

# Expectations and Strategies of Enterprises in the Period of Joining the European Union<sup>1</sup>

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## SUMMARY

*The paper is based on a questionnaire survey conducted by the Competitiveness Research Centre at the Corvinus University of Budapest in 2004. The author analyses expectations of company managers concerning the possible consequences of joining the European Union. Managers perceived increasing level of uncertainty parallel with getting closer to the time of EU enlargement. They expected more severe competition especially by companies of the EU 15 countries. The overall expectation on consequences for the company's performance is positive. The last section of the paper provides an overview on the strategic preparation of companies for the competition within the European Union.*

## INTRODUCTION

Research work on transformation is still going on. At the same time the research projects in transition economies show signs of shifting focus. According to certain views transformation is over, transition from command economies to market economies has been done, and the so called transformation research should be the occupation of economic historians. Other authors formulate a bit more sophisticated argument saying that transition has been done in the economic and political systems of the former communist countries of Central and Eastern Europe (see: e.g.: Dobák, 2005; Chikán – Czakó – Zoltay-Paprika, 2002). The standpoint of the present author is that transformation at the system level, that is in the political and economic structures, has been finished in the countries which had joined the EU in year 2004, but transformation at the deeper levels of culture and individual performance is still in progress (Balaton 2005). We are not really convinced that the structural level changes have been finished in the countries just before the EU-accession.

The Hungarian economy – like many other economies in Central and Eastern Europe – has gone through systemic transformation during the 1990s. The economic transformation – parallel with radical changes in the political and social system resulted in conditions similar to market economies in Western European countries (Temesi – Zalai, 1999). At the beginning of the twenty-first century a new challenge has emerged in front of the

transformed economies and enterprises within them, that is joining the European Union.

For the Hungarian economy and for the companies it is a decisive question what conditions will be existing after joining the European Union, and to what extent will they be capable of adapting to the new situation.

## RESEARCH BACKGROUND

The paper is based on the ongoing research work within the Competitiveness Research Centre at the Corvinus University of Budapest. The previous surveys were implemented in 1996 and in 1999. Following the research tradition of conducting large sample empirical surveys among enterprises operating in Hungary, the Research Centre has conducted a questionnaire survey among 301 enterprises located in Hungary. The survey was implemented between March and June 2004, that is just in the period of EU-accession (Chikán, Czakó and Paprika, 2004)

The sample includes 301 companies responding to the questionnaire (response rate was 23 per cent). The respondents mainly represent medium-sized manufacturing companies oriented toward the domestic market (50 per cent). Distribution of other branches is as follows: services – 12 per cent, trade – 10 per cent, extraction and energy services 7-7 per cent, construction – 6 per cent, public services – 5 per cent, agricultural production – 3 per cent. The questionnaire consisted of four parts, to be responded by CEOs, marketing, production and financial managers.

<sup>1</sup> The paper is based on the presentation at the 5th International Conference of University of Miskolc, Faculty of Economics, May 11-12, 2005.

Companies in the sample were mainly employing more than 50 persons. Companies with less than 50 employees represented only 5 per cent of the sample. Composition of the sample according to size measured by number of employees is as follows: between 51 and 99: 28 per cent; between 100 and 299: 35 per cent; between 300 and 499: 11 per cent; between 500 and 999: 10 per cent; above 1000: 11 per cent.

After analysing data collected by the questionnaires, the research work will be continued by qualitative methods. First, interviews with company top managers will be conducted. The rest of the year 2005 will be devoted to collecting information for developing case studies of selected companies belonging to the sample. Parallel with writing the case studies round-table discussions will be organized with managers of firms operating in Hungary. The methodological approach chosen by the research designers (Chikán – Czakó – Paprika, 2005) is that of triangulation favouring both quantitative and qualitative approaches (Jick, 1979; Van Maanen, 1979) to understand the complex issues of competitiveness of Hungarian enterprises in the period of joining the European Union. Further research evidence will be available and published in different journals by the end of 2006.

Bellow we present the first results of the survey related to the attitudes and expectations of Hungarian company managers concerning the consequences of joining the European Union, and the strategies developed for the competition within the Union.

## COMPANY MANAGERS' OPINION ON POSSIBLE CONSEQUENCES OF JOINING THE EUROPEAN UNION<sup>2</sup>

In order to be able to understand the efforts company managers devoted to preparing for the conditions after being member of the European Union, we probably have to have a picture on how these managers perceived the possible consequences of the enlargement. In principle we may argue that in case executives do not foresee important changes in their conditions, it may be a rational course of action no to devote time and energy for preparation for the conditions after the accession. Led by the above considerations we asked the executive about

their opinion related to the following questions:

- What level of uncertainty was perceived by the company three-to-four years ago and recently?
- How do they evaluate changes connected to the EU-accession from the point of view of successful company activity?
- What are the consequences of EU-accession for the financial and marketing capabilities of the company?

## PERCEIVED LEVEL OF UNCERTAINTY BY MANAGERS

Company managers perceived increased uncertainty in the environment of their company compared to the situation three-to-four years before. The major sources of uncertainty were the home market, the legal regulations and changes connected to joining the EU. It is noteworthy that perceived uncertainty due to EU-accession is larger during the period of the survey than three or four years before (see Table 1). Domestic and foreign suppliers, technological development, political and social changes in the country were regarded as relatively stable environmental segments.

Compared with the survey results in 1999, perceived uncertainty due to technological development and political changes within the county was at a lower rate. Compared to the findings of the 1996 survey, uncertainty connected to domestic sales market and financial market became much lower. Social changes contributed to lower level of uncertainty between 1996 and 1999, but it has increased since 1999, reaching a level similar to that of 1996. Foreign suppliers were regarded as the most stable environmental segment in each survey. In the surveys conducted in 1996 and 1999 we raised questions related to foreign and regional changes. In the 2004 survey we replaced this question with changes due to the EU-accession. Perceived uncertainty related to these questions was at the lowest level in 1999. We observed an increase in this measure between 1996 and 1999, and after 1999 as well. Further inquires will be necessary to identify the reasons why did company managers perceive increased uncertainty parallel with coming closer to the accession.

*Table 1. Perceived level of uncertainty related to EU-accession in 2000-2001 and in 2004.*

<i>Perceived uncertainty</i>	<i>No. of companies 3-4 years before</i>	<i>% of companies 3-4 years before</i>	<i>No. of companies in 2004</i>	<i>% of companies in 2004</i>
No uncertainty	77	28.1	28	10.1
Limited level of uncertainty	76	27.6	51	18.4
Medium level uncertainty	78	28.5	69	24.9
High level uncertainty	31	11.3	86	31.1
Extremely high level uncertainty	12	4.4	43	15.5
Total	274	100.0	277	100.0

<sup>2</sup> Contributions made by the following researchers are acknowledged: Zoltán Buzády, Lilla Hortoványi, Emma Incze and Krisztina Tóth.

As negotiations on conditions of the accession progressed, more and more information was available on possible conditions of the EU-enlargement. One would expect the uncertainty decreases in this period, but our respondents expressed different opinion.

Environmental factor having most important influence on enterprise activity was the smooth relationship with customers. 84.8 per cent of the respondents regarded it to be the most relevant factor, which is 8 per cent higher than the figure in 1999. The second most important element of the environment was good relationship with suppliers (according to 61.9 per cent of the managers). Domestic and foreign competition were evaluated as relatively less influential, less than half of the companies shared the opinion that it is an important environmental segment. Government level economic policy was named as important by 35.2 per cent of the responses, while EU-accession was named by 34.1 per cent as relevant. Purchasing market and technological development was rated as the least influential element of company environment.

Ranking of environmental elements according to their relevance for the company was rather similar to the findings in 1996 and 1999. Domestic market was seen as more important than foreign competition in each surveys. Behind these responses we may identify a domestically oriented company behaviour, which is supported by the fact that relatively low per cent of the respondents regarded EU-accession as a factor having high relevance. Compared this finding with the opinion that firms perceived increased uncertainty parallel with getting closer to the date of accession, we may identify company behaviour tending to avoid uncertainty and concentrating on the domestic market which was perceived as more certain.

Regarding customer relationships as the number one priority of management is similar to findings in developed market economies. But regarding domestic and foreign competition as less relevant environmental factor is contradictory to the findings of Western economies (Hofmeister-Tóth, 2003).

The most hindering environmental elements were national economic policy (51.8 per cent of respondents), domestic economic situation (49.5 per cent) and functioning of the Government (40.5 per cent). We have to mention that in the survey of 1999 the same factors were mentioned as most hindering. Changes related to EU-accession, connections to ministry, domestic and foreign economic situation were named as mostly supportive elements of the environment. The survey results show that companies have diverse opinions on the domestic economic situation. This statement is supported by the fact that 29.4 per cent of respondents regarded it as a neutral factor. Changes connected to EU-enlargement were seen as supportive environmental factor. This is contradictory to the findings that EU-accession was evaluated as a factor resulting in increasing uncertainty and that relatively small per cent of the companies

regarded it as an element having high relevance. National economic policy, domestic economic situation and functioning of the Government were mentioned as the most hindering factors in the survey of 1996 as well. We may argue that company managers are steadily dissatisfied with the operation of the Hungarian Government.

## HOW DO COMPANY EXECUTIVES EVALUATE CHANGES CONNECTED TO THE EU-ACCESSION FROM THE POINT OF VIEW OF SUCCESSFUL COMPANY ACTIVITY?

