	19 427.9
Germany	%	17.45	30.09	21.17	16.02
	mil. CZK	6 767.8	12 411.4	17 347.9	27 025.7
Austria	%	14.57	7.30	9.64	12.94
	mil. CZK	5 650.0	3 012.7	7 896.5	2 1829.3
Netherlands	%	18.16	10.29	23.95	14.96
	mil. CZK	7 040.1	4 243.1	19 629.4	25 238.4
Switzerland	%	3.88	3.61	3.26	6.26
	mil. CZK	1 503.9	1 490.3	2 673.8	10 565.6
Other	%	28.26	41.09	31.83	38.32
	mil. CZK	10 958.1	16 948.3	26 081.2	64 656.9
Part C by branch					
Manufacturing	%	11.38	13.05	10.33	23.96
	mil. CZK	4 411.6	5 382.7	8 465.9	40 434.3
Electricity, gas, water supply	%	11.18	28.84	7.75	6.09
	mil. CZK	4 336.1	11 898.9	6 350.0	10 276.3
Construction	%	8.49	2.93	1.91	0.31
	mil. CZK	3 291.2	1 207.2	1 561.9	516.7
Transport, communication	%	12.89	0.04	11.62	2.45
	mil. CZK	4 996.2	17.5	9 524.3	4 136.6
Trade, hotels, restaurants	%	19.84	12.83	28.54	24.87
	mil. CZK	7 691.7	5 291.1	23 385.1	41 974.5
Financial intermediation	%	2.33	22.87	18.57	26.76
	mil. CZK	901.8	9 435.9	15 216.6	45 151.4
Other	%	33.90	19.44	21.29	15.56
	mil. CZK	13 146.2	8 018.1	17 443.7	26 254.1

Source: Czech Statistical Office, 2000

Foreign direct investment

Some positive changes, including export efficiency, sophisticated goods production and growth contribution, are expected from foreign direct investment inflow. We can follow FDI inflow to the CR since 1996 in Table 6.

This inflow is uneven and influenced by some specific sales (automobile plant Skoda, Telecom and so on). Industries classification of FDI is more important than their total volume. We can see it from the Table 6 data (part b).

FDI flows are not distributed equally in the CR. Foreign investors position is strong in some industries, for example in tobacco, automobile, cement, electric equipment, batteries and accumulators, semiconductors, rubber products. On the other hand, in some industries the foreign investor share is very small, for example in textile and shoe industries. Total FDI in processing was above 10% in the second part of 90s and industry share in FDI has increased at the end of 90s. Moreover, foreign investors in the CR allocated their funds to the industries with greater productivity and profitability at the beginning. They increased the productivity by technological innovations and by workers qualification increasing.

Rate of FDI inflow was high in the period 1999–2000 due to stabile macroeconomic development, continuing privatisation and government effort for suitable investment environment creation. FDI structure is changing again. Instead of involvement and enlargement of existing capacities, investors are oriented to building new enterprises. Government support of industrial zone development helps to it. Technological production branches are asserted, especially automobile and electric industries. Total volume of FDI has achieved 177,3 bill CK in 2000. The greatest FDI inflow was driven in years 1999 and 2000 to trade (21%), money and insurance (20%), real estate and services (12,5%) and motor car production (10%). Investments to production sphere have achieved 35%. Volume of these investments was the greatest one since the transition process has been beginning.

CONCLUSIONS

I think that the advantage of worker high qualification was not still fully used for the important production shifts to the technologically more developed industries. The same situation occurs regarding advantages of the cumulated enterprises knowledge and macroeconomic environment stability. FDI inflow contributes to the improvement of production technological level and export efficiency only partly and by the end of the century. Government support plays big role in FDI inflow.

The total supply-side reaction in 90s can be judged as very slow and weak. It is the reason for the totally difficult economic growth connected with the internal and external non-equilibrium.

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The paradigms of strategic thinking

Paradigmata strategického myšlení

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Abstract: The mode in which top management and owners think about strategy is a decisive factor of company growth. The author presents paradigm of conventional strategic thinking versus paradigm of value innovation on the background of strategic control process. He explains their principles, including case study. At the end, he stresses that system value innovation represents the important source of entrepreneurial opportunities.

Key words: Paradigm of strategic thinking, process of strategic control, conventional strategic thinking, strategic thinking of value innovation, system value innovation.

Abstrakt: Způsob strategického myšlení vrcholového managementu a vlastníků je rozhodujícím faktorem dynamiky rozvoje podnikatelského subjektu. Autor uvádí na pozadí procesu strategického řízení paradigma konvenčního strategického myšlení versus paradigma hodnotové inovace. Vysvětluje jejich principy, včetně praktické aplikace. Závěrem zdůrazňuje, že systémová hodnotová inovace představuje důležitý zdroj podnikatelských příležitostí.

Klíčová slova: Paradigma strategického myšlení, proces strategického řízení, konvenční strategické myšlení, strategické myšlení hodnotové inovace, systémová hodnotová inovace.

INTRODUCTION

The approaching incorporation of Czech agribusiness into the Common Market brings together the strongly felt need of increasing competitiveness of our entrepreneurial sector. The approved concept of Czech agrarian policy declares as a main goal "to reach the competitiveness of the Czech agrarian sector and in addition to respect all the international agreements in agrarian business". The new goal is to meet the appropriate income level of agrarian population, which is fully in accordance with the principles of the Common Agricultural Policy of the EU. The entrepreneurial environment stabilisation, which constitutes the central line of the program goal approach, presupposes also flexible strategic thinking of management and owners, which, as can be proved, influenced in decisive way the trajectory of development of the entrepreneurial subjects. The presented paper represents the author's contribution to the faculty research subprogram "The Creation of Competitive Strategy" (Project No. MSM 411100012).

THE METHODOLOGY USED

A basic model underlying research activities is the action research model – a data based, problem-solving model, that replicates the steps involved in the scientific method of inquiry. The desired outcomes of the action research approach are solutions to the immediate organisational problems and a contributions to scientific knowledge and theory. In details see Palán a Kotvová (1999).

RESEARCH FINDINGS

The frame of strategic thinking

The mapping of a wider frame of strategic thinking turns logically in the process of strategic control (see Figure 1) the adequate form of which, corresponding with the situation in which company operates, the author considers sine qua non of the continuous improvement of the company effectiveness. What is the reason for this? It is important to be aware, that inside of the process of strategic control which would be the key activity of top management and owners, the entrepreneurial strategy is formulated and implemented. "It is just the mode of the entrepreneurial strategy formulation, i.e. the paradigm of strategic thinking of the top management and owners, which is as emerged the decisive factor of stagnation versus dynamic growth of the entrepreneurial subjects without regard to the legislative form of business, or age of the company representatives, or if it is a private company or public company" (Palán 1999).
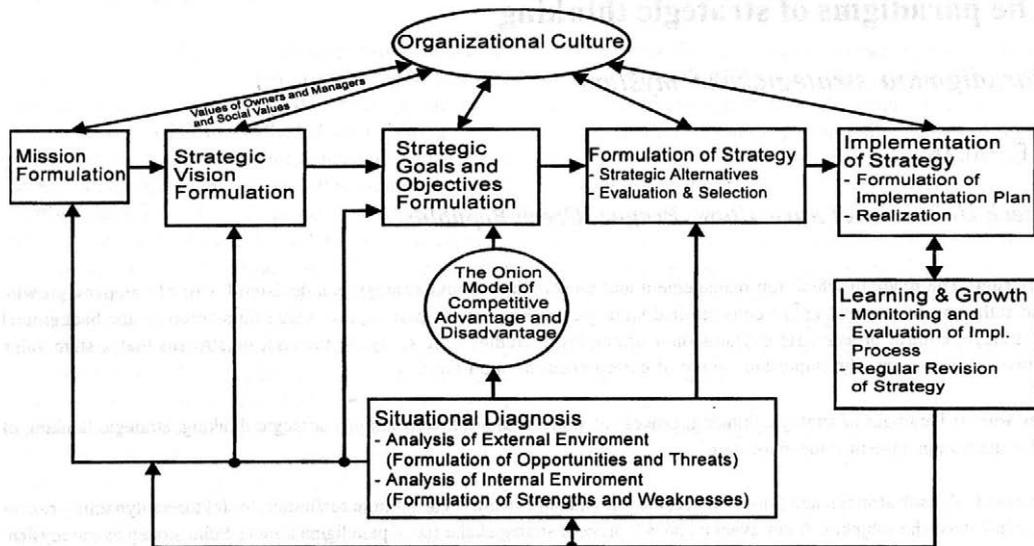
Figure 1. Process of strategic control

The paradigm of conventional strategic thinking

The space of conventional strategic thinking can be defined by the vector space of strategic thinking presented in Figure 2. The above mentioned space is limited by the vector of competitive advantage, i.e. the formulation and implementation of the entrepreneurial strategy would lead to creation or maintaining of company's competitive advantage in comparison with its key competitors. The area is also defined by the vector of financial advantage which does not express anything else than the requirement of effective investment of capital sources expressed by value maximisation of the complex indicator of company efficiency EVA (economic value added). The third vector explicitly declares the adequate development of company capabilities and skills, which are closely con-

nected with the process concept of learning organisation (Tichá 1999). The conventional strategic logic assumes the maximisation of the all three vectors and actually respects in his heart the logic of the industry competition, which is set by the strongest entrepreneurial players. So it is very natural and logical to begin the formulation of strategic goals and objectives e.g. from the onion model of competitive advantage, eventually also from the onion model of competitive disadvantage, see Figure 1. The author, in order to help better understanding of the presented concept, explains the above mentioned terms further.

In order to fulfil the natural sense of business within the frame of conventional strategic thinking, the formulation and implementation of the entrepreneurial strategy should bring creation, or maintaining of the competitive advantage is necessary. Simultaneously, its implementation would be connected with realisation of the financial advantage and logically also with the development of company capabilities and skills.

The competitive advantage

The term "competitive advantage" can be defined as: Adding either more real or perceived value to target customers than your competitors or similar value with lower cost, or in faster time. The term value can be simply stated as the ratio of the product quality perceived by customer to its price. The product value will be increased by e.g. the higher quality of service, or the shorter production cycle time. The full understanding of the term "competitive advantage" (its arrangement in particular layers)

Figure 2. Vector space of strategic decision

Location
Systems
Supplier
Market Share
Customer
Value
Brand
For Money
Services and Culture
Product Focus
Linkages and Innovations

Figure 3. The onion model of competitive advantage of a real company

enables its graphic presentation by the onion model of competitive advantage and disadvantage (see Figure 3).

The above mentioned model is systematically used in the projects of benchmarking. In Figure 1, it constitutes one of several bases for the strategic goals and objectives formulation. We design the onion model of competitive advantage and disadvantage on the basis of SWOT analysis, which would be completed by the special tests (in detail see Palán et al. 2000).

The financial advantage

The financial advantage can be defined as: The art of leveraging business activities to maximise the economic value of cash flows relative to the investments in the business. In other words it means, that the decision about choice of strategic variant must be preceded by the fundamental economic evaluation processed on the base of business case, or feasibility study.

The development of company capabilities and skills

The development of company capabilities is closely connected with the development of knowledge and skills of human resources in company, also with increasing their know-how and with the technolo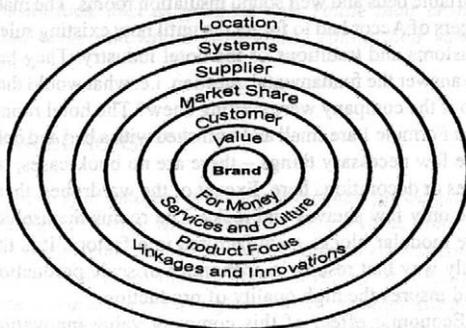gical development of company systems. (The "capability" can be defined simply as the capacity to do new things or to do existing things better).

The new paradigm of strategic thinking – the thinking of value innovation vs. system innovation

The scientific research of decisive factors of dynamically growing companies from the perspectives of volume sales and profit proved an important hypothesis, that namely basic initiative Influence has the mode of top management strategic thinking. The new paradigm of strategic thinking, which is typical for managers of dynamically growing companies, was described by Cham Kim and Mauborgne (1996) and named "value innovation logic".

For full understanding of the thought paradigm of value innovation logic, it is important to compare it to conventional logic from five dimensions of strategy, see Table 1 presented lower.

The difference among companies evolved from the fundamentally different approach to the entrepreneurial strategy formulation. The least successful companies chose the conventional approach: their strategic thinking was dominated by the thought to be at the top of competition. They formulated their strategic goals on the base of systematic benchmarking and within frame of the industry logic. On the opposite side, the dynamically growing companies did not much care for what their rivals did and how they fought. Except for this, they tried through the application of strategic value innovation

Table 1. Conventional strategic logic versus value innovation logic

The five dimensions of strategy	Conventional logic	Value innovation logic
Industry Assumptions	Industry's conditions are given.	Industry's conditions can be shaped.
Strategic Focus	A company should build competitive advantages. The aim is to beat the competition.	Competition is not the benchmark. A company should pursue a quantum leap in value to dominate the market.
Customers	A company should retain and expand its customer base through further segmentation and customisation. It should focus on the differences in what customer value.	A value innovator targets the mass of buyers and willingly lets some existing customers go. It focuses on the key commonalities in what customers value.
Assets and Capabilities	A company should leverage its existing assets and capabilities.	A company must not be constrained by what it already has. It must ask, what would we do if we were starting anew.
Products and Service Offerings	An industry's traditional boundaries determine the products and services a company offers. The goal is to maximise the value of those offerings.	A value innovator thinks in terms of the total solution customer seek, even if that takes the company beyond its industry "traditional" offerings.

logic to reach a fundamentally new, uncomparable value shift. The wit and elegance of this new mode of strategic thinking, including creation of the new value curve, is well documented by the case study of French hotel chain Accor. The managers of Accor had, during formulation the series of value skips, to answer the following questions:

1 Which free services that our industry takes for granted should be eliminated?

2 Which factors should be reduced well below the industry standard?

3 Which factors should be raised well above the industry standard?

4 Which factors should be created that the industry has never offered?

The answers on the above presented questions specify the magnitude of the company separation from the industry strategic conventional logic, what is possible to express by the value curve (see Figure 4) which represents the graphic interpretation of company behaviour relations on the base of the key success factors of hotel industry.

Formule 1 gives Accor considerable cost advantages. The company cut the average cost of building a room to half, and its staff costs dropped from between 25% and 35% of sales-industry average to between 20% and 23%. Those cost savings have allowed Accor to improve the features customers value most to the levels beyond those of the average French two star hotels. Customers have rewarded Accor for its value innovation. At the last count, Formule 1 market share in France was greater than the sum of the five its next-largest players.

The top management of the Accor hotel chain targeted to what the customers unite in, i.e. the quality and comfortable beds and well sound insulation rooms. The managers of Accor had to forget the until now existing rules, customs and traditions of the hotel industry. They had to answer the fundamental question, i.e. what would they do if the company were starting anew? The hotel rooms at a Formule 1 are small and furnished with a bed and only the few necessary things – there are no book-cases, tables or decorations here. Except of the wardrobes, there are only few shelves and racks. The rooms themselves are modular blocks manufactured in a factory. It is the only way that results in economies of scale production and insures the high quality of production.