Part of the questions were raised for both general managers and financial managers. According to the answers given by general managers opinions forecasting positive consequences for the company have a narrow majority. The answers show strong diversity. Nearly forty per cent of the respondents regarded the consequences of EU-enlargement as neutral. Positive consequences were forecasted by 33.4 per cent, and negative outcomes by 22.1 per cent.

## INFLUENCE OF EU-ACCESSION ON FINANCIAL AND MARKETING CAPABILITIES OF COMPANIES – QUESTIONS ANSWERED BY BOTH GENERAL AND FINANCIAL MANAGERS

The survey included the following questions:

- > Will the costs of entry to foreign markets be decreased?
- > Will economic connections with companies of non-EU countries be decreased?
- > Will the company be receiving relevant support from the EU?
- > Will the EU-support have unfavourable consequences for competitiveness of enterprises?

The above questions were answered by using a scale with five elements, ranging from fully disagree to fully agree.

*Will the costs of entry to foreign markets be decreased?*

Our data show basic similarities between the opinion of general managers and financial managers, which is understandable, as they formed opinion on the same issue. But contrasting views may also be seen as possible because perception of complex issues may be different by

individuals, so even large differences may be explained as well.

Neutral answers had larger frequency among financial managers (39.5 per cent), compared with the 35.0 per cent of general managers. Summing up the frequencies of mostly and fully agreeing answers the results are rather similar. General managers expressed disagreement more frequently (34.5 per cent) than financial managers (30.6 per cent).

*Will economic connections with companies of non-EU countries be decreased?*

Differences between the opinion of the two groups of managers are significant here. 59.8 per cent of general managers expressed disagreement (fully disagree and mostly disagree together), while in case of financial managers this figure is 51.0 per cent. Neutral opinions were formed by financial managers more frequently. Frequency of agreement (mostly agree and fully agree together) is similar (10.1 versus 11.8 per cent).

*Will the company be receiving relevant support from the EU?*

Looking at the data we may observe that financial managers were more optimistic concerning the possibilities of getting support from the EU. 34.5 per cent of the financial managers expressed agreement, while the ratio of agreeing general managers is 29.4 per cent. Neutral answers were more frequent among financial managers (34.3 versus 27.1 per cent). Non-agreement was more characteristic for general managers (43.5 versus 31.2 per cent).

*Consequences of EU-support for competitiveness of enterprises*

The question was formed in the following way: Will the EU-support have unfavourable consequences for competitiveness of enterprises?

Relatively small differences were observable between the opinions of general and financial managers. General managers expressed full disagreement more frequently (41.7 per cent) than financial managers (29.0 per cent). If we take into account partial disagreement as well, than the difference is less observable. Frequencies of the mostly disagreeing and fully disagreeing answers are similar in the two groups of managers. We may conclude that company managers do not count on unfavourable consequences for competitiveness due to support from EU.

## INFLUENCE OF EU-ACCESSION ON FINANCIAL AND MARKETING CAPABILITIES OF COMPANIES – QUESTIONS ANSWERED BY GENERAL MANAGERS ONLY

Possible answers to the question were formed in the followings:

- Possibilities for sales will significantly be increased by the EU-accession;
- Our company will be faced with stronger competitors;
- Export will be more important and will increase;
- Market position of our company will not be changed significantly;
- We may count on a broader supplier base with improved quality of goods;
- Our major competitors will be the companies from the joining countries;
- Cooperation with other companies will have more significant role;
- We can hire cheaper and more qualified labour force;
- Significant measures will be necessary to keep highly qualified employees;
- Countries joining the EU recently will provide relevant market for our company;
- Countries of the EU-15 will provide relevant market for our company;

Answers to these questions were given by using the same scale as above.

*Will our possibilities for sales be significantly increased by the EU-accession?*

Looking at the results we may state that opinion of company managers show significant diversity concerning the possibilities for sales. Disagreeing answers are the most frequent (42.3 per cent), but neutral responses are also held (32.4 per cent). Agreement (partial and full together) was expressed by 25.3 per cent of the responding managers.

*Will our company be faced with stronger competitors?*

Data show that companies count on increased competition. 56.2 per cent expressed agreement, while the ratio of disagreement was only 20.8 per cent.

*Will export be more important and increased?*

We may state that companies do not count on relevant increase in their export activity. 44.5 per cent expressed disagreement, 34.1 per cent was neutral and only 21.4 per cent of general managers agreed.

*Will market position of the company be changed significantly?*

More than one third of the companies gave neutral answer to this question. 43.2 per cent expect unchanged market position, and only 21.1 per cent forecasted changes.

*May we count on a broader supplier base with improved quality of goods?*

41.8 per cent of respondents expressed neutral opinion. Total and partial disagreement together was shared by 31.1 per cent. Partial and full agreement was the opinion of 26.2 per cent of top managers. We may conclude that opinions are rather diffused in this question.

*Will our major competitors be companies from the joining countries?*

Our data show that most of the companies do not count on companies from the joining countries as their major competitors. 42.9 per cent of respondents disagreed and 30.5 per cent expresses agreement.

*Will cooperation with other companies have more significant role?*

Answers to this question show strong diversity of opinions. 34.9 per cent gave neutral answer. The frequency of agreement (37.4 per cent) is the same as the ratio of disagreement (37.7 per cent).

*Can we hire cheaper and more qualified labour force?*

Our respondents gave mainly negative answers to this question. 81.1 per cent expressed full or partial disagreement, while only 2.5 per cent gave positive answers. 16.4 per cent had neutral opinion.

*Will significant measures be necessary to keep highly qualified employees?*

About half of the companies (50.6 per cent) expressed agreement with the necessity of significant measures. Frequency of disagreement was 23.1 per cent. We may conclude that majority of top managers felt the necessity to take measure to keep qualified employees.

*Will the counties joining the EU recently provide relevant market for the company?*

Data show that majority of companies do not count on relevant market opportunities in newly joining countries. 52.7 per cent expressed disagreement and only 10.9 per cent gave positive answer.

*Will the countries of EU-15 provide relevant market for the company?*

More than half of the responding managers (53.7 per cent) do not count on increased market opportunities in EU-15. Enlarged market possibility was forecasted by 21.7 per cent of the top managers.

## SUMMARY OF COMPANY MANAGERS OPINIONS CONCERNING THE EXPECTED CHANGES DUE TO EU-ACCESSION

Our survey shows that companies perceived high level of uncertainty concerning the possible consequences of EU-accession. The level of perceived uncertainty was higher than three or four years before. Uncertainty of opinion is also reflected by the diversity of opinions among top managers. We may observe differences in opinions expressed by general managers and financial managers as well. Financial managers were more optimistic regarding the possibility of getting financial support from EU.

At the same time companies have high expectations for the period after joining the EU. The expectations are mainly positive, although contradictions may be observed in the perceptions. Opinions are diverse concerning the possibilities for expanding sales. Company managers are mainly pessimistic about increasing demand for their products and services. Majority of respondents count on increased competition and difficulties in maintaining highly skilled labor force.

## ENTERPRISE STRATEGIES IN RELATION TO EU-ACCESSION

The most important strategic goal of enterprises is to meet the expectations of their customers as much as possible. Profit maximization is at the second place among the strategic priorities. 92 per cent of the companies gave the answer that meeting customer expectations is the number one priority. In the survey of 1999 this ratio was 88.2 per cent, so we may recognize increasing customer orientation in the sample. Profit maximization was named the most important priority. 64 per cent of the companies regarded profit to be an outstanding strategic goal. It is noteworthy that 14 per

cent of the company do not regard profit as crucially important. The importance of profit has decreased compared to the findings in 1999. In the survey in 1996 86.9 per cent shared the opinion that meeting customer expectations is the major strategic priority. In that survey profit maximization was mentioned by 68.6 per cent as outstanding priority. We may see the tendency that customer satisfaction has been becoming more and more important, while the importance of profit has been slowly decreasing. Putting customer at the first place is a tendency observable in developed market economies as well (see: Wind – Main, 1998).

The most frequent way of adaptation to environmental changes is recognition of changes in time and preactive response, which is characteristic for 37.3 per cent of companies in our sample. Nearly as much companies gave the answer that recognize the changes and react to them after recognition. 11.6 per cent responded in the way that they forecasted the changes and tried to influence the direction of changes. Ratio of companies which recognize changes but incapable to give adequate answer was 11.2 per cent. Only 2.9 per cent was incapable of recognizing changes in time. These answers show high level adaptation capabilities of enterprises. Nearly half of the firms (48.9 per cent) was capable to forecast possible changes. 48.2 per cent recognized the changes and most of them was capable of giving reactions to them.

Adaptation to environmental changes shows strong similarity to our survey result from 1996 and 1999. Differences in frequencies of specific answers are not significant. The picture from 1999 is a bit more positive in the sense that ratio of companies forecasting changes and giving proactive response was the highest (41 per cent), and ratio of companies which recognized changes but was incapable to give answer was the lowest (9 per cent). Our surveys show that companies located in Hungary have successfully developed their adaptation capabilities after the changes in the system. Their operation show similarity to that of firms in developed market economies.

Company strategies have gone through relevant changes between 2000 and 2003. In year 2000 the most frequently used strategy was shrinking (32.6 per cent). In year 2001 the ratio of companies having shrinking strategy was only 8.7 per cent. At the same time the use of focus strategies was 25.7 per cent, and companies with stabilisation strategies represented 20.2 per cent of our sample. In 2002 defensive strategy was the most frequently used one (23.8 per cent), followed by growth oriented strategies (22.5 per cent). In 2003 increased use of offensive strategies was observable (45.2 per cent), while that frequency in 2000 was only 9.7 per cent. Lack of clearly defined strategy was mainly reported for 2001.

Typology of possible strategies was extended in the 2004 survey by the focused strategy, when a company concentrates its operation on a relatively narrower product-market segment. Our data show that this type of

strategy was mainly used in 2001, when neither growth nor shrinking strategies were not characteristic for companies in our sample. The answers show that before changing from a passive to an active strategy, companies tried to stabilise their position and concentrated on a narrower product-market segment.

We measured internationalization of companies by their exports and foreign direct investments as well. Only 10.4 per cent of companies had foreign direct investment, which show that Hungarian owned medium sized enterprises characteristic for our sample concentrate on the domestic market and are at lower level of internationalization. Foreign direct investment was mainly motivated by foreign market expansion strategies (75 per cent). The second most important factor was growth having strategic significance and preserving long term competitive position, which was characteristic for 56.3 per cent of the respondents. Getting access to resources was relatively less important, only 31.3 per cent regarded it as important. Improved efficiency of operations motivated only 12.5 per cent of firms toward FDI. This may be connected to the fact that companies were rather small to be able to realize economies of scale and scope through geographical diversification.

#### *Changes in company strategies due to the coming EU-accession*

Our survey shows that half of the companies (49.6 per cent) did not changed their strategies, 41.5 per cent introduced moderate changes, and only 8.9 per cent of firms made basic changes in their strategies. We may argue that company managers probably underestimated the consequences of EU-accession and their strategic preparation was only moderate.

#### *How did companies prepare for the period after the EU-enlargement?*

Answers to this question are available only from 120 companies. The limited number of response is due to the structure of our questionnaire: only those companies answered the question which used formalized strategic planning systems. The answers show strong diversity. 35.8 per cent of firms started preparation years before the accession. 30.8 per cent gave the answer that they started to prepare in the previous year. 33.5 per cent shared the opinion that the EU-accession does not result in changes that need strategic preparation. That kind of response is probably connected to our previous finding that many of the firms in our sample had mainly domestic market orientation and internationalisation was not among their strategic considerations.

## SUMMARY AND EVALUATION OF STRATEGIC PREPARATION FOR EU-MEMBERSHIP

Preparation for conditions after the EU-accession may not be regarded as a strategic aim having priority among the responding companies. This finding is probably connected to the fact that companies in our sample are mainly oriented toward the domestic market, their expansion on foreign markets is rather limited. Company strategies mainly favour meeting customer expectations. Profit maximization is a goal having lower

priority compared to customer orientation. Responding managers expressed relatively high level adaptation capabilities to environmental changes. Preactive adaptation was reported as the most frequent way of reaction to changes.

Type of company strategies went through relevant changes at the beginning of the new century. In the first years shrinking and stabilization strategies were mainly used. It was changed to defensive strategies in year 2002 followed by offensive and growth oriented strategies in 2003. The content of enterprise strategies shows stronger connection to international economic trends than to initiatives of the Hungarian Government.

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# Single Area Payment - as One of the Supports of Agriculture in the European Union - 25.

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## SUMMARY

*The 2003 reform of the CAP introduces a new system of single farm payments (income support) and cuts the link between support and production (decoupling). The majority of common organisations of markets (COMs) will become subject to this new system in 2005 or 2006 (with the exception of the new Member States). Existing direct aids may be continued until 2012, subject to certain conditions (cross-compliance), but they will be gradually reduced (modulation). Certain crops are eligible for additional support to compensate for the loss of income resulting from modulation and the transition to the single farm payment.*

*Council Regulation (EC) No 1782/2003 of 29 September 2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers and amending Regulations (EEC) No 2019/93.*

*Key words: European Union, Common Agricultural Policy (CAP), Integration, Single area payments (SAP), Income support.*

## SINGLE PAYMENTS

All farmers may apply for direct payments, which are independent of their production and supplementary to their income. Specific support schemes have nevertheless been introduced for durum wheat, protein crops, rice, nuts, energy crops, starch potatoes, milk products, seeds, arable crops, sheepmeat and goatmeat, beef and veal, grain legumes, cotton, tobacco, hops, as well as for farmers maintaining olive groves.

The single payment is an annual income payment to farmers that is based on their entitlement over the 2000-02 reference period (with the exception of the new Member States). The main aim of this payment is to ensure greater income stability for farmers. Farmers are free to decide what they want to produce in response to demand without losing their entitlement to support.

## GRANTING DIRECT PAYMENTS

Farmers may receive direct payments provided that they maintain their land in good agricultural condition and comply with the standards on public health, animal and plant health, the environment and animal welfare (cross-compliance).

If a farmer fails to comply with those rules through negligence, direct payments may be reduced by between 5% and 15%. In the event of deliberate non-compliance, payments will be reduced by at least 20% and the producer may be completely excluded from receiving aid.

Amounts not spent are to be paid back into the European Agricultural Guidance and Guarantee Fund (EAGGF). Member States may keep 25% of those sums, however.

By 1 January 2008 the Commission is to present a report on the application of the conditionality system.

### *Degressivity, Modulation and Financial Discipline*

Between 2005 and 2012, direct payments - other than those to farmers in the outermost regions (French overseas departments, the Azores, Madeira, the Canary Islands) and the Aegean Islands - are to be reduced each year: by 3% in 2005, 4% in 2006 and then 5% annually (degressivity). The sums thereby saved are to be divided among the Member States and allocated to rural development measures (modulation). Each Member State is to receive at least 80% of the sums generated. It may even receive up to 90% of the amount in order to alleviate the effects of abolishing the intervention mechanism for rye.

In order not to penalise small farms, farmers may receive an additional amount of aid. That amount, possibly reduced by the Member States, is to correspond to the loss resulting from modulation for the first EUR 5 000 tranche of direct payments.

In order to comply with the financial perspective set by the European Council for the period 2007-2013, direct payments may be adjusted if agricultural expenditure relating to markets and direct aid risks exceeding the annual limits laid down.



### *Farm Advisory System*

By 1 January 2007 Member States are to set up a system for advising farmers on land and farm management.

Farm advisory work will relate to compliance with regulatory requirements and to good agricultural and environmental conditions. The system will operate on a voluntary basis. Member States are to give priority to farmers receiving more than EUR 15 000 in direct payments per year. By 1 January 2011 the Commission is to present a report on the application of the farm advisory system accompanied, if necessary, by proposals for making it compulsory.

### *Integrated Administration and Control System (IACS)*

Each Member State is to set up an integrated administration and control system comprising:

- a computerised data base;
- an identification system for agricultural parcels;
- a system for the identification and registration of payment entitlements;
- aid applications;
- an integrated control system;
- a single system to record the identity of each farmer who submits an aid application.

IACS will enable farmers' payment applications to be checked. Each year, farmers are to submit an application for direct payments and Member States are to carry out the requisite checks. In the event of non-compliance with the rules, the aid granted may be reduced or cancelled. The Commission will be kept informed of, and monitor, the application of IACS.

### *Payments*

Payments will be made once a year between 1 December and 30 June of the year following the application. The additional amount of aid is to be paid at the latest by 30 September of the year following the calendar year concerned. The Commission may also extend the period of payment in the oils and fats sector and authorise advances.

Farmers who have artificially created the conditions required for obtaining payments will not receive them.

### *Allocation and Calculation of the Single Area Payment*

In order to receive a single payment, farmers must have received certain direct payments. They will thus receive a payment entitlement calculated as a general rule on the basis of the sums received during the reference period 2000-02 and the number of hectares which conferred entitlement to those payments. Total direct payments in each Member State are subject to a ceiling.

From 2007, producers of milk products will receive an amount supplementary to the single payment.

### *National Reserve*

In order to constitute a national reserve of payment entitlements for assisting new farmers, Member States may reduce the amounts of direct payments by a maximum of 3%.

*Table 1. National ceilings (millions of euro)*

<i>Member State</i>	<i>2005 -2007</i>	<i>2008</i>	<i>2009</i>	<i>2010 and subsequent years</i>
Belgium	411	413	530	530
Denmark	838	838	996	996
Germany	4 489	4 503	5 492	5 496
Greece	837	1 700	1 722	1 760
Spain	3 244	4 043	4 241	4 253
France	7 199	7 231	8 091	8 099
Ireland	1 136	1 136	1 322	1 322
Italy	2 539	3 112	3 464	3 497
Luxembourg	27	27	37	37
Netherlands	386	386	779	779
Austria	613	614	712	712
Portugal	452	493	559	561
Finland	467	467	552	552
Sweden	612	612	729	729

<i>New Member State</i>	2005	2006	2007	2008	2009	2010	2011	2012
Czech Republic	228.8	226.7	343.6	429.2	514.9	600.5	686.2	771.8
Estonia	23.4	27.3	40.4	50.5	60.5	70.6	80.7	90.8
Cyprus	8.9	12.5	16.3	20.4	24.5	28.6	32.7	36.8
Latvia	33.9	39.6	55.6	69.5	83.4	97.3	111.2	125.1
Lithuania	92	107.3	146.9	183.6	220.3	257	293.7	330.4
Hungary	350.8	420.2	508.3	634.9	761.6	882.2	1 014.9	1 141.5
Malta	0.67	0.83	1.64	2.05	2.46	2.87	3.28	3.69
Poland	724.6	881.7	1 140.8	1 425.9	1 711.0	1 996.1	2 281.1	2 566.2
Slovenia	35.8	41.9	56.1	70.1	84.1	98.1	112.1	126.1
Slovakia	97.7	115.4	146.6	183.2	219.7	256.2	292.8	329.3

### *Use of Payment Entitlements*

Payments depend on the area of the holding. A farmer who has an eligible hectare is to receive payment of the amount fixed by the payment entitlement. Other than in exceptional circumstances, any payment entitlement which has not been used for a period of 3 years is transferred to the national reserve. As a general rule, payment entitlements may be transferred only between farmers in the same Member State.