Economic effect of this company value innovation makes it possible to extend its domestic market expressively and to expand to the other European states. Still today, the price 150 FRF for one night, two adult persons and a child, is extremely favourable. *What is especially instructive for us is the fact, that the outstanding value shift was realised on the base of widely accessible technologies.*

Every value innovation on the product platform exhausts their growth potential during time. Does it mean, that the company should join the industry competition within the frame of the key success factors? This evident trap of the next dynamic development can be overcome by the next value innovation, this time on the service platform (maintenance, customer service, warranties, training for distributors and retailers etc.). The next possibility of the value innovation represents the delivery platform, which includes logistics and the channel used to deliver the product to customers. The specific content of the particular platforms will vary in relation to the industry and company characteristics. As customers and technologies change, each platform presents new

Formula 1 offers unprecedented value to the mass of budget hotel customers in the France by giving them much more of what they need most and much less of what they are willing to the without
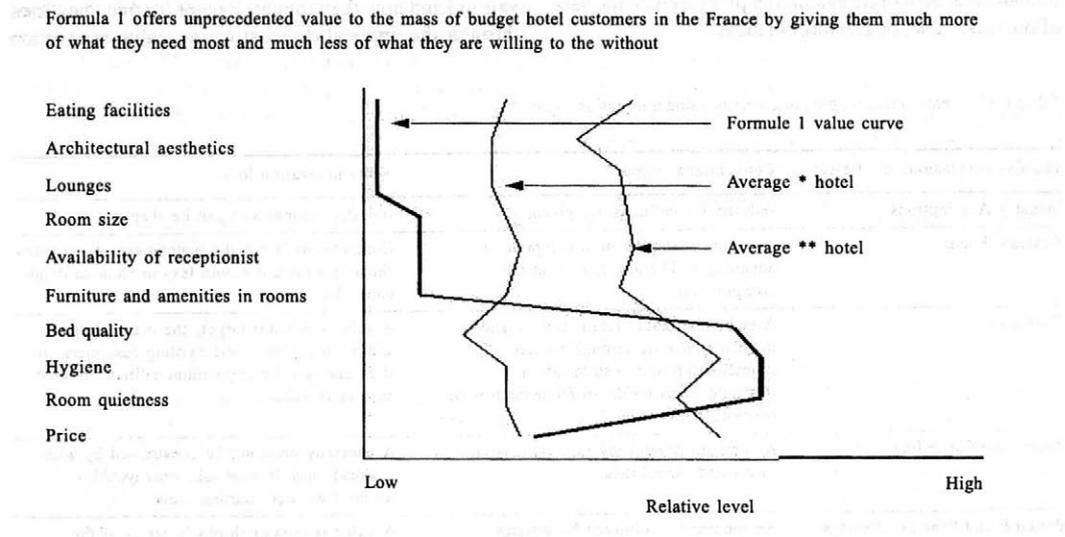

Figure 4. Formule 1's Value curve

possibilities. *Just as good farmers rotate their crops, good value innovators (strategists) rotate their value platforms.*

CONCLUSIONS

The deeper analysis of the presented new paradigm of strategic thinking, which is based on the value innovation logic, leads to the conclusion, that its core is composed by the innovation of higher level, i.e. it is rooted in the innovation of the higher system. Sommerlatte and Braun (1999) identify the heart of the problem in the fact, that the sub-systems have tendency to develop themselves in shorter cycle, than the system to which they belong. The clear example represents the system value innovation of a two star hotel, which did not stop on the level of hotel room (sub-system), but also included the new design of related hotel sub-systems. Such solution led naturally to the incomparable value shift and consequently to the rise of the Formule 1 hotel chain.

Otherwise stated: The innovation on the higher system level is not so much the matter of developing the new functions, attributes, technologies etc., but rather of the optimisation of the whole spectrum of existing functions, attributes, technologies etc. within social, economic and ergonomic space. The author is convinced, that the *higher level system innovations represent the real resource of the entrepreneurial opportunities also for Czech entrepreneurial sphere.*

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Agrarian www portal AGRIS.CZ – a gate to the internet in the agrarian sector

Agrární www portál AGRIS.CZ – brána do internetu v agrárním sektoru

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Abstract: The article deals with several essential aspects and outcomes of the information accessing answers from the agrarian sphere to the experts as well as to public while utilising the latest internet technologies. The aim of the project is to raise the competitive advantage of the entrepreneurial sphere chiefly with regard to the integration process to the EC, where the agrarian sector represents quite an important chapter. It means accessing and integrating the existing information sources, collecting proper information and aiding with publishing the information from subjects, which do not have conditions for electronic (internet) presentations. It leads to creation of a joint complex of the information from every branch, thus improving their accessibility for management staffs, public administration, students, schoolmasters, counsellors and many others. Following a summary analysis of the position of the Czech Republic and utilising the latest technologies, the project AGRIS.CZ brings a brand new scheme – a creation of an agrarian www portal as an integration platform and entering gate to the internet in the sector of the agrarian and countryside sphere. The up-to-date version is available from April 2000. AGRIS.CZ has become a new, pivotal product of the agrarian information processing in the Czech Republic, supported by the Ministry of Agriculture CR and many other institutes. It has gained favour and credit of many users from the expert and entrepreneurial public. The agrarian www portal AGRIS.CZ was the most frequented agrarian server in the Czech Republic in 2000, in České Budějovice in the "Země živitelka" exhibition it has been awarded the first price (The Golden Spike) and it has been successfully presented both here and abroad. The form of the agrarian www portal AGRIS.CZ brings a new choice, how to connect easily the agrarian sphere into the information society and it also fully complies with the European Community Lisboa summit outcomes (March 2000), where it has been stated that the research of the internet sphere and top information technology is a key element for the growth of economy.

Key words: AGRIS.CZ, internet, www portal, information, competitive advantage, information technology

Abstrakt: Článek se zabývá některými podstatnými aspekty a výsledky řešení zpřístupnění informací z oblasti agrárního sektoru odborníkům i veřejnosti s využitím nejmodernějších internetových technologií. Cílem řešení je zvýšit konkurenceschopnost podnikatelské sféry především s ohledem na proces integrace do EU, kde agrární sektor představuje poměrně důležitou kapitolu. To znamená zpřístupňovat a integrovat již existující informační zdroje, vytvářet vlastní informace a napomáhat ke zveřejňování informací od subjektů, které nemají v současné době podmínky pro elektronické (internetové) prezentování. To vede k vytvoření jednotného bloku informací z daného oboru, a tím ke zlepšení jejich dostupnosti pro řídící pracovníky podniků, státní správu, studenty, pedagogy, poradce a všechny další uživatele. Na základě analýzy celkové situace v ČR a využití moderních technologií přináší projekt AGRIS.CZ nové a zcela originální řešení – vytvoření agrárního www portálu jako integrační platformy a vstupní brány do internetu v oblasti agrárního sektoru a venkova. Současná verze je uživatelům v plném provozu k dispozici od dubna 2000. AGRIS.CZ se dnes stal nosným produktem na poli zemědělské informatiky České republiky, respektovaným Ministerstvem zemědělství ČR a řadou dalších institucí. Získal přízeň a uznání mnoha uživatelů z řad odborné i podnikatelské veřejnosti. Agrární www portál AGRIS.CZ byl v roce 2000 nejnavštěvovanějším serverem v zemědělství ČR, na agrosalonu Země živitelka 2000 v Českých Budějovicích získal hlavní výstavní cenu Zlatý klas a byl mnohokrát velmi úspěšně prezentován u nás i v zahraničí. Navržené řešení agrárního portálu AGRIS.CZ přináší možnost, jak i zemědělský prostor aktivně zapojit do informační společnosti a ukazuje se v plném souladu například se závěry lisabonského summitu Evropské unie (březen 2000), kde byl definován jako klíčový faktor růstu ekonomiky výzkum v oblasti internetu a špičkových informačních technologií.

Klíčová slova: AGRIS.CZ, internet, www portál, informace, konkurenceschopnost, informační technologie

INTRODUCTION

In agreement with the world trends and with the rapid development of the information technologies, the web sites of several institutes and firms started to appear also in the Czech Republic. The agrarian sphere was no exception. But all systems are described by a different concept and generally very low state and poor quality information supply. They are not linked well and very often they provide redundant information, or sometimes

the up-to-date topicality is also a problem. The same goes for the servers of the state institutes, universities, research institutes, interest groups, expert groups and the broad enterprise sphere; if those supply any information at all. Also the inefficiency to accept and utilise the latest information technology, lack of collaboration at the state level, and the lack of first-class experts as well, is being displayed here.

The access to high-quality pieces of information is being more and more expressed by companies and individuals as well as the absolute lack of integrated information resource. The effect is an absence of relevant information for enterprising, harshness of the penetrating of the science and research outcomes to practice, and low-effective counselling support.

That is why a development of a portal solution of agrarian sphere information services has been started by the Czech Agricultural University in Prague. The project is being performed as a main part of the partial project "Sources and Information Processing" of the Information Technology Department, which is a part of the research intention "Source Access for Building the Competitive Advantage" guaranteed by the Controlling Department.

By virtue of a large analysis of the summary situation in the Czech Republic and with utilising the world trends, the project AGRIS.CZ brings an overall solution – creation of the agrarian www portal as an integrating platform and entering gate to the internet in the sphere of the agrarian and country-side sphere.

The present-day state of the AGRIS.CZ portal is an outcome of a few years' work on the project developing.

METHODOLOGY

As it has been stated, the aim of the AGRIS.CZ portal is the creation of an information portal oriented to the agrarian sphere with utilising the latest information technologies. It is absolutely indubitable, that in our conditions it is impossible to develop, conceive and operate the system on the technical level and with the support, which the grand and specialised (mainly foreign) firms and institutes have. On the contrary, in terms of technology, design, information structure, information content, etc., it is possible to create quite a competitive product.

The whole solution was related to a number of troubleshooting ranges. Some of them tie together, the other complete themselves, for some of them it is necessary to solve continuously. The most important are:
- The basic concept determining
- The analysis of the initial conditions of the problems solved
- The technical solution design (utilising the latest IT and their effective applying)
- Information needs defining of possible users and their integration into the conception of the system content
- Web design (research and applying the new findings in the www sphere)
- The analysis and development of supportive (service) application for providing a fully functioning solution

– Information acquiring (complex information sources)
– Staff and operational support (utilisation of virtual teams of experts).

RESULTS AND DISCUSSION

The internet utilising is, since the beginning of building-up the AGRIS.CZ system, considered to be a basic principle, which fully complies to the contemporary informative services development. From the views of the product accessibility to the possible users, the following main terms, which the AGRIS philosophy focused on, were circumscribed:
- The creation of a basic entering point (portal, gate...) for the agrarian sector information acquiring
- The content quality (topicality, verity, option range, expertise...)
- Simplicity in using (lucidity, uniform control, uniform design, quality and intuitive content layout...)
- Dynamics (the possibility to immediately acquire desired information on the basis of specified enquiries)
- The integration functions in the sense of generating an integration platform for information sources of the public service (Ministry of Agriculture, Czech Statistical Office...)
- The Integration platform for news published from the department (papers, internet on-line sources, specialised information sources)
- Proper pieces of information (urgency of proper, up-to-date and independent news service)
- Total independence (academic surrounding, expertise, complexity, topicality,...)
- The information candidness (the product applicability for the broad circle of users regardless of the operating system, the Internet browser and its version).

Initial conditions analysis of problems being solved including developing trends

As it has been stated above, the internet utilisation is, since the beginning of building-up the AGRIS.CZ system, considered to be a basic principle. The access to the system of course requires a corresponding technical equipment. Its availability is rapidly raising everywhere. Despite the fact it is a limiting factor, it is also a motivating element for fitting with the computer technique with subsequent penetrating and accepting modern information technologies. In the agrarian sphere, where the primary radius of users is spread along the whole area (aside from the strong group of users in the central bodies, universities and other institutes), the penetrating of modern information technologies was always far more difficult and slower. Now the internet technologies, thanks to their character, eliminate this cardinal disadvantage and barrier.

That is why the important part of the research was also the survey of initial conditions of implementing the modern information technologies in department, their utilis-

Table 1. IT utilizing in agrarian companies (source: AGRIS)

Internet connection	21.2%
Web site possession	0.6%
Local area network	18.6%
Average number of PCs	4

ing and observing trends of development. At the time of the project starting, almost no one dealt with this kind of problems. In conjunction with other partners, an extensive survey of agrarian companies was prepared and realised (April-June 2000). One part was oriented at utilising of the information technologies in agrarian companies (see Table 1). The range of the set of informants represents around 80% of those who farm the entire arable land in the Czech Republic.

The survey has proved that the internet utilising in the Czech agrarian firms just starts. The main causes of that state may be found in the so far small amount of available information and services, the conservative character of the farmers, education, but also in the public administration approach. One of the way out of this situation is to make other pieces of information accessible and to produce specialised internet applications. In the second quarter of this year, a more extensive survey has been carried out, the outcomes of which will soon be available.

Design of the engineering solution

The next subject of research was to verify and determine the main platform exploitable for the suggested solution (operating system, www server, database server, data formats, etc.). With respect to the actual state of the first-class solution of the given problems in the world in 1999, by the testing process and partially also by the experience of programmers, the project AGRIS was suited to MS Windows. On that account the technology ASP (Active Server Pages) was used for the development of applications. The disadvantage of this solution is a strong binding to the Microsoft products. It means a certain financial severity of the solution and especially a narrow cohesion to the proprietary solution of the www server – MS IIS (Microsoft Internet Information Server).