### *Land Use*

Land conferring payment entitlement is to be used for agricultural activity, except for permanent crops such as wine, the production of fruit and vegetables, and potatoes other than those intended for the manufacture of potato starch. Farmers must set aside part of their land, except that used for organic production or for materials not intended for human or animal consumption. They are then entitled to direct payments. The land set aside must be maintained in good agricultural and environmental condition and may be subject to rotation. There, farmers may also cultivate oilseeds or bio-mass not intended primarily for food production. In that case, Member States may pay up to 50% of the costs associated with establishing multiannual crops.

### *Regional Implementation*

By 1 August 2004, Member States may decided to allocate payments at regional level. Regional ceilings are to be established and divided among the farmers in the region. Where regionalisation is implemented, farmers may use the parcels covered by a payment entitlement to produce fruit and vegetables or non-starch potatoes. Member States may also set the value of entitlements for grassland and include the dairy premium and additional payments in the single payment scheme. Transfers of payment entitlements within a region or between regions may take place only if the entitlements are identical.

### *Partial Implementation*

When introducing the single payment system, Member States may opt for its partial implementation in order to combat the abandonment of land. Aid will be paid to farmers partly as a single payment and partly as an additional payment.

For arable crops, Member States may allocate per-hectare payments up to 25% of the total amount or up to 40% if they decide to retain the additional premium for durum wheat.

For beef and veal, the suckler cow premium may be retained in its entirety with up to 40% of the slaughter premium. If the first option is discarded, it is also possible to retain 100% of the slaughter premium and 75% of the special male premium. The sheep meat and goatmeat premiums may remain linked to production up to 50%.

Member States are to be entitled to pay additional aid representing 10% of single payments to farmers developing specific types of farming which are important for the environment or for the quality and marketing of agricultural products. At the latest by 31 December 2009 the Commission is to submit to the Council a report on the implementation of the general or partial single payment system.

### *Optional Exclusion*

Member States may, if they wish, exclude some aid from the single payment scheme, such as that for growing cereals in the Nordic countries, the dairy premium and certain types of aid for producers in the outermost regions.

### *Transition*

In order to facilitate implementation of the single payment system, Member States may decide whether or not to opt for a transitional period ending on either 31 December 2005 or 31 December 2006. During that period, Member States will apply a direct payment system in compliance with the EU's competition rules and international obligations.

## Communication

Member States and the Commission are to communicate to each other the information necessary for implementing the Regulation.

## Committee

In implementing the Regulation, the Commission is to be assisted by a Management Committee for Direct Payments, consisting of representatives of the Member States and chaired by a representative of the Commission.

## Transitional Measures

The simplified scheme for small farmers is to apply until 2005. While participating in that scheme, farmers are not to be entitled to direct payments.

## ADDITIONAL PREMIUMS

*Durum wheat* – For durum wheat, the per-hectare aid available for improving quality is to be EUR 40, subject to national limits. If the area in respect of which it is applied for turns out to exceed the limit, then the amount is reduced proportionately. Where the single payment scheme is partially implemented, an area payment supplement of EUR 291 per hectare for 2005/06 and EUR 285 from 2006/07 onwards is to be paid, subject to national limits. If the area in respect of which the payment is applied for exceeds the limit, then the aid is to be reduced proportionately.

For well-established areas of durum wheat production, special aid of EUR 46 per hectare is to be allocated during the 2005/06 marketing year.

*Protein crops* – For peas, field beans and sweet lupins, the amount of aid is EUR 55.57 per hectare for a maximum guaranteed area of 1.4 million hectares for the EU. If the area is exceeded, the aid is reduced proportionately.

*Rice* – In order to preserve certain traditional production areas, producers will receive aid for rice set on the basis of the yield for a maximum guaranteed area in each Member State. That area will vary depending on whether or not the Member State opts for the transitional period. If the area is exceeded, the aid is reduced proportionately.

*Nuts* – In order to protect certain traditional production areas, aid of EUR 120.75 per hectare for the production of hazelnuts, walnuts, filberts, pistachios and almonds may be paid to producers. The guaranteed area is 80 000 hectares for the whole EU. If the area is exceeded, the amount of aid is reduced proportionately. Community aid is granted if farmers comply with a minimum tree density and plot size. At the same time, Member States may grant national aid up to an annual maximum of EUR 120.75.

*Energy crops* – Aid of EUR 45 per hectare is to be available for producers of energy crops (crops intended

for the production of biofuels or electric and thermal energy) the production of which is covered by a contract with the processing plant, subject to a maximum guaranteed area of 1.5 million hectares for the EU. If the area is exceeded, the aid is reduced proportionately.

By 1 January 2007 the Commission is to submit a report on the implementation of the scheme, accompanied, where appropriate, by proposals taking into account the EU biofuels initiative.

*Starch potatoes* – Producers of potatoes intended for the manufacture of starch are allocated aid of EUR 110.54 for the transitional period or EUR 66.32 from the 2005/06 marketing year per tonne of starch. Aid is granted only if a contract has been concluded between the producer and the starch manufacturer.

*Dairy premium and additional payment* – From 2004 to 2007, and subsequently if the dairy premium is excluded from the single payment scheme, each holding's milk reference quantity (quota) expressed in tonnes is to be multiplied by EUR 8.15 for the 2004 calendar year, EUR 16.31 for 2005 and EUR 24.49 for 2006 and subsequent years. From 2004 to 2007, and subsequently in the event of exclusion from the single payment scheme, additional payments are to be made to each farmer. A global amount is to be set for each Member State.

If the single payment system is partially implemented for beef and veal, farmers may apply for various premiums:

- the special premium for bulls (uncastrated male bovine animals) or steers (castrated male bovine animals);
- the deseasonalisation premium, within the limit of the budgetary resources available where the Member State opts for the transitional period, if the number of bovine animals slaughtered during the year is more than the average annual slaughterings of male bovine animals;
- the suckler cow premium (EUR 200) for farmers supplying little or no milk or producing organic milk. An additional premium of EUR 50 may be allocated by the Member State.

Suckler cow premium rights may be transferred. If the rights are transferred without the holding, the Member State may return up to 15% of the rights to the national reserve. Member States may prevent premium rights from being transferred outside regions where beef and veal production is particularly important for the local economy. Premium rights from the national reserve are to be allocated to newcomers, young farmers and other priority farmers. For Member States where more than 60% of heifers and suckler cows are kept in mountain areas, the granting of premiums for heifers and suckler cows may be managed separately;

- the slaughter premium, subject to ceilings to be determined, is to be EUR 80 for cows, bulls and heifers and EUR 50 for calves;

- the extensification premium, if the farmer is already receiving the special premium and/or the suckler cow premium during the transitional period;
- additional payments during the transitional period are to be made according to area and/or headage.

which provokes limited or no market distortion with regard to the COM). For the new Member States, access to the new single payments is not necessarily subject to conditionality.

### *Adaptation of the Reform of the CAP to the New Member States*

## SUMMARY

The two pillars of the June 2003 reform of the common agricultural policy (CAP) are the decoupling of direct aid to producers (cutting the link between support and production) and the introduction of the single payment scheme. The CAP was based on a series of direct aids linked to area, production and number of livestock units. Following decoupling, aids paid to producers will no longer be dependent on the type of production.

Commission Regulation (EC) of 21 April 2004 laying down detailed rules for the implementation of the single payment scheme provided for in Council Regulation (EC) establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers. Single payments will be subject to farmers complying with the conditionality provisions.

The decoupling of payments will result in a large proportion of aid for agriculture being shifted from the "yellow box" (e.g. export refunds, which are regarded as a source of market distortion under the rules governing the COM) to the "green box" (e.g. rural development aid,

Council Decision of 22 March 2004 adapting the Act concerning the conditions of accession of the Czech Republic, the Republic of Estonia, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Republic of Hungary, the Republic of Malta, the Republic of Poland, the Republic of Slovenia and the Slovak Republic and the adjustments to the Treaties on which the European Union is founded, following the reform of the common agricultural policy.

The new additional premiums (new direct payments or aid schemes) will gradually become applicable to the new Member States, from 25% in 2004 to 30% in 2005 and 35% in 2006. After this last date, they will be gradually increased until 2013. The compensatory direct payments for dairy will be increased. The tables on quotas and fat content covering the new Member States will also be amended. The single area payment scheme (SAPS) will be maintained for these countries until 2007, and additional direct payments will be maintained until the end of 2008 with regard to the SAPS. In the framework of the new farm payments, the additional payments may be applied from 2005.

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# Solitude Standing Coaching as a New Leadership Development Method

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## SUMMARY

*Leadership is lonely business. Leaders have always found themselves alone in time of crisis and when it was about making tough decisions. Coaching as a service is intended to decrease this loneliness with the appearance of a supportive partner, who is not there for professional advises but who is there with paying attention, with listening without prejudice and with asking questions in these hard times, thus developing the skills of the leader.*

*With the appearance of coaching as an activity in leadership studies many questions arise regarding its relation with HRM and leadership development. This study aims to define coaching in the broader sense and also emphasizing the differences from other leadership development methods, thus marking the distinct characteristics of it. Coaching is not only used in business. It is widely used effectively in other segments of life. However the present study is limited to define and characterize types of business coaching. Therefore this paper is laying the ground with defining the different coaching categories.*

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## INTRODUCTION

Being a manager is a lonely activity. When you have to make hard decisions and critical moments come, you always remain alone. Coaching services partly undertake to reduce and eliminate this type of loneliness by the provision of a supporting partner who, instead of giving professional advice, helps in these moments with his/her attention and questions without passing judgements and thus contributes to the manager's development.

With the appearance of coaching in management science, several new questions arise concerning its relationship with human resources management and management development methods. The paper aims to mark out the place of this new method of management development in the changing and development process of human resources management as well as in the system of established management development methods. In order to achieve this, it aims to give as comprehensive a definition of coaching activities as possible, underlining its difference from other similar methods.

Coaching is a development method applied outside the business sector, as well. Its application has proved useful in several other areas of life. The limits of this paper, however, only allow the identification and characterisation of business coaching types.

After the definition of coaching categories, the paper gives an overview of coaching-type management, its past

and background in management theory and its justification.

Finally, through giving an overview of the Hungarian scene, the paper presents the appearance and spread of coaching activities in the Hungarian business sector.

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## THE ORIGINS OF COACHING

In order to understand and properly define coaching, it is worth investigating the origins of the word and the changes in the activities denoted by it. Such an investigation reveals both the past and the special semantic changes of the expression.

In examining its origins, the changes of the word itself and the activities denoted by it should be separated.

However amazing it may be, the origin of the word goes back to a small Hungarian settlement, the village of *Kocs* in Northern Transdanubia. It is to this village with over a thousand years' past that the first vehicle in human history possessing two rotating wheels (*kocsi* in Hungarian) owes its name as it was first made here. It revolutionised transport in its time and added a new word to the vocabulary, the English version of which has the form *coach*.

Along with its form, its meaning has also changed and extended. Students started to call their favourite teachers by this name, those who did not only give them

knowledge but also educated them, giving advice and help in their problems.

As early as in ancient Roman times, people were perfectly aware that education is not equivalent with cramming a certain amount of knowledge into pupils but it rather means helping them to become aware of their own knowledge and abilities. The word 'education' originates from Latin *educō*, the meaning of which is "pull out, evoke".

Before the Romans, Socrates developed the form of education now called dialectics or "Socrates-type dialogue", with which he called up unconscious knowledge in his pupils, knowledge that they were unaware of, by asking a series of questions and then evaluating their answers and the related associations. (Chapman – Best – Casteren, 2003) Besides education, the field where we come across the concept of coach and coaching most often is the psychology of sport. The new and best-known, most often used meaning of the word is "trainer" (coaching=training). In the field of sport, the first publications (1975) were written about tennis and golf in relation to the content of coaching activities (Horváth, 2004), which can be summarised as follows:

- getting to know the athlete's character and physical organism
- the elaboration of a development plan in accordance with this
- the monitoring of the athlete's psychological and physical conditions
- the continuous development of the athlete for the purpose of achieving ever better performance
- the detection and elimination of factors hindering the increase of performance
- motivating to achieve commonly set goals

The next stage is the area of psychotherapy: Carl Rogers created the school which assists the patient in finding the best solution through reflective presence and attention. The principles of the Rogers school can be found in most business communication techniques. The theory is utilised in several fields in the business world but its application meant the greatest breakthrough in the area of coaching, where, if the activities defined here are compared with the earlier definitions of coaching, it can be concluded that the content of the activity has not changed just its name has been modified in accordance with the language of the business sector. Both in sport and business, the coach is the person who gives help in the achievement and maintenance of excellence, and his/her development activity is coaching.

The activity well-known in sport psychology was put in the focus of attention by a research conducted in the US which studied the careers of successful top athletes who started an enterprise after finishing their sporting career (Chmelár, 2005). According to research results, these enterprises achieved success in a very high degree. The research also revealed that the subjects' sporting attitude, i.e. their performance-oriented approach and permanent urge for development supported by the coach, had played

a great role in their success. Thus the special relationship between the athlete and the coach was emphasized, which has gained ground since in the business sector, too, as experience testifies.

This takes us to the penetration of coaching activities into management science. The appearance of coaching brought a new type of methodology, which deals with people with personalised methods, tailored to their particular needs, which respect and appreciate their characters. Coaching helps them to get to know themselves better and do their work both with greater awareness and success. It gives assistance to managers who are dissatisfied with their achievement within the organisation, have management and cooperation problems, are isolated or would like to see the conditions of the organisation in a new light and want to clarify both their own visions and plans for the future and those of the organisation. 'It is amazing how rarely a lot of clever, highly motivated and obviously responsible people stop to think over their behaviour and its consequences. Instead of more careful consideration and because of always feeling an urge for permanent progressing, managers may get into top positions without being aware of their limits. Coaching makes them focus on consciousness and watch the effects evoked by their words and actions. This enables them to recognise their opportunities instead of simple responding.' (Sherman – Freas, 2004)

## THE DEFINITION OF THE CONCEPT OF COACHING

Whenever a new management term appears, dozens of definitions are coined to fill the conceptual vacuum. It was no different in the case of coaching, either. Several definitions exist which in many cases describe the activity from different angles. Beyond the variedness of the coaching activity, the great number of definitions reveal that neither its content nor its relationship with related methods (the differences between them) have been properly investigated. In the following section, a possibly comprehensive definition of coaching activities is given from different viewpoints (management theory, communication, methodology), which is then contrasted with similar management-counseling methods from which it should be distinguished for the sake of an unambiguous definition.

Coaching is a *supporting relationship* between the customer with managerial authority and the coach, within the framework of a formally defined agreement for the purpose of achieving commonly defined goals. These goals are basically related to the enhancement of professional performance and personal satisfaction and thus to the efficiency of the customer's organisation. The coach primarily does not facilitate the development of the manager on a professional basis but rather through the

development of his/her skills and abilities and a shift in attitude. (Heidrich, 2004)

Coaching is an *approach* based on the assumption that the customer is capable of developing and finding solutions to his/her current problems. Activising the manager's inner forces, coaching urges him/her to find his/her own solutions, thus inducing greater commitment and responsibility in the manager to perform the necessary changes and make the related decisions than any other method. The objective of the activity is to bring to the surface the creative solutions hidden in the customer and eliminate the obstacles in the way of implementation. Through studying the different patterns and old routines thoroughly, the coach may urge his/her customer to adopt so far untested forms of behaviour with the objective to enhance the customer's performance and reveal his/her learning abilities.

Coaching is a *dialogue* conducted in a performance-oriented context, the parts of which are, in addition to feedback, motivation, efficient question-making and the conscious shift of approach on the part of the coach depending on how much the customer is ready to perform the given task. It is by no means one-way communication, in the course of which the coach would

tell the customer what to do and give instructions as to how. It is rather about posing the proper questions than giving ready answers. Coaching helps to bring to the surface answers that the customer probably already knows but has never formulated clearly. (Horváth, 2003)

Coaching is about learning but it should never be forgotten that, on the one hand, the coach is not a teacher, and on the other, he/she does not need to know anything better than his/her customer. (Zeus – Skiffington, 2000; Landsberg, 1997; in Horváth, 2003)

If we consider coaching to be a part of the manager's work, then it is 'a *communication process* which ensures staff development and the achievement of expected performance.' It is not only a process to urge staff to enhance performance but to give them guidance and assistance in making up for their shortcomings for the sake of achieving higher performance. (Elbert – Farkas, 2000)

In terminological clarification, it is important to distinguish coaching from other ways of counselling. It is most often associated with therapy, training, mentoring and counselling. Table 1 gives a short definition of these as well as a list of features which distinguish them from coaching.

*Table 1. The comparison of coaching with other ways of counselling*

<i>Form of counselling</i>	<i>Features</i>	<i>Characteristics of coaching</i>
Psychotherapy	The therapist <i>detects</i> and analyses the given person's <i>past</i> problems and relieves the inner tensions arising from them.	In contrast to the therapist, the coach <i>concentrates on the future</i> , setting goals together with his/her customer for the achievement of which they elaborate action plans. Performance is in the focus of attention.
Training	Counselling for groups, focussing on a given topic. Low transferability: participants are able to convert the knowledge and skills gained in the training to performance enhancement and business results in only 8-12%. There is a lack of continuous feedback and support. In contrast to coaching, <i>change and solutions come from outside</i> .	In contrast to training, in coaching <i>the idea to change comes from the customer</i> , the implementation of which is monitored by the coach who thus provides continuous feedback to the customer. Personalised development, usually not done in groups. It is characterised by continuous feedback.
Mentoring	The mentor performs his/her activities for the purpose of the customer's career development and promotion, and his/her protection against attacks. The mentor is a person holding a higher position in the same organisation as the customer therefore it is his/her professional interest to develop and support the customer's career. The hierarchical relation between them means that <i>the mentor helps his/her customer with professional advice and counselling in getting promoted within the company</i> . Personal support, friendship and counselling are aspects of the mentoring relationship.	With regard to its content, coaching is probably most closely related to mentoring. The difference between the two activities is primarily manifested in the relationship between the coach or mentor on the one hand, and the customer on the other. <i>The coach is mostly an outsider having no hierarchical or professional relationship with his/her customer</i> . If there is a hierarchical relationship, then we are not concerned with coaching but with coaching-type management. (A more detailed overview of this can be found in the section about coaching types.) Furthermore, many times the coach does not need to possess professional knowledge in the customer's field of work as it is this that enables him/her <i>to support the customer from an outsider's viewpoint and not on a professional basis</i> . Regarding the nature of the relationship, the similarity between these two ways of counselling is that in both cases there should arise a close, intimate relationship between the partners for the purpose of efficiency.