Nowadays, alternative products are being developed, such as Chili!ASP (Chili!Soft) or Instant ASP (Halcyon Software), but they were not available for us, not even tested. Subsequently, the alternative technology PHP started to develop and improve (a competitive one in the face of ASP), which is increasingly more popular with the programmers. Here the advantage is the financial modesty but above all the independence on the platform. PHP may be applied to any server platform. In spite of the fact that there is an obvious orientation to Apache servers, the Windows platform is no problem. The next attested virtue is that the same script in PHP is, in comparison with the ASP script, shorter and more transparent. That is why
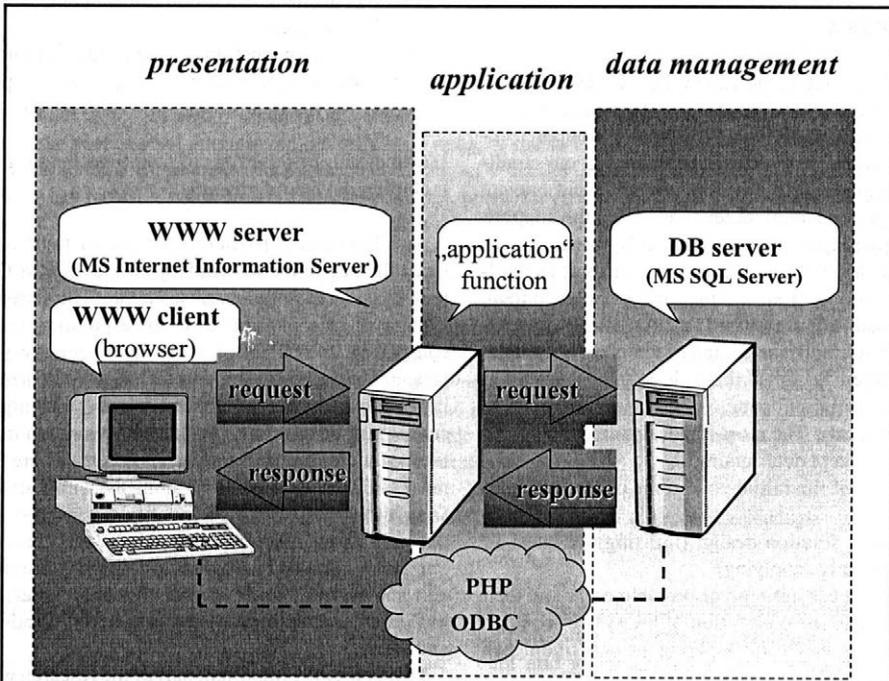

Figure 1. AGRIS.CZ – basic SW platform

the PHP technology was applied to the further development of AGRIS. In addition to these products, the Borland Delphi environment has also been used.

The current functionality of the system proves by evidence the possibility of a compound solution, i.e. PHP implementation to the MS server platform, represented by MS Windows NT Server (version 4.0, SP 6a), MS SQL Server (version 7.0) and MS Internet Information Server (version 4.0). The transfer to the platform MS Windows 2000 and next version of the mentioned software does not come into question. The solution is illustrated in Figure 1.

Definition of information needs of the possible users and their integration into the conception of the system content

Defining the problems of information needs of possible users became the next fundamental subject of research and consequently their integration to the logical structure of options (headings, subheadings...). This structure is being continuously optimised.

At first, the initial page of the portal is displayed with the current news and basic option menu (see Figure 2). The top-level panel contains links to the chief partners of AGRIS (the Czech University of Agriculture, the Ministry of Agriculture, the Czech Statistical Office...). Therefore, AGRIS.CZ, in conjunction with the state organs, creates an integrating platform for their official information resources on the internet, which makes it easily

accessible for the users. The bookmarks in the upper half represent the main menu of the information (main headings) in division: AGRIS, News Service, Commodities, Enterprising, Regions, The European Union, Counselling, Education, Science and Research, Guidepost, Opinions and Web Search). By choosing the main heading, the user is given a ledge menu, which corresponds with the heading content.

Web design

Hand in hand with the system developing, there were problems of web design made out. The aim was to ensure the AGRIS.CZ portal presented itself in a modern way with a uniform appearance and comfort in using. That significantly simplifies the work and orientation in the system and helps to take quickly up the overall concept of the user interface.

One of the fundamental presumption for the project succession is so-called "information candidness". It lies in the uttermost usability of the project to the wide spectrum of users, regardless of the Internet browser used and its version. From the view of the AGRIS.CZ-like application, which is appointed to the widest user public, these are palpable and actual problems, which cannot be avoided. It has to be taken into account constantly while developing the system. On the basis of monitoring the internet browsers used by viewers who visit the
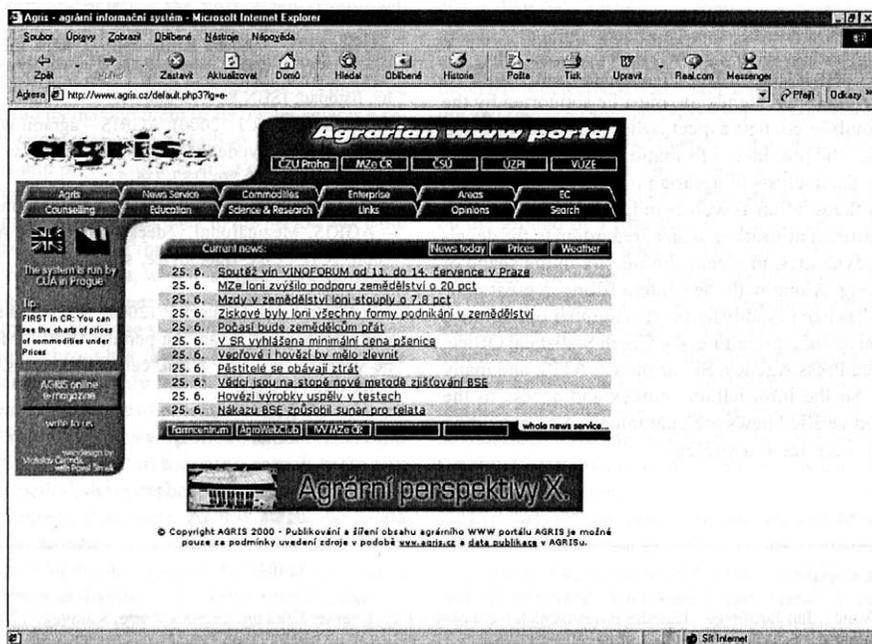

Figure 2. AGRIS.CZ – main menu

Table 2. Internet Browsers – access to the AGRIS.CZ portal (source: AGRIS)

Internet browser	%
Navigator 3.x	0.12
Navigator 4.x	9.40
Netscape 6.x	0.28
Internet Explorer 3.x	0.62
Internet Explorer 4.x	20.46
Internet Explorer 5.x	68.79
Rest	0.33
Total	100.00

AGRIS.CZ portal, the representation is following (period January-May 2001) – see Table 2.

The analysis and development of supportive (servicing) applications for ensuring the full functionality

To ensure the full and unlimited functionality of the portal (real and unlimited running – twenty-four seven, access providing for thousands users per month, the possibility of inserting, correcting and indexing data, etc.), the extensive supportive software is a must. That is why an analysis and development of these optimised applications was a great part of the project. They were acquisition program units (texts, data, databases), intelligent browsers (full text, data), self-acting conversions of currency and natural units, dynamic chart constructing, e-commerce support and so on.

Information Provision

The modern technical and software solution, which the system AGRIS.CZ stands on, must be supported by the corresponding content aspect, where the structure and content of the provided information play a leading part. Thereby the analysis of agrarian information sources is a part of the solution as well as judging their quality and possibilities of utilisation, which, regarding to the development dynamics, proceeds thoroughly in the shape of monitoring. Along with the content filling, a great partnership has been established with a number of institutes (the Ministry of Agriculture, the Czech Statistical Office, the Czech Press Agency, Silvarium.cz, ATIS, and many others). So the information sources and access to the latest and verified news are guaranteed. Also providing own news service is a success.

Staff and Operational Support

The AGRIS.CZ portal development is being co-ordinated by the Expert Council formed by the deputies of the Ministry of Agriculture, the Czech University of Agriculture in Prague, the Ministry of Environment, the Research Institute of Agricultural Economics and other organisations. From the beginning, this has been conceived as one of the important presumptions of the project developing.

The technical and personal support is provided by the Czech University of Agriculture in Prague, chiefly by the Faculty of Economics and Management. The Information Technology Department, Information Service Centre and Counselling and Information Centre 'Agris' are participating in developing and running the AGRIS.CZ system. The experts from other university departments and faculties are participating in the system concept and content filling. The collaboration with many other institutes and their experts has been established. Thus, a large virtual team of experts and operation staff has been created, which partakes in developing, research and testing of the portal.

Today, a co-operation oriented at the Slovak internet began, where the AGRIS.CZ portal is a part of well-known information sources.

The project stays open to all the persons interested in co-operation.

The outcomes of the project can be seen at: http://www.agris.cz

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Company early warning system conception

Koncepce vytváření systémů včasného varování podniku

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Abstract: One of the major problems in dealing with crisis situations in a company is that the crisis is usually detected only after it reaches its acute phase. Thus leading the company out of the crisis becomes much more difficult and often fails to be successful. Therefore, it is important to detect the crisis development in its latent phase when it is much easier to find the true cause of the crisis, before the crisis has reached more company structures and its consequences have had a significant impact on the financial situation of the company. This contribution deals with the development of a company early warning system helping, on the grounds of "non-financial" symptoms, to identify the situation in a company which might grow into a crisis situation and to help handling the situation that has arisen in its preliminary stage.

Keywords: company crisis, crisis management, early warning system

Abstrakt: K největším problémům při řešení krizových situací v podniku je, že je krize převážně podchycena až v akutním stadiu. Tím se vyvedení podniku z krize stává podstatně náročnější a nevede často k úspěchu. Proto je důležité, aby se krizový vývoj podchytil ještě v latentní fázi krize, kdy je podstatně snadnější nalezení pravé příčiny krize a krizový vývoj nezasáhnul více podnikových oblastí a jeho důsledky ještě podstatně neovlivnily finanční situaci podniku. Příspěvek se zabývá vytvářením podnikového systému včasného varování, který umožňuje na základě „nefinančních" symptomů identifikovat situaci v podniku, která by mohla vést do krizové situace a následně řešit vzniklý stav ještě v počátečním stadiu.

Klíčová slova: krize podniku, krizové řízení, systém včasného varování

INTRODUCTION

In our theory and practice, the most common approach to crisis management focuses on the situation when a company becomes insolvent and is no longer able to fulfil its commitments. The company's existence is therefore threatened and its management or its owner selects a revitalisation strategy aimed at leading the company out of the crisis and protecting it against dissolution.

The crisis in a company very often starts much earlier than that and its origin dates back to the period when the state of balance in one of the company sub-systems was violated for the first time, which is hardly ever detected by the company employees. The majority of crises in a company goes through the stage of its development (potential crisis), through a latent stage and reaches the phase of acute crisis. Only then is it reflected in the financial area. In the phase of potential crisis, the external aspects of crisis symptoms are difficult to distinguish and their detection is, in most of the cases, casual. In the following time period, the crisis becomes deeper and it seizes other company structures. At this stage, the crisis symptoms become more evident.

A crisis (not taking into account sudden crises caused by natural perils or disasters), from its beginning until its reflection in the financial area, forms a causal chain, the beginning of which is formed by the true cause of the crisis. This cause triggers a chain of unbalances which spread into other functional areas affecting one another and getting deeper (Zuzák 2000a). At the end of the chain, the crisis is detected based on the outputs of the accounting and financial analyses (Figure 1, Zuzák 2000a). Several months can pass between the first signs of the crisis and its reflection in the financial area.

If the company has a check-up system, it usually works on the ground of a financial analysis using accounting outputs, i.e. ex-post analysis. The signals in a crisis situation reach the company management only after the crisis has developed into the acute stage and is reflected in the company's difficulties in meeting its financial commitments. The handling of the crisis in its acute phase is much more demanding for the company management, requires full involvement and does not always prove to be successful. The identification of the primary cause of the crisis, often by means of complex causal analysis, is a substantial problem.

Therefore, the company management should strive to detect the crisis development in its earlier phase, i.e. in the latent crisis phase, in order to deal with the situation that has occurred. This would significantly reduce the
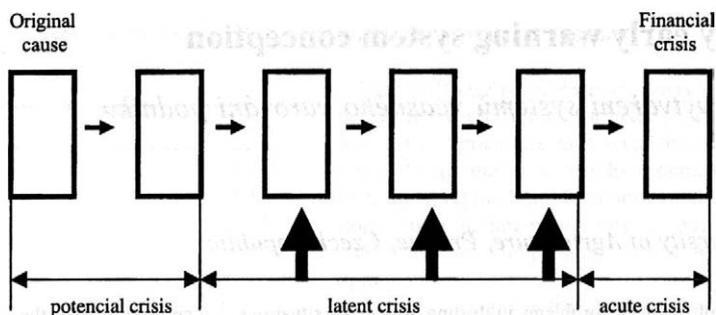
Figure 1. Causal crisis chain

negative impacts of the crisis in the company and lead to the re-establishment of its former balance. At the same time, this would lower the probability of the company going bankrupt or dissolve.

The methodological process of creation company early warning system is solved by projects in the scope of the Grant Agency of the CR and the Faculty of Economics and Management (Czech University of Agriculture) grants.

OBJECTIVES AND METHODOLOGY

The shortcomings of information systems based on the outcomes of accounting outputs and financial analyses eliminate the possibilities of a company early warning system built upon these systems. An early warning system (Schichold 1995) is defined as a specific information system with the ability to signal, by means of impulses, certain dangers which might grow into a company crisis. This means the system must be able to detect symptoms of the balance distortion signalling that something in the company is "going wrong" and that the balance no longer exists. On the basis of these signals, an impulse must be sent to a competent employee who will carry out an analysis of the causes of this state and confirm or deny the negative development that might lead to a crisis situation (Zuzák 2000b).

The objective of this contribution is to present the outcomes of the analyses of requirements which the early warning system must meet in order to fulfil efficiently its role in the company including structure (segment) analysis. Based on these analyses, a methodological process of its development within a company has been formulated.

RESULTS

The detection of crisis signals early in the latent crisis period is accompanied by a number of problems which must be dealt with in the course of the early warning system development. If the system is based on the accounting outputs and/or financial analysis, the information, in the form of indicators, is quantifiable and unambiguous. It is based on "hard facts" usually showing the variation, its value and at the same time enable its assessment.

The early warning system focusing on the identification of the developing crisis symptoms prior to their affecting of the financial structure, i.e. in the latent or early acute phases of the crisis, must be able to work with non-clear signals which are not always quantifiable. These non-clear signals are not financial indicators, but discontinuities and variations not only in the economic structure of the company, but also in technological and social structures. The information thus provided cannot be always interpreted unanimously and subjective measures play a significant role as well.

Early warning systems are also partly based on the signalling of deviations from the required or planned state which do not necessarily mean that a crisis situation has occurred. This will be confirmed by their subsequent analysis. Sometimes such deviations may show to be positive.

The detection of variations, in particular in social structures, where the quantification of symptoms is impossible, places an increased demand on the structure of the early warning system as it must comprise a subsystem built on "soft" signals, the detection and assessment of which requires different processes, necessary knowledge, experience and intuition arising there from. An efficiently functioning early warning system may not be based simply on the internal detection of signals, but it has to comprise, as an additional subsystem, interest groups in the surroundings of the company (stakeholders). The overall structure of the company early warning system creates a matrix of change detection shown in Figure 2.

A part of the early warning subsystem included in segment A of the matrix may be built on the common records in the company and/or it may use some parts of the current company check-up system. It is based on the principle of change and/or trend detection in these indicators and their fast assessment. These indicators include in particular: the use of machinery, the comparison of sales

Symptoms

Quantifiable   Non-quantifiable

Affected

	Quantifiable	Non-quantifiable
Inside	A	B
Outside	C	D

Figure 2 .Matrix for detection of company changes

plans with the real situation, the decrease of average prices, the decrease of the number of customers, the increase of lower quality production and/or the number of claims, etc.