<i>Form of counselling</i>	<i>Features</i>	<i>Characteristics of coaching</i>
Counselling	After getting to know the customer's problems, <i>the counsellor comes up with suggestions and solutions on the basis of his/her own expertise and the information received from the customer.</i> Implementation is done with joint work.	Coaching can be clearly distinguished from traditional counselling, too. In the latter case, it is namely not the <i>coach</i> who suggests solutions to the current problems on the basis of professional knowledge but <i>by asking the proper questions, he/she guides the customer to a new approach and new solutions</i> eliminating old routines and patterns. In contrast to the counsellor, the coach is not required to have thorough knowledge in the customer's field. To the contrary! It is precisely the new approach deriving from the coach being an outsider that greatly contributes to bringing the customer's creativity to the surface and helping him/her to learn a new approach.

## COACHING CATEGORIES

In a wider sense, coaching includes lifestyle planning, career counselling, the provision of health and nutrition information, knowledge from the skill of public speaking to the art of flirting. (Sherman – Freas, 2004) Narrowing down this wide spectrum, an area called Business coaching can be delineated, which gives assistance in the

solving of the difficulties of business life and managerial work and in the detection and relieving of developmental constraints. Within the field of Business coaching, several categories can similarly be distinguished. These can be put into two groups as the function of purpose-orientedness. Table 2 provides the characterisation of the two main types of business coaching.

*Table 2. Characterisation of the types of business coaching*

<i>Personalised coaching</i>	<i>Characterisation features</i>	<i>Development of a coaching attitude</i>
periodical/occasional	<i>time dimension of coaching</i>	continuous
inner human relations expert/outside counsellor	<i>coach</i>	company management
some middle and top managers	<i>customer/target person</i>	the whole staff
initiator/participant	<i>the role of top managers in coaching</i>	main supporter of the development of a coaching attitude
top and middle managers	<i>management levels affected</i>	all management levels
often low if coaching is not provided on the customer's own resolution	<i>level of commitment of the organisational members affected</i>	high-level
improvement of managerial performance, developing of weak points	<i>result of coaching</i>	transformation of hierarchical relationships, improvement of organisational performance
not necessary	<i>incorporation of coaching into corporate culture</i>	necessary
it improves the efficiency of individual learning	<i>relationship with learning</i>	it contributes to organisational learning and the emergence of a learning organisation

## COACHING TAILORED TO PERSONAL NEEDS

The most widespread field of Business coaching in Hungary is also the individual or group coaching service tailored to the needs of a particular manager or managers. The implementation of these types of coaching:

- coaching activity for a specified period
- for particular people in management positions in the company
- not affecting every management level and organisational unit

➤ performed in order to achieve concrete objectives.

Within the area of individual coaching, several types can be distinguished primarily on the basis of the number of participants and the orientation of coaching.

### *Executive Coaching*

A coaching service used by top managers at their own initiative. It owes its popularity with managers to managerial loneliness comparable to the loneliness of the long distance runner. In an organisation it is typically the manager (top manager) who cannot speak about his/her problems as there is no-one he/she can ask for advice in a



difficult or unstable situation. In such cases it helps if a person standing outside the inner corporate network of interests and free from professional chauvinism or fixed patterns of thinking listens to the manager and guides him/her to find his/her own solutions with the help of the well-known coaching techniques. As a personal counsellor and partner, the coach helps to dissolve this type of loneliness, to strengthen personality and achieve managerial success. As co-authors Sherman and Freas put it in their article: the coach is the outer supplier of honesty. (Sherman – Freas, 2004)

The person providing the coaching may be a suitable member of the staff of the human resources section of the company but may also be an outer person involved in counselling. The latter solution is more suitable as it ensures to a much greater extent the outsider attitude, different way of thinking and non-involvement in the problem required of the coach. On the other hand, the use of an inner coach is much more cost-effective and in the first period of coaching it is time-effective, too, as no considerable amount of time is needed for him/her to get to know and understand the relationships of the coached person and his/her company.

### *Middle Management Coaching*

In this case, it is usually the boss of the coached person who orders the service. The objective is to enhance and improve the person's performance and improve his/her weak points. As there is no inner incentive on the part of the employee to use the assistance, his/her motivation may be severely impaired, which endangers the success of coaching from the very beginning.

### *Team Coaching*

A coaching service provided for a team in a project, mostly with the objective to solve the problems arising in relation to the project.

### *Group Coaching*

A distinctly different category from the former one. Group members are managers of different companies who discuss their experiences and views through shared case studies. In this learning process the role of the coach is that of moderator.

### *Organisational Coaching*

The leaders of a particular company or one of its organisational units make use of the coaching services. It basically originates from two kinds of motivation:

- if they face difficulties on the structural level
- if they intend to introduce and maintain the culture of coaching at the company

In this respect, organisational coaching represents the transition to another category of Business coaching involving the development of a coaching attitude. Compared with personalised coaching, the development of a coaching attitude is less specific in company operations and involves a more comprehensive process with regard to organisational involvement.

## DEVELOPMENT OF A COACHING ATTITUDE

This managerial approach to coaching is more comprehensive and general. In contrast to the types of personalised coaching, it is not a definite time relationship with the purpose of achieving a particular goal. In this case, coaching means a change in managerial attitude or a shift in management style the purpose of which is to make it possible to deepen the manager-staff relationship, to promote the professional development of staff and discuss problems in an open way. It follows from this that in this case the role of the coach is fulfilled by the manager who provides this service for a member of his/her staff.

In this case, the manager is not present in the manager-employee relationship exclusively as a coach but he/she can incorporate coaching devices in his/her inventory, and if needed, he/she can apply coaching techniques and methods which make it possible for his/her staff member to develop and find his/her solutions to his/her problems. If this management style is extended to all management levels in the company, it can be incorporated among the values representing corporate culture.

The coach-manager role may be hindered by several factors on the part of both the manager and staff members, which makes it difficult to develop an open contact or partnership:

- The employee is reluctant to open up to his/her boss and reveal his/her weaknesses. However, this is the starting-point for an efficient coaching programme.
- Due to his/her affectedness, the manager cannot view the problems of his/her staff members as an outsider. As Einstein put it: 'The mind that has created the problem cannot solve it.' In this case, the objectivity and outsider approach of the coach are not ensured.
- It follows from the previous point that it is very difficult to overcome "corporate blindness". Participants of a given organisation or culture rarely come up with new solutions or approaches.
- Due to his/her affectedness and expertise again, the manager will sooner or later adopt the role of counsellor depriving his/her 'customer' of the opportunity to come up with his/her own solutions.

➤ Finally, coaching assumes the application of a special methodology requiring some psychological pre-schooling, certain personal traits and abilities. It is indispensable to learn or possess these.

On the basis of all this, perhaps it is doubtful whether a manager can operate efficiently as a coach. The roles of manager and coach somewhat clash with each other and are not easily reconcilable. However, it is possible to reconcile the two if the manager does not strive to become the coach of his/her employee in the narrow sense but in a way different from traditional management styles, he/she strives to develop and maintain a supportive mental relationship fruitful for both parties. In management science, this type of approach to management is not novel: with the appearance of Contingency theories, the style characterising the abovementioned relationship can be classified as one of the styles defined by the creators of Situational management theory.

As we have seen, the theoretical foundation of human resource management goes back to an over 100 years' past. During this time, it has been in the state of constant change due to economic and political changes on the one hand, and the development of other disciplines (psychology, sociology) on the other. Nowadays, we can witness the renaissance of human resources due to

globalisation and increasing competition, which is accelerated to a formerly unprecedented extent.

The effect of rehumanisation and the re-emphasising of human values can be felt in several fields of life. The present paper focusses on a small segment of this complicated process: managerial counselling within the field of management science. The very high expectations towards managers, the requirement of long-term outstanding performance and the continually and ever more rapidly changing environment all put an extraordinary burden on employees and managers.

In this situation the demand has arisen for an efficient and rapid method of learning and development, which makes it possible to experiment with and implement radically new ideas, approaches and solutions in a personalised way providing continuous feedback.

The evaluation of coaching has changed even in its short lifetime. Earlier it was regarded to be an extra service used as a remedy against performance problems. Now we are starting to realise that there is an upper limit to the enhancement of performance with more and harder work, and even those most inclined to apply an autocratic management style are developing an interest in the philosophy of coaching. (Chapman et al., 2003)

The appearance of coaching marks the end of an era: the time of managers struggling with their problems alone is over!

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# International Management and Marketing in Regional Trade within V4 Countries: Focus on Slovak – Hungarian Trade Flows

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## SUMMARY

*Integration processes and globalization trends create new possibilities for enterprises. New economics alters the ways of „doing business” in the market. Interdependence of national economies is still deeper and includes different aspects of economic, political and social life. First of all, the paper identifies the areas and ways of the international business cooperation development among the Slovak Republic and Hungary - a business partner closed from geographical or business point of view. Consequently, we try to define the role of marketing in the global market space and distinguish the local, regional and global extend of business expansion. For further development will be necessary to search for possibilities how to compete at the global food market, what are the challenges for industries, marketing and business and how to decide on targeting for local versus regional or global market. We consider the export clusters as an important tool for regional business cooperation and expansion.*

*Key words: regional trade, geographical distance, business distance, business partner, opportunities, international trade, export cluster, regional specialties, European market.*

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## INTRODUCTION

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The world is global and interconnected. Integration processes and globalization trends create new possibilities for enterprises. On the other side these phenomena impose new demands in terms of flexibility and ability to respond to changes. New economics alters the ways of „doing business” in the market. Interdependence of national economies is still deeper and includes different aspects of economic, political and social life. The integration process within the European region is characterized by processes of enlargement of the existing economic union with the effect of trade creation as well as trade diversion depending on the business position of the country in the trade agreements. ŠIMO (2003) considers processes of globalization as the decisive external factors influencing the development of all branches of national economy, agriculture and food processing industry including. Global competitive environment has had direct impact on top management decision making (Ubrežiová – Horská, 2003). Thanks to globalization, national economies approximate one another and for enterprises, especially trans-national corporations – the global market is the single market (Dziembala, 2005). Structural changes have required in terms to improve the international competitiveness (Podolák – Serenčėš, 2003).