The development of this subsystem follows the following steps:

1. Defining the key processes in the company, whereas the key processes represent a chain of internal company transformations which
   – are connected with company products or services,
   – significantly affect the volume of company yields, costs and profits,
   – meet the needs of customers and bring them value.
2. The analysis of key process impact on the company and on the fulfilment of its goals, defining functional areas in the company these processes go through, the analysis of the strengths and weaknesses of key processes and the identification of risks interconnected with these processes.
3. The delimitation of guidelines and indicators for the detection of the changes of the state.
4. Allocating the monitoring of indicators to company units (employees), matching information flows with competent employees for their assessment and decisions on remedial measures.

The use of current company check-up systems, such as strategic controlling, internal audit and internal check, is rather limited as they are mainly based on the principle of financial analysis and/or have a preventive character. On the contrary, operational controlling, usually detecting phenomena in shorter time periods and comparing the real state with the required (planned, target) one, has a wider usage. Nevertheless the internal early monitoring system may become a part of the company check-up system and vice versa – the check-up system may become a part of the early warning system, simultaneously fulfilling the preventive role.

The internal part of the early warning system which detects the non-quantifiable changes in the company (part **B** of the matrix) is much more complex. Among these, there are in particular: the deterioration of the company climate, the development of groups with a different (undesired) subculture, the occurrence of mobbing at workplaces, more tolerance to shortcomings, tendency to authoritative or liberal conduct, etc.

Company managers hardly ever take notice of the nonclear signals of changes, in particular in the social company system and its management (operational blindness). Sometimes, they suspect them and in some cases they even have an indifferent approach to them. The transmission of information on their occurrence to a competent employee who would make a decision on the measures to be taken to remedy the situation is missing as well. Since changes in this area of the company social system usually evolve rather slowly, which makes their detection harder, the best solution is to engage a consulting firm which can trace the shift (both positive and negative) by means of monitoring, standardised questionnaires, and guided interviews with the company employees.

In order to detect the shortcomings and problems in the company, it is necessary to involve as many employees as possible. Employees on lower levels of the company hierarchy often know about them better as they are facing them directly. Many of these shortcomings and problems do not necessarily lead to the development of a crisis. However, their elimination and handling have a positive impact on the overall company position.

The pre-requisites for the involvement of employees in the early warning system are as follows:

- the development of a positive company climate leading to the higher involvement of employees,
- the development of a simple and fast transmission of information to the competent employee,
- feedback through which the company expresses its interest in this kind of information and at the same time communicates to the employee the measures taken on the basis of his notification.

The external part of the early warning system in a company (segments **C** and **D** of the matrix for detection of company changes) consists of external interest groups (part "stakeholders"), such as company owners, suppliers, customers, co-operating partners, state, local community, regional authorities, creditors and others. The above mentioned interest groups are more or less dependent on the prosperity of the company and a crisis in the company jeopardises their interests or sometimes even their existence. Therefore, they are motivated to become "voluntarily" a part of the early warning system.

If the external subsystem of the early warning system is based on accounting, or even annual reports, it suffers from the same shortcomings as the internal subsystem (this principle is often applied to the early warning systems of banks which act as creditors).

The signalling of quantifiable variations by the external early warning subsystem is limited and concentrates mainly on the area of production quality (e.g. the number of faulty products, the increase of the number of lower quality products, the increase of break-down rate or defective products sold). The signalling of non-quantifiable changes, such as those mentioned below, is of greater importance:
- changes in the company image,
- bad reputation of the company among public or customers,
- negative impact of advertising,
- negative changes in the conduct of company employees towards customers,
- upcoming legislative measures threatening the company,

- steps to be taken or taken by competitors.

Apart from "voluntary" bodies involved in the early warning system, the company may use, for this purpose, a consulting firm that monitors its competitors and the surroundings of the company, in particular in the political, social, economic, technological and technical areas, and analyses information on changes and their impact on the company. If strong co-operation and commercial links exist among several companies, this consulting firm acts as an intra-company, or supra-company early warning system.

CONCLUSION

It is not possible to presume that an early warning system would totally eliminate the occurrence of crises. However, it is able to detect the majority of crises in their early stage of development. A significant effect has the detection of shortcomings and problems which might not lead to a crisis situation, but the handling and elimination of which helps to strengthen the overall competitiveness of the company.

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Z VĚDECKÉHO ŽIVOTA

Profesor Jan Hron šedesátiletý?

Dne 17. září 2001 oslavil své šedesáté narozeniny děkan Provozně ekonomické fakulty České zemědělské univerzity v Praze pan prof. Ing. Jan Hron, DrSc., dr.h.c. Šedesátiny jsou tradičně vnímány jako předěl završující aktivní etapu života člověka a brána do období odpočinku a v oprávněných případech i do období polehávání na vavřínech. Všechno však nasvědčuje tomu, že v případě profesora Hrona k žádnému přelomu nedojde. On sám veškerá jubilea přehlíží a pokud jim věnuje vůbec nějakou pozornost, pak jen na úrovni společenské konverzace, ve které s šarmem sobě vlastním nutí ostatní k hádání jeho věku – samozřejmě alespoň o deset let nižšímu. Jeho životní elán a neznámý zdroj zřejmě nevyčerpatelné energie některé lidi mate natolik, že jsou schopni mu hádat padesát let zcela spontánně. Racionální úvaha však musí dovést každého k naprosto opačnému závěru: pouhý prostý výčet jeho skutků naplňuje více než šedesát let jednoho lidského života, a proto se lze s úspěchem domnívat, že se nás svou proklamovanou šedesátkou jen snaží ušetřit pocitů malověrnosti, které by se nutně musely dostavit při srovnávání s ním. Posuďte sami:

Stejně jako většina z nás, kteří máme to štěstí s ním spolupracovat a nebo se při práci alespoň setkávat, vystudoval vysokou školu včetně všech obvyklých předstupňů, nutno podotknout, že o některé zážitky ochuzen. Za svá studia totiž nepoznal jinou známku než výbornou a jeho studijní výsledky lze proto ve vztahu ke spektru možností, které jsme my ostatní uměli bohatě využít, považovat za poněkud oploštělé. Po studiu nastoupil jako ekonom do JZD Radbuza Staňkov a, sotva splnil svou občanskou povinnost službou v tehdy Československé lidové armádě, byl povolán znovu: tentokrát k návratu zpět na svou alma mater svým učitelem a přítelem, na kterého dosud rád a s úctou vzpomíná, panem profesorem Vladimírem Pilíškem, k aspirantskému studiu. Tuto nabídku přijal a od roku 1967 zůstal Provozně ekonomické fakultě věrný.

Uvolněná atmosféra konce šedesátých let pootevřela dvířka i vědním oborům, které do té doby nebyly zrovna v kurzu, a spolu s profesorem Pilíškem položil základy teorii řízení včetně aplikací kybernetiky v řízení. Dodnes s jiskrou v oku vzpomíná na hektickou dobu, v níž oba hltali nejnovější publikace ze světa a po nocích je připravovali do podoby přijatelné jak pro studenty vysoké školy, tak pro řídící pracovníky v zemědělských podnicích. Ona jiskra v oku, která se při takovýchto vzpomínkách pravidelně zaleskne, je jen dokladem toho, že v té době stačili nejen absorbovat spoustu nového, ale že dokázali přispět i svou vlastní troškou do mlýna a výše uvedené disciplíny v kontextu místních podmínek rozvíjet. A že se to dařilo, dokládá popularita tehdejších a v průběhu dalšího desetiletí následujících „španilých jízd" po českém, moravském i slovenském venkově, při kterých dokázal se svými spolupracovníky naplnit sály kulturních domů i vesnických hospod. V nich pak přítomným řídícím pracovníkům v zemědělství vysvětlil, že

$$m = \frac{\log(\alpha - \beta)}{\log(a - b)}$$

takovým způsobem, že odcházeli ze sálu s pocitem obohacení a dožadovali se dalších přednášek. Toto období bylo pro něho velkou školou, jejíž lekce v následujících letech zúročil. V roce 1977 předložil habilitační práci na téma „Analýza a projektování organizačních systémů zemědělských podniků". V ní světu představil mimo jiné organizační systém podniku v kostce; s kostkou tedy přišel dříve než Ernö Rubik, jakkoli jeho kostka byla komerčně úspěšnější.

Někdy koncem 70. let začal svou vlastní činností popírat rozšířené pořekadlo o tom, že když někdo něco umí, tak to dělá, a když to neumí, tak to učí. Přestože byl v té době již respektovaným vysokoškolským učitelem v disciplíně tak těžko uchopitelné, jakou řízení je, využil příležitosti dokázat v praxi, že je řízení a zejména vedení lidí skutečně schopen. Tuto schopnost postupně prokazoval v akademických funkcích na úrovni katedry a fakulty, i v řídících orgánech vědeckých a odborných společností. I když byl do značné míry vytížen řídícími funkcemi, obhájil na Vysoké škole ekonomické velký doktorát a následně byl jmenován profesorem. Pod jeho vedením prošla úspěšnou konsolidací Provozně ekonomická fakulta, když na počátku 90. let prodělala šok z naprosto bezprecedentní změny. Za krátkých šest let ve vedení České zemědělské univerzity se mu podařilo upevnit její pozici jak v České republice, tak v rodině zemědělských univerzit v Evropě a rozšířit její kontakty po celém světě. Přestalo se jí říkat „hnojárna" a sebevědomě se zařadila po bok kamenných univerzit, kam právem patří. Rektoři řady českých univerzit dodnes rádi vzpomínají na svá zasedání, která profesor Hron v pozici prezidenta České konference rektorů s noblesou a přehledem řídil. Jakoby mimochodem, nikoliv však s menším nasazením, řídí činnost České akademie zemědělských věd, Švehlovy nadace, věnuje se práci v redakčních radách vědeckých a odborných časopisů, ve vědeckých radách renomovaných univerzit a výzkumných ústavů, v Inženýrské akademii, v oborových radách doktorských studijních programů, zastupuje akademickou obec v řadě vládních poradních orgánů od grémia ministra zemědělství, přes akreditační komisi vlády, po Radu pro vzdělávací politiku MŠMT ČR a Radu pro zemědělský výzkum a vývoj.

V roce 2000 se vrátil na post děkana Provozně ekonomické fakulty ČZU v Praze a s jistotou větrem a mořskými vlnami ošlehaného kormidelníka ji o rok později provedl všemi nástrahami akreditačního řízení, ze kterého fakulta vyšla s čistým štítem. Za celou dobu své kariéry bez ohledu na momentální časové zaneprázdnění „důležitější" činností se nikdy nevzdal kontaktu se studenty, vedl aspiranty a doktorandy, z nichž někteří o generaci či dvě mladší mají problémy se jeho tempu přizpůsobit. Soustavně se věnuje výzkumné práci a to mu umožnilo publikovat více jako 360 knih, skript, článků, vědeckých referátů a výzkumných zpráv. Se stoupající a naprostou neuspokojitelnou frekvencí je vyzýván k přednáškám na konferencích doma i v zahraničí. Byly to právě zahraniční instituce, které v souladu s pravidlem o tom, že doma není nikdo prorokem, první ocenily kvality jeho osobnosti formou čestných doktorátů – počínaje univerzitou v anglickém Plymouthu, přes Zemědělskou Univerzitu v Gruzii až po Slovenskou poľnohospodárskou Univerzitu v Nitře.

Na první pohled by se mohlo zdát, že jeho život je jenom práce. Profesor Hron skutečně splňuje kritéria kladená na workholika, ovšem nevypadá, že by tím nějak trpěl. Stačil se oženit, vychovat dvě děti, které mu lásku a péči opětují prostřednictvím tří rozkošných vnuček, umí posekat zahradu, prořezat stromy, přeložit tašky na střeše, umýt okna, ohřát připravené jídlo a uvařit čaj. Umí všeho nechat a věnovat se své mamince, když ho potřebuje. Umí naslouchat lidem a naložit jim víc práce, aby jim pomohl ze splínu, kterým procházejí.

Je ctí pro nás všechny, že si s ním smíme připít na zdraví.

Doc. Ing. Ivana Tichá, PhD., Provozně ekonomická fakulta ČZU v Praze, Česká republika

DISCUSSION

E-business – e-markets as the source of competitive advantage

Elektronický obchod – elektronické trhy jako zdroj konkurenční výhody

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INTRODUCTION

The dynamics of internet development is obvious in the continuous changes of its economic functioning model. Even the basic question that refers to financing of service and internet infrastructure building is changing. The situation in this way is resolved now. There is a trust the investors put into the internet business. As a consequence, internet has no troubles to obtain resources for its activities. On the other hand, this state is balanced with big anticipations joined with internet enterprises. This expectation is the main power of e-business.

All the time, it is more apparent that the majority of richness in the new internet economics rises along with the inter-company transactions string, in range of Business-to-Business (B2B).

Some experts predict in this context an explosive increase of the B2B sector and technological consulting companies gradually escalate their business forecasting.

The internet is such a dynamic and unpredictable medium, that it is necessary to take with reserve all estimated numbers and enquiries. But the extent of the B2B market is identically estimated at billions dollars in the next years and it will form a considerable percentage of the global world business.

This range B2B invites investors and every day we can hear about new investments into technological companies and joint ventures.

TAXONOMY OF ELECTRONIC MARKETS

Electronic market-place, as a middleman of seller-buyer relationships which are ranged to some industry vertical or some business process, uses many market mechanism to mediate transaction between companies. By the means of sellers-buyers joining, they create the value, improve the market liquidity and lower transaction costs. In the next part of this contribution, there are described the dimensions of electronic markets classifica-

tion. These dimensions are used for creating the taxonomy of business models for electronic markets. We can better understand their fundamental and value potentiality of various business models.

WHAT DO THE ENTERPRISES BUY?

The demand of enterprises includes a large scale of products and services from notebooks to computer systems, from steel to machines. On the base of the demanded products and services, it is possible to divide it into manufacturing inputs and operating inputs. Manufacturing inputs are raw materials and makings which are used directly for product manufacturing or at the technology process. Manufacturing inputs have a vertical character, because the resulting product requires the specific manufacturing process and specific inputs. There are needed highly specialised suppliers and distributors to its production and more than that, they require special logistic and technology processes. On the other hand, the indirect, operating inputs are the articles and services which are not directly used for production of final product and which can be is applied inter-sectorally. Operating inputs have a horizontal character. These goods and services are needed in all sorts of entrepreneur activities. Operating inputs are more often provided by a third party.

HOW DO THE ENTERPRISES BUY?

The enterprises can buy products and services according to plan, in long terms, systematically – systematic sources – or, on the contrary, they can buy promptly, according to instantaneous requirements – spot sources. The purchases according to plan are based on firstly appointed contracts with the entitled suppliers. These contracts are mostly long term ones and firms co-operate on the base of near business relationships. The majority of manufacturing inputs is procured by this way.

The prompt purchases are realised on the base of one transaction and there are not a long-term business con-

tracts. It means the business operations, where the time from starting the business to its accomplishment is not longer than two weeks.