Present global economy provides us with knowledge that regional development is of great importance for development as a whole. Cooperation within the region supports its competitiveness and creates new comparative advantages (Knapík – Zorkóciová, 2004). Experts consider the aspect of regional development transferred into such kind of regional cooperation that is aimed at development of technology, innovation and international trade as a phenomenon of the new economy. Slovak economy is in the present an open economy with small internal market. Social, economic and political development in the Slovak Republic has created conditions for trade creation within the European Union. Free foreign trade exchange brings the positive effects for all economy. We could search for opportunities for regional cooperation development in the neighboring countries. The main attention is devoted to the market development in both globalization and internationalization processes (Piskóti, 2005). In this paper we try to define opportunities for trade and business development with business partner – Hungary.

## MATERIAL AND METHODS

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Goal of the paper is to identify opportunities for the international business cooperation development using the advantages neither of business distance nor geographical

one between the Slovak Republic and its business partner - Hungary. Based on the analysis of external environment, present social, political and economic conditions and further development, present results in foreign trade we try to outline targets for regional cooperation development. In our research we use the secondary data (database of the Ministry of Economy of the Slovak Republic, Customs Statistics of the Slovak Republic, territorial information on business partner countries, theoretical issues on international business and marketing). In the paper we provide the statistics on foreign trade between Slovakia and Hungary for period of years 2001 – 2005.

## RESULTS AND DISCUSSION

Theory of the international business distinguishes between the geographical and business distance (Horská – Ubrežiová, 2001). Geographical distance means such kind of distance that has direct impact on the level of costs of transportation, business risk, entering the different climate conditions, etc. Business distance compares such characteristics as cultural, historical, social and legal ones and looks for similarities or differences. From this reason the Slovak economical efficiency and mostly efficiency of agro-business sector is sensitive on outside environment, it means on global trends in the world economy and development in the European economical space. Accession of the Slovak Republic to the EU means also the priority to strengthening the national economy at the business sphere competitiveness growth. Efficiency of the Slovak economy in 2000 accounted only 46 % in comparison to the European average. This situation creates requirements for further efficiency growth, but in the conditions of new economic reality (Bielik, 2004).

As we mentioned in the introductory text, we can distinguish between geographical and business distance. Neither geographical nor business nearness leads to trade creation and of course, bigger effort and enthusiasm to start business or mutual cooperation. Big cultural, social, economic or geographical gap among the countries leads to trade diversion because of higher costs of transportation, insufficient purchasing power on the one hand, technical or cultural misunderstanding, administrative and legislative obstacles on the other hand. We could find the similar level of geographical distance in all neighboring countries Hungary including. The most important business partner based on the volume of foreign trade exchange is Germany, but there is no doubt this country is the most important business partner for Slovakia not because of business nearness but because of economic and market potential.

### *Current Situation in Foreign Trade with Hungary*

Table 1 points at volume of international trade of the Slovakia with Hungary and also there are shown the trading volumes with other neighboring countries. The trading volumes with some neighboring countries we introduce just to be able to compare the volume of trade as a total. We consider the Czech Republic as our nearest business partner both from cultural and geographical distance of the markets. Czech Republic, Hungary and Poland are also known as a former V4 partners and CEFTA's members. Trade with the CEFTA's countries and the EU's countries accounted for latest years about 80 % (less in import, more in export). Some of these countries belong to the group of neighboring countries, some of them have similar business environment and socio-economic and political development. Membership in the EU leads to the trade creation with the member states. For period of years 2002 – 2003 it is possible to observe the growth of foreign trade exchange between Slovakia and the EU's countries. Expressive growth – up to 30 % - it is observed from the beginning of year 2004. The biggest share on the Slovak export account products of the automobile industry. On the other hand, components for the automobile industry account the biggest share on the Slovak import. To use the opportunities at the EU market supposes to reach high quality standards, reasonable price, flexible logistic system and effective marketing communication. There is no doubt that there is a plenty of products competing on the level of cost leadership but there is not the only way how to compete at the European or world market. According to the Statistical Office of the Slovak Republic (2005), the foreign trade data on the year –on-year basic dynamics of trade turnover reached the same record-breaking level in May 2004 and thereafter trade turnover slowly descends. At the end of 2004s, by group of countries, export with the EU member states reached a SKK 762 billion (27 621 mil. USD, it is 85,2 % of all Slovak export), particularly with the Czech Republic by 15,1 % and with Poland 28,0 %. By group of countries, import with the EU member states reached a SKK 693 billion (29 157 mil USD, it is 73.6 % of all Slovak import), particularly with the Czech Republic by 5,3 % and with Poland by 25,8 %.

*Table 1. International trade with Hungary and other neighboring countries  
(mil. USD and as a percentage of total trade)*

Item	Year	Total trade (mil. USD)	Hungary		Czech Republic		Poland	
			mil.USD	%	mil.USD	%	mil.USD	%
Trade balance	2001	- 2125,2	302,6	-	- 125,0	-	256,9	-
	2002	- 2116,6	333,4	-	- 315,0	-	235,6	-
	2003	- 641,5	292,4	-	- 399,3	-	250,9	-
	2004	- 1455,6	454,9	-	- 166,0	-	386,7	-
	2005	- 2449,9	413,6	-	- 184,9	-	344,1	-
Export	2001	12 644,5	679,6	5,37	2 101,0	16,61	736,3	5,82
	2002	14 382,2	783,9	5,45	2 184,9	15,19	766,9	5,33
	2003	21 837,7	1 064,1	4,87	2 818,2	12,90	1 043,6	4,77
	2004	27 621,2	1 403,7	5,08	3 749,4	13,57	1 509,9	5,47
	2005	32 026,2	1 804,5	5,63	4 509,2	14,08	2 014,9	6,29
	Index 2005/2001	-	2,66	-	2,15	-	2,73	-
Import	2001	14 769,7	377,0	2,55	2 226,0	15,07	479,7	3,24
	2002	16 498,9	450,5	2,73	2 499,9	15,15	531,3	3,22
	2003	22 479,0	771,7	3,43	3 217,5	14,31	792,7	3,52
	2004	29 157,4	990,1	3,39	3 934,3	13,49	1165,8	3,99
	2005	34 476,1	1 249,7	3,62	4 371,6	12,68	1421,7	4,12
	Index 2005/2001	-	3,31	-	1,96	-	2,96	-

Source: The Customs Statistics 2004, the Ministry of Economy, Bratislava, 2004 and <http://www.mhsr.sk>, June 12. 2006

Slovak trade with Hungary is characterized within period of years 2001 – 2005 with positive trade balance. Both, export and import are increasing within observed period. We can state the fastest growth of export (with 156 % in 2003 in comparison with 2001) and import (with 204 % in 2003 in comparison with 2001) in comparison with Czech Republic or Poland. Import is growing faster as export. Positive trade balance we can observe also in trade with Poland but in relation to size of Polish economy the foreign trade with this country is really small. Share of trade with Hungary on total trade accounts approximately 3 – 5 % (that is similar as with Poland). Trade balance with the EU member states reached a SKK 69,0 billion (2 379 mil. USD) in a surplus, particularly active trade balance with Hungary a SKK 14.7 billion.

Regarding to the agro-food trade with Hungary we could emphasize some product categories perspective for trade development that are as follow:

- > national or regional specialties (soft sheep cheese bryndza, spice paprika, meat products, ducks and geoses),
- > global products (produced by multinational companies well know in all the world),
- > products from local producers in the borderland areas.

To increase the trade with national or regional specialties requires to increase their consumption that is determined by marketing strategy used at the target market. In Slovak – Hungarian trade we could suppose certain level of knowledge on neighbor 's national specialties as well as some kind of tendency to buy a product from neighbor, mainly in southern Slovakia and Hungarian spoken areas.

Thirdly, the older generation could fulfill the marketing task to communicate information on neighbor products and ways of using in the kitchen as well as habits in consumption. All these aspect we could consider of great importance for further trade development, new business contacts establishment, however, relatively less costly.

### *Localization and Regional Opportunities*

Consequences of the globalization processes have different forms. On the one side, they create labor opportunities, re-allocation of production centers towards to the geographical regions with cheaper inputs. On the other side, globalization has been creating the unification of consumption, culture and thinking. In the process of liberalization there are winners on the side of bigger players with the great economic power. In despite of the globalization process there has been developing the process of regionalization and enlargement of regional economic integration unions. Following from the analysis of all trends accruing in the world we can state the marketing strategy could use combination of three different approaches as localization, globalization and regionalization are.

Nowadays globalization is thought to be fundamental process of changes in the world economy. It is next stage of internationalization. Globalization results from trade liberalization, opening economies processes and reinforcing the worldwide competition. The basis of globalization is the country integration that consists in linking their economic processes, which include foreign trade, investments and production. It is connected with

migration of goods, services, production factors, labor, capital and technology (Sporek, 2005).