B2B MARKET DIVISION ACCORDING TO PURCHASE CRITERION

The ways of division of the above listed manufacturing and operating inputs ("what") as well as the systematic and prompt purchase make possible to classify the B2B markets into four categories:
- MRO markets (indirect inputs, systematic purchases, horizontal concentration)
- Yield managers (indirect inputs, prompt purchases, horizontal concentration)
- Catalogues (manufacturing inputs, systematic purchases, vertical view)
- Exchanges (manufacturing inputs, prompt purchases, vertical view)

MRO markets (hubs) are specialised on the effective process of operating inputs attainment, it means services, capital from all scale of production branches

The classical examples of these markets are W.W. Grainger, Ariba and Commerce One. These markets are horizontal by their nature, because indirect inputs come from many market segments. Inputs are mostly provided by third party that takes care of the delivery. Yield managers are specialised in acquiring of prompt indirect operating inputs.

The best exercise they have in situations, when prices and demand are not fixed (services) Yield managers have a more vertical character than MRO markets. Exchanges are crested to deal in similar commodities for the concrete branch verticals. Their principle is similar to the classical stone Commodity Exchange. There does not exist a near relationship between the participants and they do not need to prove mutually their identity. Examples of the Exchange are E-Steel, Paper Exchange and IMX Exchange.

The Catalogues are used for planned purchases of goods from one branch vertical. The base is the existing extensive supplier catalogue, with on-line access. It can facilitate the automatic purchasing process and create the value for buyers by reduction of transaction costs. The catalogues are the seller – focused or buyer – focused. Examples are the catalogues PlasticsNet.com, Chemdex. The close collaboration with distributors is a necessary condition, the special accent is set on the professional manipulation and logistic requirements of concrete market segment.

HOW THE E-MARKET CREATES VALUE – AGGREGATIONS VS. MATCHING

Markets create the value for participants by the means of two basic Aggregations and matching. The principle of aggregation is to concentrate the biggest number of

buyers and sellers possible in one place (lowering of transaction costs).There is the typical possibility of participants to select from hundreds and thousands products of many suppliers. The entry of new buyer into seller, not for another buyer. It is the importance of aggregation mechanism property. There is one simple reason – in catalogue aggregation model, the buyer must not be the seller at the same time. The entry of new subjects on the side of demand is an advantage for the bidding subject and vice versa. The Aggregation mechanism has a static character, because prices are appointed beforehand and market participants do not negotiate about them like at the auction.

The Aggregation mechanism (called the catalogue mechanism too) works best under the following conditions:
- Order process cost is relatively high in ratio to price of demanded products
- Products are differentiated and not the commodity type
- At the branch, there is high level of supply
- There is a big number of suppliers
- Buyers do not understand sufficiently the dynamics of prices mechanism
- The most of purchases is realised on the base of the beforehand appointed contracts
- A sufficiently extensive catalogue is created, including amount of supplier

The matching mechanism creates the value by finding convenient pairs of bidder and demander (matching) to negotiate about price in real time. For example, iMark.com facilitates finding buyer and seller in the market with used fixed assets. In comparison with the aggregation mechanism, the buyer can be the seller at the same time - entry of the buyer into the system can be useful for other buyers and sellers as well.

There is a higher liquidity of market too. As for the market models, the catalogues use aggregation mechanism while Exchanges use both these effects.

The conditions of a good function of the matching mechanism are:
- Products are commodities, they are not explicitly differentiated
- They are traded in a big amount, transaction costs are relatively small
- Products are relatively standardised and they can be directly traded (sight – unseen)
- The dynamics of prices creating principle is well known to buyer and seller as well
- Purchases are not appointed with the possibility of long -term collaboration – they are single-transactions
- Delivery, manipulation and packing can be ensured by third party. The demand and prices are not constant.

WHOM DO ELECTRONIC MARKETS SERVE?

Another dimension to distinguish electronic markets is their intention. B2B market is their intention. B2B mar-

Table 1. Market orientation

Value creating	Market orientation		
	Neutral		Oriented
Aggregation	**Neutral aggregation**		**Forward aggregation** **Reverse aggregation**
	– negotiated prices based on catalogues		– negotiated prices based on catalogues
	– bring advantage to sellers and buyers by aggregation of demand and offer		– brings advantage either to sellers or to buyers by aggregation of demand and offer
	– requirement to maintain objectivity		– join buyers or sellers – orientation
	– ideal for systematic purchases		– ideal for systematic purchases
	– proper for markets with double-sided fragmentation		– proper for markets where big and small companies encounter
Matching	**Dynamic markets**		**Forward auction** **Reverse auction**
	– dynamic prices created by market		– dynamic prices created by market
	– bring advantage to sellers and buyers by aggregation of demand and offer		– bring advantage either to buyers or top sellers by matching and better liquidity
	– requirement to maintain neutrality		– seek proper sellers or buyers, are oriented
	– ideal for prompt purchases		– ideal for prompt purchases
	– proper for markets with double-sided fragmentation		– proper for markets with single-fragmentation

kets can be neutral or oriented. Neutral markets do not give preference to buyer before the seller and vice versa. All the above described forms are neutral. Neutral markets try to concentrate many buyers and many sellers. It presents one problem, however. The buyers do not want to enter into the market, till there is a sufficient number of sellers and, vice versa, the seller does not enter the market where there is no sufficient demand (bigger number of sellers).

The second category is single (one-side) oriented markets. They are entirely buyer- oriented (buy-side) or seller- oriented (sell-side) and help them to appoint more advantageous business conditions and ensure sufficiency of appropriate information.

It is possible to define the orientation of electronic markets according to who pays and what services he offers. In other words, which party is more fragmented and can profit more from joining across the market middleman (Table 1).

FOR WHICH INDUSTRIAL BRANCHES ARE THE B2B MARKETS PROPER?

The Investing company Goldman Sachs was trying to identify in the Investment Research, where are the B2B markets most suitable. This company analysed a big amount of electronic markets and focused namely on two factors – savings and potential new income. Savings, that are flowing from B2B, depend on two factors – cost structure (production cost x technology cost) and number of participants at supplier chain.

Potential income depends on the growth rate of the given branch and on the concrete business model. Branches, where there are the most realised B2B solutions, have some corresponding properties:
– supplier chain is considerably dispersed
– the key factor of branch success is technological innovation
– processing cost represents more than 20% of total cost
– the product is complicated from the production point of view
– there is a hard pressure to lower costs.

CONCLUSION

Nowadays, there exist several thousands of working or announced electronic markets. We can expect first of all their expressive consolidation soon – there can survive only such solutions, that mean a real advantage and reason for frequent using for their participants.

The markets will be joined together – we can see the analogy with development of electronic mail where the individual systems were not compatible from the beginning. The joined world market of the future will not have only one owner. It will be composed from collaborating markets focused on certain specialisation or certain service. Nobody has to force companies to use the classical market in the traditional sense. Market is the basic platform of business enterprise today. Companies are not forced to use the electronic market of course. Electronic market has to be attractive from the beginning for the companies to consider entering it. Lowering of transac-

tion cost and reaching lower prices thanks to a more perfect function of competitive environment – these are the important reasons for e-business but not the only advantages.

When an enterprise buys and sells mostly or exclusively by electronic way, it gains instantaneously and without charge another advantage – and the importance of it we begin to realise only just now. This advantage consists in the fact that all data about all transactions are saved in the digital way in the computer where they are ready for further processing. All business activities are exactly mapped with all details.

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INFORMATION

Employment services and the labour market in the Slovak Republic in 2000

Služby zaměstnanosti a politika trhu práce na Slovensku v roce 2000

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EMPLOYMENT SERVICES – NATIONAL LABOUR OFFICE

Being in place for ten years, the Slovak National Labour Office's role is to implement objectives and tasks of labour market policy. The NLO, budgetary organisation, was established in 1990/91 by establishing labour offices as bodies of the State administration concentrated under the Employment Service Administration in 1993; the public Employment Fund was established in Slovakia in the same year providing benefits to the unemployed and funding maintenance of the job opportunities or creation of new ones. The NLO establishment in 1997 has finished the period of diversified institutions operating at the labour market and meant a concentration of funding, performance and control under one authority. Based on the insurance principle separated from the state budget, the NLO funding together with its tripartite-based management has meant a considerable shift from the state paternalism in the social area.

THE NLO BASIC ACTIVITIES

– *Job mediation*
– *Counselling for job selection and vocational guidance*
– *Special counselling delivered for*
  – Risk groups (the juvenile not continuing in any further preparation for their occupation, secondary or university school-leavers, people over 50 years of age, people registered as unemployed for over one year, disabled people)
  – Those interested in retraining and small business start-ups
  – Employers selecting and recruiting employees from the labour offices register
– *Retraining*
– *Support for creation new job*
– *Support for employment of special groups*
– *Support for employment of disabled people*
– *Support for job maintenance*
– *Support for international labour mobility trough international agreements or treaties*
– *Collection of contributions within the unemployment insurance scheme*
– *Management of financial resources and decisions on their use*
– *Unemployment benefit payments*
– *Collection of the Guarantee Fund contributions*
– *Compensations paid from the Guarantee Fund*
– *Human resources development*
– *Information system development*
– *Inspection*

LABOUR MARKET 2000

Changes affected, primarily, by the amendment to the Employment Act No. 292/1999 Coll. took place in 2000. Becoming effective in December 1999, the amendment has provided for more strict criteria regarding suitability of job offered and possibilities for becoming unemployment beneficiary; the ceiling amount and time period of unemployment benefits granted also have been reduced. The amendment to the Employment Act No. 245/2000 Coll. has enabled for creation of job opportunities for the long-term unemployed through public works programme upon targeted subsidies granted from the state budget.

Employment

Demand for labour force continued to decrease being reflected in lower number of population employed. 2,101.7 thousand people were employed in the Slovak economy in 2000 meaning 30.4 thousand less compared to 1999. 139.8 thousand people were employed in a primary sector, 782.9 thousand in secondary sector and 1,179 thousand in tertiary sector in 2000. Compared with a previous year, the increase in employment was only reported in the tertiary sector by 2.1% (by 24 thousand people) (Figure 1).
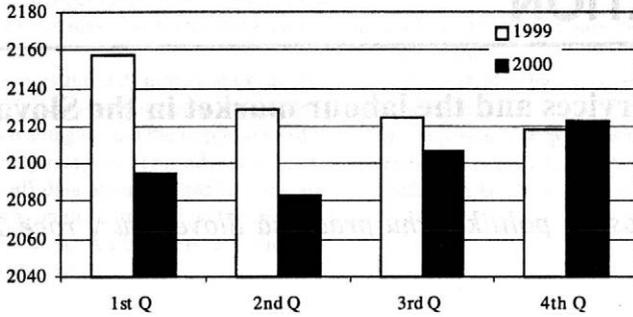
Figure 1. Employment in 1999 and 2000

Source: Statistical Office, SR

Unemployment

The average number of unemployed has reached 518 thousand people in Slovakia in 2000 and increased by 5.8% compared with the previous year. The average unemployment rate was 18.2% and its growth rate decreased by 2.9 p.p. compared with the year 1999.

Summer (May to July) unemployment trend was affected in the same way as was the case in previous years by new school-leavers seeking for the job. More strict rules for becoming registered and unemployment benefits were reflected in lower number of unemployed school-leavers accounting for 37,726 as of the end of July 2000. The second half of the year was under the significant influence of the long-term unemployed being placed to the public works programme (Figure 2).

Slower unemployment growth rate was caused by lower number of newly registered unemployed and increased number of people excluded from the labour office register. Inflow of new unemployed to the labour office register was reduced by 24 thousand (5.2%) achieving 438 thousand people, compared to the year 1999. Number of

unemployed people excluded from the labour office register increased by 111 thousand (31.5%) achieving 467 thousand people.

Duration of unemployment

Compared to the year 1999, slower inflow of the new unemployed was reflected in 2000 by lower unemployment growth rate with the register period of up to 6 months. The average number of such unemployed people accounted for 172 thousand people in 2000 and decreased by 16 thousand (8.3%) compared with the previous year. The average number of unemployed people registered for 6 months accounted for 33.3% of overall registered unemployed (compared to 38.4% in 1999) (Figure 3).

Being the turning point for the long-term unemployment, the year 2000 meant a critical decrease of demand for labour force at the labour market. The proportion of long-term unemployment was 50% out of total unemployment meaning that every other registered unemployed
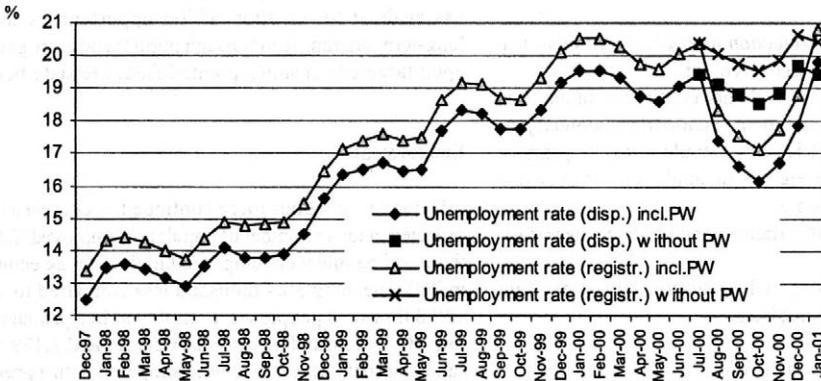

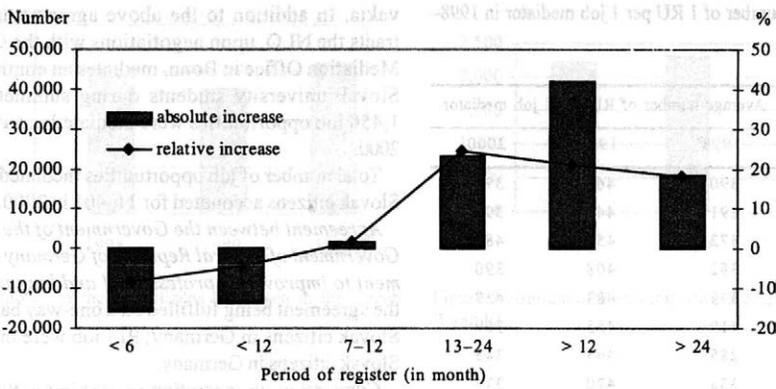Figure 2. Unemployement rate in the SR

Figure 3. The unemployed registered by lenght of unemployement (absolute and relative year-on-year increase of average level)

person was a long-term unemployed one. The overall trend of having long-term unemployment, being a prevailing one, was slowed down by implementation of public-work programme in the second half of 2000. The average number of unemployed registered for over 12 months accounted for 240 thousand people in 2000 which was 46.4% of total average of registered unemployd ("RU"). The average duration of unemployment increased from 13.1 to 14.7 months, i.e. by 1.6 month.

Breakdown by education

As of the end of December 2000, the major group of the unemployed was made up by apprentices who completed their apprentice education (175,161 people, 34.6%) and registered unemployed with elementary education or with no education (149,784 people, 29.6%).

Breakdown by age

In terms of age of the unemployed, the year 2000 was similar to the previous one. The trends of growing number of RU at the age of 20 to 24 and lower number of RU at the age of 15 to 19 continued. However, the most significant phenomenon was the increase of the RU at the age of 50 to 59 years.

The registered unemployed at the age of 25 to 29 years formed the largest group among overall unemployment. Their average number exceeded 64,000 (over 12% of all RU). Young people at the age of up to 29 accounted for almost half (45%) of the total number of RU.

School-leavers

61,338 school-leavers of high schools and universities flowed in the unemployment register during the year 2000. The average year number of the school-leavers re-

gistered dropped down compared to the previous year by 3,378 people (9.3%). The ratio of school-leavers registered to the overall RU decreased by 1.05 p.p. compared to the year 1999.

Job vacancies

The average of 7,697 job vacancies available in 2000 accounted for an increase by 1,341 vacancies compared with the previous year.

The annual inflow and outflow of job vacancies reported were of significant larger numbers compared to the previous year. 165 thousand job opportunities were reported or announced by the employers in 2000 representing thus an increase by 80.2% (73 thousand) compared with the previous year. At the same time the annual job opportunities outflow also accounted for 165 thousand increasing thus by 68 thousand (69.8%) compared with 1999.

The annual turnover of job opportunities (inflow + outflow) in the year 2000 accounted for 330 thousand job opportunities increasing thus by 141 thousand (74.8%) job vacancies. Such intensive inflow and outflow of job opportunities was caused, primarily, by a supply resulted from the public works programme.

NLO EXECUTIVE BODIES ACTIVITIES

Job mediation

A special attention was drawn to make job mediation within the NLO system more efficient and dynamic with the objective to establish environment for significant strengthening and improving the quality of job mediation, to enhance efficiency and effectiveness of excluding from the UR while strengthening active search for job vacancies. On the other hand the objective remains to achieve higher level of client satisfaction; i.e. the registered un-

Table 1. Average number of 1 RU per 1 job mediator in 1998–2000

Region	Average number of RU per 1 job mediator		
	1998	1999	2000
Banská Bystrica	390	466	391
Bratislava	291	440	396
Košice	372	454	487
Nitra	352	408	390
Prešov	375	483	437
Trenčín	319	455	369
Trnava	285	445	345
Žilina	335	420	376

employed as well as employers, to achieve the level of the EU Member States in the context of Slovak accession process.

Units dealing with job mediation and counselling at the district labour offices ("DLO") were strengthed in line with the purpose to re-build the NLO to the client-oriented one and under the new DLO organisational chart approved. The model was piloted in three districts selected in Slovakia. The effort was then reflected also in the reduced number of RU per one job mediator; the reduction was by about 50 clients per one job mediator compared to the year 1999.

As of the end of December 2000, 399 registered unemployed were assigned to one job mediator meaning still a high workload for them. Job mediation has become even more intensive as the number of the unemployed increases and the number of job vacancies decreases in a long-run.

467,029 unemployed were excluded from RU representing an increase by 111,472 people in 1999. Out of them, 175,440 were placed through the labour offices meaning an increase by 76,626 people (1999).

Job mediation in abroad – support of the international labour force mobility

The following activities regarding the international labour mobility have been carried out by the NLO:
– *job mediation in abroad (for Slovak citizens)*
– *job mediation in the Slovak Republic (for foreigners)* primarily based on bilateral agreements and contracts on mutual employment of citizens and exchange of trainees.

Bilateral contracts and agreements for the NLO (total number: 8, two of them were not implemented) were effective in 2000; in the framework of them 9,951 job opportunities abroad (except the Czech Republic) were filled in by Slovak citizens and 461 job opportunities were implemented by foreigners(except the Czech citizens) in Slovakia. In addition to the above agreements and contracts the NLO, upon negotiations with the Central Job Mediation Office in Bonn, mediates an employment for Slovak university students during summer holidays. 1,450 job opportunities were mediated in such a way in 2000.

Total number of job opportunities mediated abroad for Slovak citizens accounted for 11,401 in 2000.

Agreement between the Government of the SR and the Government of Federal Republic of Germany on employment to improve the professional and language skills – the agreement being fulfilled on a one-way basis only for Slovak citizens in Germany; 914 job were mediated for Slovak citizens in Germany.

Convention on mediation of earning activities limited in time for Slovak citizens in Federal Republic of Germany – 8,151 job were mediated for Slovak citizens in agriculture, catering, accommodation services and entertainment in Germany.

Agreement between the Government of the SR and Swiss Federal Government on exchange of trainees – 85 jobs were mediated in Switzerland.

Agreement between the Government of the SR and the Government of Russian Federation on organising the employment within meeting commercial or other contracts and on mutual employment of citizens – this agreement was not implemented in practice due to drafting implementation procedures.

Agreement between the Government of the SR and the Government of Ukraine on mutual employment of citizens / 449 labour permits were issued in 2000 for Ukraine citizens.

Agreement between the Centre for International Mobility of the Finnish Republic and the Ministry of Labour, Social Affairs and Family of the Slovak Republic on exchange of trainees – 2 Finnish citizens were mediated a job in Slovakia and 2 Slovak citizens worked in Finland.

Agreement between the Government of the SR and the Government of Hungary on mutual employment of citizens – 400 one-year jobs in Hungary were mediated for Slovak citizens; 399 jobs for season. Pursuant to this Agreement 10 Hungarian citizens worked for one year in Slovakia. Citizens of Hungary are employed in Slovakia not using this Agreement.

Agreement between the Government of the Slovak Republic and the Government of Luxembourg Grand Duchy on accepting the trainees – notified in 2000, not implemented yet due to drafting implementation procedures.

Contract on mutual employment of citizens concluded between the Slovak and Czech Republics – regulates the regime of employment for Slovak citizens employed in the territory of the Czech Republic and Czech citizens employed in the Slovak Republic. 63,567 Slovak citizens were employed in the Czech Republic and 2,227 Czech citizens in Slovakia pursuant to this Contract (Figure 4 and 5).
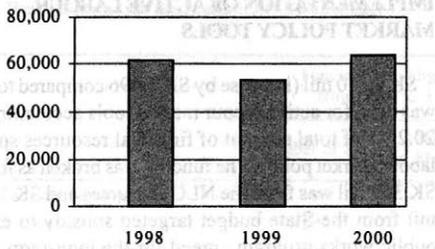
Figure 4. Amount of the SK citizens employed in the Czech Republic

Figure 5. Amount of the Czech citizens employed in the Slovak Republic

Job mediation for fees

Permits to mediate jobs for fees are issued by the NLO. 64 permits of that type were issued in 2000; having 159 job mediators for fees in total as of the end of December 2000.

COUNSELLING SERVICES

Within the employment service, counselling services are delivered by counselling and legal units at DLO. Continuation in such services in terms of both, the contents and the organisation, was ensured in 2000.

Counselling services were delivered by counsellors of labour offices free of charge upon the principle of voluntary-based approach by clients, not only those being registered as unemployed but also other clients. In total in 2000, such services were used by 314,276 clients, out of them 242,326 being registered unemployed.

One-to-one counselling

Focusing on addressing the problems resulting from the unemployment situation of every client, one-to-one counselling were the prevailing form of consulting service. In addition to the front-line lump-sum consultancy of an informative and consultancy nature an attention was paid to the technical individual consultations based on the one-to-one interviews of a more long-term nature. 149,575 consulting one-to-one interviews were delivered for 105,370 clients in 2000.

Group counselling

Suitable primarily for groups of clients requiring more intensive care, the group counselling have meant another form of consulting services delivered on a longer-term basis. The clients were put into groups based on the equal risk characteristics of employability at labour market. 76,349 clients were delivered the group counselling activities in 2000. 18,066 registered unemployed took part
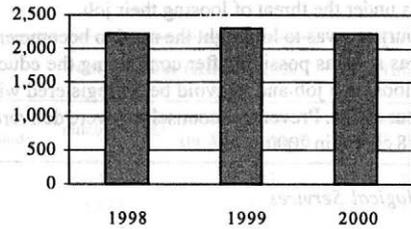
in 264 counselling projects. Supportive counselling programmes for the disabled people were also conducted by the NLO counsellors to support self-assertion of the disabled; resources collected through collection of compensations in money for not employing the mandatory share of the disabled pursuant to Article 114 of the Act No. 387/96 Coll. under the later regulations were used. 76 supportive programmes were conducted for 1,391 disabled people in 2000.

Counselling for employers

Such counselling were conducted through one-to-one and, mainly, group counselling targeted to:
– provide information and counselling on employment and legal relationships,
– communicate the employers' obligations towards labour office,
– staff dismissals,
– permits for work overtime,
– payments of contributions within the unemployment insurance scheme,
– possibilities to receive contributions in money from labour office to create job opportunities,
– re-training programmes.

Selection procedures or job fairs to fill in the job vacancies were parts of group consulting interventions for employers. 27 job fairs for 9,613 clients and 3,401 selection procedures for 77,811 registered unemployed were arranged by labour offices in 2000. Consulting selection procedure for retraining courses was passed through by 12,492 clients. One-to-one counselling were delivered for 10,056 clients.

Preventive counselling

Through one-to-one or group methods organising presentations, discussions and counselling talks such consultations were delivered, *inter alia,* to
– future school-leavers,
– juveniles and their parents,
– consultants for upbringing operating at schools,

– employers,
– clients under the threat of loosing their job.

The purpose was to highlight the need to become employed as soon as possible after completing the education or loosing a job and to avoid being registered with the labour office. Preventive counselling were delivered to 55,818 clients in 2000.

Psychological Services

Such services were used by 3,522 clients in 2000 out of them 2,849 were served by internal psychologists, i.e. psychologists employed by labour offices. Labour offices with psychologists used their services most. Other labour offices used the co-operation with the Centres of Counselling and Psychological Services and Pedagogic and Psychological Advisory Offices, mostly free of charge.

Medical assessments

Focusing on assessing the health capabilities of clients for work, primarily, in the context of searching suitable job opportunity for the disabled the medical assessments were conducted on a contractual basis with medical practitioners externally for 5,579 clients in 2000.

Job clubs

Being a part of units for consulting and legal affairs, their main objective is to improve abilities of clients for job re-integration and self-involvement at labour market. They are flexible in their existence depending on regional conditions. 60 job clubs operated with district labour offices and 1,965 consulting events of a one-to-one or group nature for 65,041 clients were delivered as of the end of December 2000.

Information and Counselling Centres (ICC)

Such Centres are attached to regional labour offices with the purpose to provide the clients, on a self-service basis, with the access to the set of information on:
– job vacancies,
– occupations and requirements for their performance,
– vocational training possibilities and re-training,
– employment and legal relationships.

Contents of the ICC activities depended on regional conditions. In most cases they were handled through one-to-one consultations for unemployed clients. Group consultations were conducted mostly in the framework of preventive counselling for pupils and students, school-leavers, employers or consultants for upbringing. 8,134 clients were served the ICC services in 2000.

IMPLEMENTATION OF ACTIVE LABOUR MARKET POLICY TOOLS

SK 1,570 mil (increase by SK 1,096 compared to 1999) was used for active labour market tools accounting thus 20.26% of total amount of financial resources spent on labour market policy. The funding was broken as follows: SK 369 mil was from the NLO resources and SK 1,201.4 mil from the State budget targeted subsidy to execute public works program agreed for the long-term unemployed.

Active labour market policy funded by the NLO resources

Using its own resources, the NLO funded obligations resulting from agreements concluded until December 31, 1996, duties set in 1997 to 1999 and new measures of active labour market policy (Table 2).

Table 2. Active labour market policy by the NLO resources

Indicator	Expenditures (in SK thousand)
Obligations upon agreements concluded until December 31, 1996	7,976
Obligations based on agreements from 1997 to 1999	35,241
New measures in 2000	325,835
Total	369,052

Job creation support

Any support extended for creating job opportunities is of a grant nature and does not need to be repaid. It is targeted to cover wages and insurance contributions paid by employers within the health, sickness, pension and unemployment insurance schemes. Only the support provided for self-employment may be used to covere the costs for procuring movable or immovable assets, for rent or for repayment of loan interests.

SK 99,495 thousand was provided by the NLO to support 4,149 agreed job opportunities ("AJO") in 2000, out of that 954 job opportunities were created in previous period and 3,195 job opportunities emerged in 2000 (Table 3).

Number of job opportunities newly created represent only 48.4% of total jobs created in 1999 (or 18.9% of total jobs created in 1998) reflecting thus a lower volume of financial resources available in 2000.

In terms of *sectors* jobs emerged mostly in:
– public administration and social services (42.4%,),
– industrial production (22.5%),
– agriculture and forestry management (20.9%).

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Table 3. Breakdown of job opportunities ("JO") Funded

Indicator	Funding the obligations from 1997 to 1999		New measures funded in 2000		Total
	number of JO	contribution (in SK thousand)	number of JO	contribution (in SK thousand)	contribution (in SK thousand)
AJO for self-employment	9	381	113	6 803	7 184
AJO with employer	327	11,039	1,015	6,835	17,874
AJO for school-leavers or juveniles	11	342	2	124	466
Public-works AJO	563	13,710	2,027	58,439	72,149
Special AJO	15	492	3	79	571
Fixed AJO	29	779	35	472	1,251
Total	954	26,743	3,195	72,752	99,495

Table 4. Breakdown of jobs newly created

DLO	Number of JO created	Of that			Total of contributions agreed (in SK thousand)	Average contribution for 1 JO (in SK)
		long-term RU placed	school-leavers placed	disabled placed		
AJO for self-employment	113	48	2	29	7,492	66,301
AJO with employers	1,015	32	70	36	29,853	29,412
AJO for school-leavers or juveniles	2		2	0	149	74,500
Public-works AJO	2,027	672	90	939	86,252	42,552
Special AJO	3	3	0	3	183	61,000
Fixed AJO	35	35	0	20	1,736	49,600
Total	3,195	790	164	1 027	125,665	39,332

790 (24.7%) long-term unemployed people, 164 school-leavers (5.1%) and 1,027 (32.1%) disabled people were placed to 3,195 newly created jobs.

Out of total number of AJO, the *public works (2,027)* were prevailing. Average duration of such job was 6.4 months and average contribution granted monthly to cover wages and insurance contributions with one employer accounted SK 6,649.

The following were placed to such jobs:
- 672 long-term registered unemployed,
- 1,206 registered unemployed with lower level of education (incomplete or complete elementary education, apprenticeship completed),
- 104 school-leavers and juveniles,
- 358 people of the age 50+,
- 939 disabled people.

Considering limits for funding of active labour market policy tools, *public works based on a voluntary approach* were organised DLO under the co-operation with municipal offices mainly in the first half of the year 2000. Thus the registered unemployed contributed to cleaning public space, communications, to maintaining or improving public property; such work was carried out by them voluntarily with no claim for compensation; 35,707 RU

participated in such programme (compared to 60,395 RU in 1999) and average number of hours worked was approx. 11.4 per 1 person (10 hours in 1999).

Agreed job opportunities for self-employment

Being a verified and desirable tool for active labour market policy, such form of support assists the resident to be useful at labour market based on his activities and supports the small business development. 113 jobs for self-employment were supported with the average contribution granted at the amount of SK 66,299 in 2000.

Agreed job opportunities with employers

1,015 jobs were created with average contribution of SK 29,412 for 1 job, i.e. contribution granted monthly to cover wage and insurance contributions paid by employer made SK 2,451.

Out of that number, 882 jobs were created upon the "Procedure for Granting Contributions for Active Labour Market Policy within the Effort to Ensure Savings of Ex-

penses for Passive Labour Market Policy". Contributions agreed at total amount of SK 20,370 thousand were extended while ensuring savings in expenditures for unemployment benefits and insurance paid on behalf of the unemployed placed to the above jobs at total amount of SK 26,686 thousand.

Other types of agreed job opportunities have been used in smaller scope in long-run.

Support of employment for the disabled

Such support is conducted mainly through the one for creating and maintaining jobs in sheltered workshops or sheltered workplaces. Jobs are created either with employers or for self-employment.

29 jobs in sheltered workshops or sheltered workplaces created in the previous year were completed in their funding in 2000. In addition, 790 (increase by 352 jobs compared to 1999) new jobs were created in 2000; out of that 727 jobs were designed for the disabled and 63 for severely disabled people.

Out of 790 people placed in newly created places in sheltered workshops or sheltered workplaces, 199 were long-term unemployed registered and 6 school-leavers.

To maintain jobs in sheltered workshops or sheltered workplaces, a contribution to cover partly the operational costs of such facilities was provided. Pursuant to the legislation, the ceiling amount of the contribution is SK 40,000 annually for 1 disabled individual. 1,840 jobs (increase by 202) were supported using the above mentioned contribution in 2000 with the average contribution of SK 19,339 for 1 job.

Re-training

Number of those having interest in being retrained has gradually decreased since 1997. 14,749 registered unemployed were interested in this tool of active labour market policy in 2000.

During the period monitored, 5,293 registered unemployed completed their retraining courses; out of them 41.4% were registered for over 12 months. Out of total number of those who completed retraining courses 61.5% were the disabled registered unemployed.

NLO total costs for conducting retraining courses in 2000 and settling liabilities from the previous period accounted for SK 62,059 thousand meaning 4% of total ex-

penditures spent on active labour market policy and 16.8% of the NLO own resources spent on active labour market policy.

Support of the business projects of employment

Considering negative experience regarding the use of such active labour market tool (employers' failure to meet conditions agreed, large amount of receivables due but not paid) and limited resources for funding the active labour market policy only 1 new project was approved in 2000. The total contribution of SK 16,231 thousand was approved to maintain 1,089 job opportunities.

Active labour market policy funded through the state budget subsidy

A special form of public-works job opportunities was introduced by the Act No. 245/2000 Coll. amending the Employment Act under the later regulations and some other acts being effective since August 1, 2000. Such programme is called the *agreed public-works job opportunities for the long-term unemployed* registered for over 1 year ("APWJOLTU"). Targeted subsidy to support the implementation of the programme at the amount of SK 2 billions was approved by the amendment of the Act No. 372/1999 Coll. on State Budget for 2000. Distribution of the subsidy was approved by the NLO Board.

65,626 jobs were created since August until the end of 2000 for which the total amount of SK 1,286,262 thousand as the contribution agreed was offered. Actual spending accounted for SK 1,201,391,398.

The following were placed to the APWJOLTU:
- 19.9% long-term unemployed registered for over 48 months;
- 46.9% long-term unemployed with incomplete, and/or complete elementary education;
- 42.2% long-term unemployed of the age of 40+.

The largest number of jobs were created by cities and municipalities and 53,005 long-term unemployed were placed there. Second in this ranking were budgetary or semi-budgetary organisations established by municipality where 4,353 long-term unemployed were placed. Municipalities themselves or through their budgetary or semi-budgetary organisations created 87.3% of total number of jobs created. 6.4% of jobs were created by civil associations and 5.9% by employers.

Table 5. Newly created job opportunities in 2000

Type of JO	Number of JO	Total contribution agreed (in SK thousand)	Average contribution for 1 JO (in SK)
JO with employer	701	103,957	148,298
JO for self-employment	89	11,069	124,365
Total	790	115,026	145,603

Table 6. Structure of the agreed public-works job opportunities according to type of employers

Type of employers	Number of APWJOLTU created in 2000	Proportion of the APWJOLTU to the total (in %)
Municipality	53,005	80.77
Budgetary or semi-budgetary organisation	4,353	6.63
Civil associations	4,226	6.44
Non-profit organisations	238	0.36
Foundations	176	0.27
Non-investment funds	21	0.03
Health care facilities	751	1.14
Social care facilities	888	1.35
Churches or religious societies acknowledged by the State	1,479	2.25
Slovak Red Cross organisation	489	0.75
Total	**65,626**	**100.00**

INTERNATIONAL CO-OPERATION

Long-term intention to compare our system with actual trends in the developed countries and to look for inspirations for improving the quality of employment services delivered was a basic activity of the NLO in the field of international co-operation. Scope and contents remained from the previous years, the co-operation regarding our approximation process, with the Ministry of Labour, Social Affairs and Family also continued in the same intensive way.

European integration

The NLO contributed in drafting negotiation positions to the Chapter 2 on Free Movement of People and Chapter 13 on Social Policy and Employment.

In the framework of pre-accession process, the active involvement was to the CONSENSUS III and Leonardo da Vinci and Socrates programmes which should enter into the existing system making scope of our services closer to the level of European Union.

The Nationaal Training Institute for the European Social Fund

Activities of the National Training Institute for the European Social Fund targeted at strengthening the co-operation on national, regional and local levels of such bodies or authorities, institutions and partners who, after Slovakia joins the EU, will participate in measures funded by the ESF and currently are active in establishing managing, administrative or implementation structures for the ESF were concluded by the series of training interventions in selected NUTS III regions (Košice, Banská Bystrica, Trnava) where over 380 attendees participated.

Training managers of the Institute passed the final training event successfully and were issued a Certificate of the International Training Centre with the Internation-

al Labour Organisation in Turin and have produced a strategic paper "National Training Plan for the ESF" in line with the objectives of the Institute specifying the contents, methodology, training modules, target groups and skills necessary for managing, administration and implementation of programmes funded by the European Social Fund. About 1,600 people will have to be trained according to the outcomes of the analysis of training needs.

At the final conference of the Special Preparatory Programme for the ESF at the end of the previous year in Brussels, the National Training Plan presented by the training managers of the Institute was approved by the European Commission. A project for gaining technical assistance for dissemination of know-how from the EU Member States was submitted to support the implementation of the National Training Plan within the PHARE 2001 programming.

"Brief Guide Through the ESF for the Future Member States" was also issued in the Slovak language.

Bilateral relationships

The core target of our bilateral activities was on the EU Member States and, last but not least, to the associated countries as well. Justification of our intentions was underlined by outcomes of bilateral co-operation and will remain our priority for the future as well.

Ireland, Denmark, Netherlands and Poland were added to our traditional partners such as France, Austria, Switzerland, Czech Republic, Slovenia, Hungary.

The most significant events in 2000 were, *inter alia*:
- Seminars organised by the ANPE, French Institution, focusing on international mobility – EURES, Guarantee Fund and client-oriented services;
- Preparation of a project "Monitoring, Analysis and System of Evaluation of Employment Policy in Slovakia" – in co-operation with Holland;
- Project "Support of Entities at the Slovak Labour Market in Adopting the Acquis Communautaire" – with Denmark;

- Joint seminars on actual topics and tasks (Czech Republic, Hungary and Slovenia);
- Incentives for development of co-operation with the FAS, Irish Institution;
- Workshop under the co-operation with the Council of Europe on issues relating to employment of Roma population.

International projects

K.A.B.A. Slovakia

The K.A.B.A. Slovakia Association is a non-profit civil association founded by the National Labour Office and the Swiss Foundation ARBEITSGESTALTUNG K.A.B.A. Uster. The Association operates on a national basis and was registered in Zilina on October 29, 1997.

The Association provides training services through group counselling applying experience from abroad and disseminating new knowledge in the field of labour market. The purpose is to moderate the impact of unemployment on social situation of the unemployed; to motivate inner activities; to strengthen self-esteem in becoming skilled and aware of techniques for re-integration to work; to indicate new directions of becoming skilled in other occupations and to show possibilities of being successful in labour market by developing key qualifications, i.e. qualifications going beyond the profession (creativity, co-operation, communication, independence, determination, etc.). There are better chances to become employed and maintain the employment for those unemployed who passed any of the K.A.B.A. Slovakia course designed for the unemployed.

Scope of Activities of the Association:
- counselling and training of the unemployed;
- preparation of lecturers to conduct training events;
- training for the NLO staff;
- training targeted to personal development and career orientation for non-profit public institutions or individuals dismissed due to organisational changes who are under the notice of dismissal.

The following was offered for the unemployed by the K.A.B.A Slovakia in 2000:
- 26 courses *Clarification of Starting Points (A type)*
- 17 courses *New Professional Orientation (B type)*
- 2 courses *The World of Work (C type)*
- 1 pilot course *The Road to Employment (F type)*

617 registered unemployed attendees started the courses and 590 of them completed.

CEPAC Slovakia

The CEPAC Slovakia Association is the Centre for Patronage and Long-term Care of Business starts ups, having the status of a non-profit association. Founders are: the NLO (the Fond of Employment in those days), National Agency for the Development of Small and Midle-

size Enterprises ("NADSME") and CEPAC Soissons. The Association operates throughout the country, and was registered on February 23, 1995 at the District Office in Považská Bystrica.

CEPAC Mission in the Support of SME:
- training of future entrepreneurs originating from registered unemployed or people threatened by loss of their job;
- increase professional skills of lecturers and consultants delivering training for the registered unemployed;
- maintaining contacts and co-operation with the CEPAC Soissons Association, labour offices and other institutions;
- application of the CEPAC-based philosophy meaning the self-involvement of people who lost their job.

Future self-employed are prepared by the Comprehensive Training and Consulting Programme delivered through a network of training centres. There were 44 courses completed by 616 registered unemployed in 2000; 99 of them started their business during that year. Attendees of the previous years courses established 110 businesses. In total, 209 businesses were set in 2000 meaning an increase by 3 compared with 1999. 2,092 people have found the job through training activities of the Association until now meaning 75.57% efficiency rate as of the end of 2000.

Multilateral co-operation

The 4th Conference of Directors-General of Employment Services from Austria, Czech Republic, Hungary, Germany, Slovenia and Slovakia was the most important event that was held on October 5 to 6, 2000 in Mošovce. Activities implemented since the last Conference were evaluated positively, programme for 2001 to 2002 was drafted and a membership was offered to Croatia and Poland.

Under the co-operation with the partners in Slovenia, the international workshop on quality management was held in two parts, first part being held in January in Bled (Slovenia) and second in Piešťany in September. There were representatives from Austria, Germany, Czech Republic, Hungary, Slovenia and Slovakia.

The NLO took a pro-active approach in events organised by the World Association of Public Employment Services ("WAPES") held in Hungary, Belgium and Malta.

NLO MANAGING

Finances and own property are managed by the NLO. Own property means movable and immovable assets, obligations and receivables incurred since its existence.

Complex situation in the NLO management that happened in 1998 persisted also in the first half of 2000
- *in the Basic Fund*
  primarily due to adverse development of macro-economic indicators;

Table 6. The NLO actual versus projected revenue, 1999 and 2000

– in the Administrative Fund

in the context of liberalisation of prices for goods and services in Slovakia.

The situation has become even more complex by introducing the Guarantee Fund as a claimable part reducing thus basic fund resources. The situation in the first half of 2000 was addressed by temporary use of the Reserve Fund resources. A positive turnover in the financial management of the NLO occurred at the end of 2000 when

– on the revenue side

contributions for unemployment insurance increased compared to the budgeted ones by SK 324 mil mainly due to the arrears paid by the Slovak Railways Company (SK 195 mil)

– on the expense side

expenditures spent on passive labour market policy decreased reflecting more strict conditions for eligibility for unemployment benefits (by SK 747 mil compared to the budgeted indicator).

REVENUES

Own revenue performance in the year 2000 was achieved at 107.2% accounting for increase by SK 639,878 thousand.

Contributions for unemployment insurance

Such contributions represent a significant resource for the NLO own revenues. Out of total amount of own revenues contributions for unemployment, insurance accounted for 92.1% making SK 8,446,088 thousand; the projected amount equalled to SK 8,122,329 thousand was exceeded by SK 323, 759 thousand. Compared to the previous year, it was higher by SK 509,270 thousand in spite of the fact that the contributions were reduced by 0.25% in case of employers (from 3% to 2.75%) in line with the legislative change referring to the Guarantee Fund. The average monthly collection of this contribu-

tion was SK 703, 841 thousand increasing by SK 42,440 thousand.

From the regional view, the highest proportion of the contribution collection was done in Bratislava and Košice regions (24.7%), other regions oscillated between 11.3% to 9.1%

Basic fund was made up by 403, 120 contribution payers, of them 14,330 large enterprises, 114,883 small enterprises, 265,503 self-employed persons and 8,404 voluntary and other payers.

Contributions to the Guarantee Fund ("GF Contributions")

Reduction in contribution for unemployment insurance is related to establishing the Guarantee Fund as of May 1, 2000 where all employers except budgetary and semi-budgetary organisations are obliged to contribute to. Collection at the amount of SK 214,465 thousand slightly exceeded the budget by SK 3,997 thousand. Targeted subsidy from the State budget represent an amount corresponding to the real collection of GF contributions from employers at the amount of SK 214,465 SK. The average monthly collection was SK 30,637 thousand from 120,798 payers.

Other revenues

Other revenues accounted for SK 735,572 thousand in 2000 and comprised in the Table 7.

Extra contributions paid in case of failure to employ the obligatory proportion of the disabled people formed a significant (40.6%) part of all other revenues of the current year accounting for SK 298,737 SK. Compared with the year 1999, there was a reduction by SK 28,670 caused primarily by applying the Employment Act amendment (No. 292/1999 Coll.). Such reduction means that an employer may meet his duty by contracting out the work suitable for the disabled people.

Table 7. Other revenues

Other revenues	Thousand SK
Interests from bank deposits	125,210
– interests accepted from current accounts	79,803
– interests accepted from time deposits	45,407
Other revenues of the basic fund	604,279
– penalties	85,021
– extra contributions paid in case of failure to employ the obligatory share of the disabled people	298,737
– fines for breaching employment or legal rules	3,182
– instalments in the framework of active labour market tools	150,908
– unused unemployment benefits and resources for active labour market tools	66,431
Other GF revenues GF (penalties)	61
Other revenues of the administrative fund (court fees returned, compensations of reportable events, etc.)	6,022

Table 8. The NLO actual versus projected revenues, 1999 and 2000

Indicator	Actual 1999	Budget approved 2000	Adjusted budget 2000	Actual 2000	Performance (%)
REVENUES					
1. Contributions for unemployment insurance	7,936,818	8,122,329	8,122,329	8,446,088	104.0
– Employers	5,371,603	5,793,658	5,793,658	5,579,663	96.3
– Employees	1,738,870	2,032,124	2,032,124	1,819,741	89.5
– Self-employed persons and their partners	271,296	291,686	291,686	360,437	123.6
– Others	4,454	4,861	4,861	7,483	153.9
– Amount owed in insurance payments	550,595		0	678,764	
2. Interests from bank deposits	144,686	58,000	58,000	125,210	215.9
– Basic Fund interests				120,717	
– GF interests				4,493	
3. Other revenues of the Basic fund	759,674	365,450	365,450	604,279	165.4
– instalments of returnable contributions in the framework of active labour market tools	252,840	365,450	365,450	150,908	41.3
4. Contributions to the GF	0	210,468	210,468	214,465	101.9
5. Revenues from receivables for compensations from the GF	0	0	0	0	
6. Other GF revenues	0	0	0	61	
Revenues of the current year	8,841,178	8,756,247	8,756,247	9,390,103	107.2
7. Other Administrative Fund revenues	4,853	0	0	6,022	107.2
8. Loans accepted extended for administration and actvities of the NLO	9,945	132,475	132,475	0	0.0
9. Targeted subsidy from the State budget to the GF	0	210,468	210,468	214,465	101.9
10. Targeted subsidy from the State budget for the APWJOLTU	0	0	2,000,000	1,201,391	60.1
TOTAL REVENUE	8,855,976	9,099,190	11,099,190	10,811,981	97.4

Targeted subsidies from the state budget

The following targeted subsidies from the State budget were extended to the NLO in 2000:
– *targeted subsidy from the State budget to the Guarantee Fund*   SK 214,465 thousand
– *targeted subsidy from the State budget for public works programme agreed for the long-term unemployed*   SK 1,201,391 thousand.

Considering the revenue trend projected, the NLO expected a deficit in 2000 in resources of the Administrative Fund, therefore the loan was accepted for administration and activities at the amount of SK 132,475 thousand. However, as the actual revenues forming the basis for calculations of the Administrative Fund exceeded the projected ones the NLO was not forced to take the loan concerned.

RECEIVABLES

Total volume of financial receivables of the NLO was SK 11,707, 688 thousand as of the end of December 2000; significant part is made up by receivables of the Basic

Fund at SK 11,647,976 thousand, those of the Guarantee Fund make SK 45,828 thousand and for the Administrative Fund SK 13,884 thousand.

As of the end of December 2000, receivables of the Basic Fund made 99.49% (SK 11,647,976 thousand SK) of total NLO receivables; major proportion of those receivables was made up by the *receivables from contributions for unemployment insurance* ("CUI") at SK 4,043,500 thousand and penalties associated at SK 3,190,481 thousand. That means a total increase by 63.48% compared to the year 1999 accounting for SK 2,808,949 thousand. Receivables due to CUI collection are decreasing in a year-to-year comparison; a decrease by SK 12,778 thousand is related partly to improved payment discipline of contribution payers and a lump-sum clearing of debt of the Slovak Railways Company at SK 195,000 thousand.

In spite of the fact that in July 2000 the Slovak Railways Company cleared its debt, the Company still remains a major NLO debtor due to its persisting poor payment discipline.

Second largest proportion (33.41%) of the receivables of the basic fund is made up by *receivables due to active labour market policy* ("ALMP") contributing with

Table 9. Receivables by funds, 1997 to 2000

| Type of Receivable | As of | | | | Index 99/2000 | Difference 99/2000 |
	Dec. 31, 1997	Dec. 31, 1998	Dec. 31, 1999	Dec. 31, 2000		
1	2	3	4	5	6 = 5/4	7 = 5 − 4
BASIC FUND	5,615,079	6,961,884	8,580,313	11,647,976	135.75%	3,067,663
− contributions for unemployment						
insurance ("CUI")	1,583,504	2,164,746	3,110,512	4,043,500	129.99%	932,988
CUI penalties	328,836	805,478	1,314 520	3,190,481	242.71%	1,875,961
Active employment policy/Active						
labour market tools incl. fines	3,471,231	3,729,838	3,791,285	3,891,321	102.64%	100,036
Extra contributions for not						
employing the disabled persons	0	24,378	82,800	89,472	108.06%	6,672
State budget receivables	187,327	203,696	230,649	353,634	153.32%	122,985
Other	44,181	33,748	50,547	79,568	157.41%	29, 021
GUARANTEE FUND				45 828		45,828
Including: compensations in money				14 584		14 584
Contribution collection				30 457		30 457
Penalties and fines				787		787
ADMINISTRATIVE FUND	13 798	11 386	12 505	13 884	111.03%	1 379
TOTAL	5 628 877	6 973 270	8 592 818	11 707 688	136.25%	3 114 870

SK 3,891,321 thousand, of which SK 3,223,138 thousand is the principle and SK 668,183 are fines contracted. Of the total amount of these receivables SK 53, 971 thousand was enforced of which SK 47,217 thousand was the principle and SK 6,754 thousand was the fine contracted.

In the context of establishing the Guarantee Fund in 2000 and statutory payments to the Fund, receivables at SK 30, 457 thousand for collection and penalty at SK 787 thousand have been registered with the NLO. Receivables that have occurred due to paying compensations in money to the employees whose employers are in bankruptcy account for SK 14,584 thousand. Compensations in money have been paid to 956 employees in 6 business entities, major of whom were SAM Myjava, the joint stock company with 675 employees; OTF – VVZ p.l.c. Nižná with 153 employees.

Fund creation

The total NLO resources including balances from the previous year were SK 12,276,607 thousand meaning the following increase compared with the year 1999:
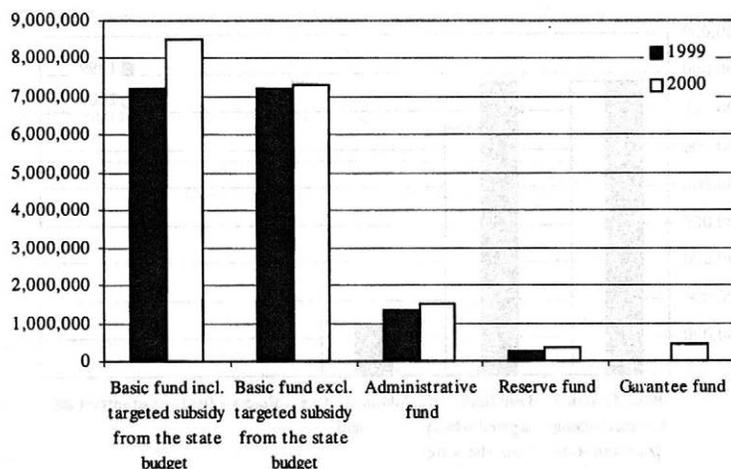

Figure 6. NLO fund raising in the current year 1999, 2000 (in thousand SK)

in the Basic Fund by SK 750,957 thousand;
in the Administrative Fund by SK 158,530 thousand;
in the Reserve Fund by SK 352,800 thousand;
in the Guarantee Fund by SK 433,484 thousand.

In the context of the NLO final accounts for 2000 the following balance has been reported by funds (Table 11).

Use of funds

Table 10. Pursuant to the valid legislation the following funds was raised in 2000

Bellow, there are listed the purposes for which resources from particular funds were used in 2000 (Table 12).

Indicator	Fund raising		Total
	in the current year	carried forward from previous years	
Basic fund	8,517,259	482,846	9,000,105
Administrative fund	1,508,438	–	1,508,438
Reserve fund	352,800	981,780	1,334,580
Guarantee fund	433,484	–	433,484
TOTAL	10,811,981	1,464,626	12,276,607

Table 11. Balance has been reported by funds (in thousand SK)

Indicator	Total Raising	Expenditures (costs)	Balance as of Dec. 31, 2000
Basic fund	9,000,105	7,752,873	1,247,232
Administrative fund	1,508,438	1,443,644	64,794
Reserve fund	1,334,580	-	1,334,580
Guarantee fund	433,484	14,584	418,900
TOTAL	12,276,607	9,211,101	3,065,506

Table 12. The purposes for which resources from particular funds were used in 2000 (in SK thousand)

| Indicator	Budget 2000	Actual 2000	Difference ±
EXPENDITURES (costs)			
1. Basic Fund	9,310,060	7,752,873	−1,557,187
Passive labour market policy	6,929,520	6,182,429	−747,091
– unemployment benefit	4,992,000	4,412,902	−579,098
– health, sickness and pension insurance paid on behalf of the registered unemployed who are beneficiaries of unemployment benefit	1,937,520	1,769,527	−167,993
Active labour market policy	2,380,540	1,570,444	-810,096
2. Administrative Fund	1,533,475	1,443,644	−89,831
3. Guarantee Fund	420,936	14,584	−406,352
EXPENDITURES (costs) TOTAL	11,264,471	9,211,101	−2,053,370
Supplements to the Reserve Fund	352,800	352,800	0
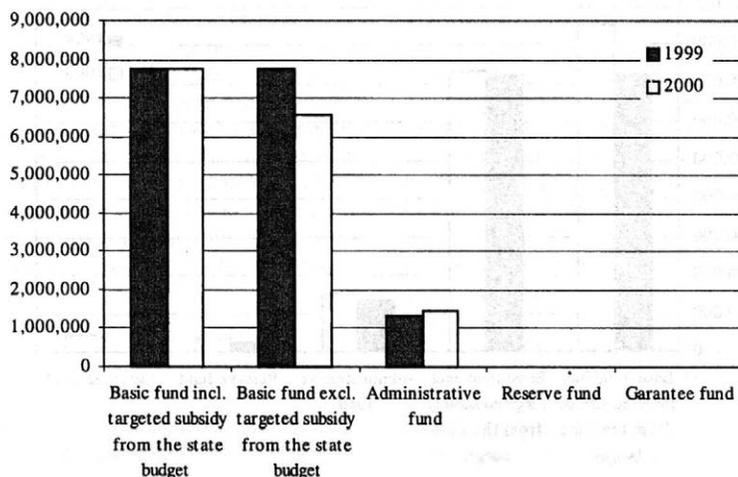
Figure 7. Comparison of expenditures (costs) of NLO fund 1999, 2000

According to the valid legislation (Article 77, Para 2 of the Employment Act), the NLO provided for supplements to the Reserve Fund at SK 352,800 thousand (Figure 7).

Basic fund

In the context of labour market policy implementation, the Basic Fund, at total SK 7,752,873 thousand was used as follows:
– *passive labour market policy* SK 6,182,429 thousand;
– *active labour market policy* SK 1,570,444 thousand.

Expenses on passive labour market policy accounted for 79.7% of total expenses on labour market policy representing, however, a drop down by SK 1,109,841 thousand SK (Table 13).

A decrease in passive labour market policy reported in 2000 reflects more strict conditions for unemployment benefits approved by the amendment to the Employment Act No. 292/99 Coll. Number of beneficiaries was reduced by 19, 804 individuals compared to the previous year and

the average monthly unemployment benefit also was reduced by SK 320.

Active labour market tools funded from the basic fund accounted for SK 1,570,444 thousand, of that:
– *NLO own resources* SK 369,053 thousand,
– *Targeted subsidy from the State budget for the APW-JOLTU* SK 1,201,391 thousand.

With the implementation of the active tools the APW-JOLTU has been funded from the State budget through a targeted subsidy since August 1, 2000. Funds for such purpose were released upon requirements submitted by district offices up to the amount of actual labour market needs.

Administrative fund

The purpose of the Administrative Fund is to cover expenses related to the NLO operation.

Upon actual revenues of the Basic Fund, Guarantee Fund and Administrative Fund and in line with the legis-

Table 13. Expenditures by type compared to the budgeted and actual ones for the previous year (in SK thousand)

Indicator	Actual 1999	Budget approved 2000	Budget adjusted 2000	Budget corrected* 2000	Actual 2000	Difference
1	2	3	4	5	6	7 = 6 – 5
PASSIVE labour market policy	7,292,270	6,929,520	6,929,520	6,929,520	6,182,429	–747,091
– unemployment benefits	5,338,155	4,992,000	4,992,000	4,992,000	4,412,902	–579,098
– health sickness and pension insurance paid on behalf of the registered unemployed who are beneficiaries of unemployment benefit	1,954,115	1,937,520	1,937,520	1,937,520	1,769,527	–167,993
ACTIVE labour market policy	474,032	455,540	2,380,540	1,581,931	1,570,444	–11,487
of that: targeted subsidy for APWJOLTU	–	2,000,000	2,000,000	1,201,391	1, 201,391	–

* Budget corrected in 2000 was adjusted by financial clearance of targeted subsidy for APWJOLTU

Table 14. Overview of the binding indicators for the NLO budget 2000

Indicator	Budget approved	Budget adjusted	Actual as of Dec. 31, 2000	Performance related to the budget adjusted (in %)
Costs on administration and operation, TOTAL	1,458,475	1,533,475	1,443,644	94.1
of that:				
A.COSTS ON INVESTMENT	153,000	183,000	146,755	80.2
B. NON-INVESTMENT COST	1,305,475	1,350,475	1,296,889	96.0
– wage costs	669,994	677,994	676,969	99.9
– statutory social insurance	253,610	255,784	253,277	99.0
– rent	67,594	66,135	65,080	98.4
– energy consumption	20,958	16,184	14,645	90.5
– costs on mail	56,735	51,961	50,027	96.3
– other	236,584	282,417	236,891	83.9

lation valid, the following *administrative fund resources* were reported:

– *Proportion to the Admin. Fund from the Basic Fund and Guarantee Fund of the current year*
 SK 1,502,416thousand,
– *Other revenues related to the administration and operation of the NLO* SK 6,022 thousand
– *ADMIN. FUND revenues for the year 2000, TOTAL* SK 1,508,438 thousand.

Overview of the binding indicators for the NLO budget 2000 is in the Table 14.

Guarantee fund

In the context of the amendment to the Employment Act No. 292/1999 Coll., new type of expenses has started to be reflected in the NLO budget. These are called compensation in money from the Guarantee Fund. In spite of having the amendment being effective since July 1, 2000, just a low use of SK 14,584 thousand (3.5% of the budget approved) was reported in the second half of 2000.

According to the NLO records, such expenses were used in the following districts: Bratislava 2, amount: SK 1,400 thousand; Myjava, amount: SK 10,415 thousand; Nové Zámky, amount: SK 163 thousand; Tvrdošín, amount: SK 2,265 thousand; Sabinov, amount: SK 339 thousand; Košice 4, amount: SK 2 thousand.

Reserve fund

Pursuant to the Article 77, Para 2 of the Employment Act, the Reserve Fund was made at the amount of SK 352, 800 thousand in 2000 and the overall resources of the Reserve Fund including its balance as of Dec. 31, 1999 accounted for SK 1,334,580 thousand. Due to unfavourable resource situation in the Reserve Fund in a long-run, part of the Reserve Fund resources were temporarily used to settle the unemployment benefit claims in the 3Q of the 2000. A positive turnover in the 4Q provided for adding the resources concerned back into the Reserve Fund up to the extend stipulated by the Act.

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