Both, for Slovak and Hungarian enterprises, mainly small and medium, there is of great importance to have a chance to export and enter to the European and global market. Small Slovak and Hungarian economies require growth of external demand. Experiences from developed countries point at fact there are existing opportunities in regional cooperation in production, innovation, investment and trade. From this point of view we use the term “region” for neighboring countries, for borderland areas, areas with small geographical distance oriented to the same research and production areas or in vertical lines, etc. Foreign partner is willing to cooperate in different areas with those business entities that are able to cooperate, communicate and have former experience in such kind of cooperation. There is obvious business practice in the developed world to establish “export clusters” that have significant impact on international business development (Knapík – Zorkóciová, 2004). The export alliance has been defined at conference of the Export Club and Czech - trade in 2003 from side of M. Porter as a territorial concentration of cooperating companies, suppliers of specialized services, universities and governmental agencies in terms to enhance the local and regional development as well. Cluster enables to

reach certain economic goals on microeconomic and macroeconomic level. Several experts consider export clusters as of great importance for investment and regional policy.

## CONCLUSION

Business development is influenced by the neither geographical nor business distance, similarity of socio-economic, political development, market and economic potential as well. Hungary is important business partner for Slovakia from several aspects: small geographical and business distance, certain level of knowledge on Hungarian economy, Hungarian products, borderland areas, small economies, former business relations and present membership in the European Union. For further business and trade development will be necessary to search for possibilities: what are the challenges for industries, marketing and business, how to decide on targeting for local versus regional or global market, why to stay in domestic business, why to go regionally or internationally, which ways of business and trade cooperation could be used in harmony with investment and regional policy.

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# Scientific Problems of Modern Approach of Net Present Value

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## SUMMARY

*There are some scientific questions of NPV analysis, which has not been worked up. Would be useful for practice to explore the special inherence of the NPV method for making financial and management decisions, as well as for the different cash flow projects (typical that is “orthodox” and non typical that is “unorthodox” cash flow series). There is not cleared up scientific background of the question, why is not equal the total cost of capital for equity and for debt.*

*Net present value is a well-known category of economics and everyday management practice. Practical experiences show when companies use net present value calculation several problems emerge, wrong applications are general as well as misinterpreting. A large part of these can be due to the characteristics of the literature background. This paper intends to reveal besides these characteristics the directions of further economic research works on this topic.*

*Net present value calculation has also become part of the economic school-material in the Hungarian higher education since the second half of the 60's. In this period we could have met several interpretational and applicational mistakes, which was typical not only in the Hungarian but also in the international literature.*

## THE SUITABLE YIELD-CONTEXT

According to the original version of net present value calculation from the discounted value of total sales revenues the discounted value of total expenditures are subtracted. In case of investment projects the method can be simplified. From the sum of discounted value of a special income stream calculated as a difference of sales revenues and operating costs the discounted value of investment-related expenditures are subtracted.

Even two decades ago a false methodological description could be found in Hungary, which says that the way of net present value calculation is that from the discounted value of pretax profit arising from the investment the sum of investments is subtracted.<sup>1</sup>

Fault of this description is that the nominal value of the investment was refunded from the revenues twice. (On one hand to determine the accounting profit depreciation

must be subtracted from the sales revenues, on the other hand the nominal value of investment is subtracted from the discounted value of profits.)

The right solution concerning investment projects has become general step by step. The income stream arising from the difference of sales revenues and operating costs is named a sort of “net yield” in the original Hungarian terminology. This is Hungarian counterpart of the well-known English acronym EBIDTA.<sup>2</sup> The discounted sum of this net yield should be decreased by the nominal sum of the initial investment, or by the discounted sum of the project investments (as the investment expenses are arising). Only this yield index can lead to the right value of the original method, i.e. to the sum as the difference of the discounted total sales revenues and discounted expenditures emerging during the investment. (In the literature we can see other variants of the NPV contents as well.)

<sup>1</sup> The number of “Tervgazdasági Értesítő” published. November 25. 1985 gave a description of profitability calculations of investments. Chapter on “Net present value indicator” starts as the following: „It is a relatively easy to calculate and difference featured indicator. Its value describes the difference of pretax profit and a single initial investment arising during the duration of the project, discounted for the first year of the duration. It is practical to use the indicator for the comparison of investment alternatives.” The interpretation of the following formula is easier though than of the preface, but unequivocally here also the discounted value of investment is subtracted from the discounted value of pretax profits arising during the single years. It needs to be mentioned, that ever since science has come to a common opinion that net present value is mainly appropriate to choose the profitable versions.

<sup>2</sup> Since the seventies the Hungarian special terminology nominates the difference of incomes and operating costs, as well as the sum of amortization (nominal value returns) and profit as net-yield of the investment. (For example: Megyeri Endre, Vállalati beruházás-gazdaságossági számítások. Notes. NIM Vezetőképző, 1970.) Since the change of the political system the referring English expressions or their calques have become more dominant.



## METHOD-INTERPRETATION POSSIBILITIES

From the view of practical usability, the biggest problem of the existent, modern net present value concept is that *the issue is treated only on the high level of general interpretation* with the demand that the settings and statements may be applicable for all of the net present value calculation possibilities. Of course such a methodological assumption is necessary, but the *main characteristics of net present value analysis of different kinds of issues and projects, the special interpretation possibilities of the calculation results also should be revealed*. This way it would be possible to get closer to the exploration of the internal content richness of the method as well to a deeper knowledge of the characteristics of the practical application. The most important steps leading to the processing of the practical interdependences of the method are:

- distinguishing between projects connecting to the real sphere and the clearly financial projects
- a different interpretation of net present value of typical and non-typical cash flow pattern projects.

### *Projects Connecting to the Real Sphere and Clearly Financial Projects*

It might be practical to make a distinction between projects connecting to the real sphere and projects being confined to financial activities during introducing model exercises and treating methodological questions of net present value calculations (and usually profitability calculations), since the economic content behind income and expenditure lines are basically different. Furthermore the way of thinking and the required professional knowledge which is needed for profitability calculations are also different. *The understanding of interdependences of the two project types and the management of their accomplishment also requires very different professional knowledge.*

For companies, methodological knowledge of profitability analysis of projects connecting to the real sphere is mainly needed. In the further parts of this paper the analysis of net present value interdependences are restricted to projects connecting to the real sphere.

### *Projects with Typical and Non-typical Cash Flow Patterns*

The main characteristic of projects with typical cash flow patterns is that the time series of the difference of sales revenues and expenditures starts with a sum with a negative sign. *Ever since that the difference of yearly revenues and expenditures firstly becomes positive, the sign does not change any more, that is no such year will*

*exist, when the sum of expenditures would exceed revenues.*

Literature basically deals with the topic of projects with typical and non-typical cash flow patterns in connection with the method of internal rate of return searches, since in case of projects with non-typical cash flow patterns the chance of *more than one internal rate of return* may occur. *Projects with typical cash flow patterns can have only one internal rate of return.*

Because of the possibility of more than one internal rates of return, the literature suggests *net present value calculation* for the profitability analysis unequivocally and without qualification. (The name of typical cash flow line itself is not uniform. Arnold and Hope, for example, - also in connection with the method of internal rate of return search- talks about orthodox and non-orthodox cash flow line. Furthermore, they emphasize that in case of non-orthodox cash flow lines net present value calculation should be preferred.<sup>3</sup> To make a distinction between the two different lines of cash flow, conventional and unconventional naming is also used.)

As we will see further, net present value calculation can lead to unequivocal results – differently from the general approach - only in case of typical cash flow lines.

As a consequence, in order to have a clear view it would be reasonable *to make a general and emphatic distinction between projects with typical and non-typical cash flow lines*. In case of projects with *typical cash flow lines* (in particular typical investments) *the project itself generates, exploits all the yield-elements figured in the analysis*. Therefore profitability calculation may follow the logical question, whether investments related to the project interpreting in interest relation how much profit proportion generates, and how much surplus yield is resulted compared to an interest-wise requested profit.

*A main characteristic of non-typical cash flow lines investments is that the project is not independent financially, that is the cumulated cash flow of the project is not independent from the profitability of other projects. As it follows from this, the profitability of non-typical investments can be analyzed together with the profitability of other connecting project or projects.*

As it follows from the above mentioned, typical and non-typical cash flow lines investments require different analysis background even methodologically during the efficiency analysis of investments.

## NET PRESENT VALUE OF TYPICAL CASH FLOW LINES PROJECTS

### *Definition of Economic Content*

In the recent days the majority of authors are decidedly aware of even to make mention of the economic content of net present value.

<sup>3</sup> Arnold – Hope (1990) pages 258-259.

According to the general description, net present value is the difference of the discounted value of expected EBITDA and the expected investment cost of the project.<sup>4</sup> Instead of concrete economic content, it represents the result of a calculation, in which for a given point of time (usually for the starting point of time of the project) the discounted value of expenditures is subtracted from the discounted value of revenues. A given investment, and the project can be considered profitable, if the net present value is not less than zero, or according to the more popular (although not accurate) definition if it shows positive value, ergo greater than zero.

Nowadays the real economic content of net present value is not defined.<sup>5</sup> This obviously has a strong connection with a high level of generalization. *Besides a high abstraction level of method interpretation no unequivocal economic content arises.* Obviously, this also has a connection with the different content of net present value of typical and non-typical cash flow lines projects.

After distinguishing between typical and non-typical cash flow line projects, *the economic content of net present value of typical projects can be defined. The positive net present value of typical investment projects quantifies the discounted value of surplus-yields arising beyond the yield requirement based on the discount rate. Net present value with a negative sign indicates the present value of further yields needed for the requirement on returns.* (In case of positive net present value the real profitability of the project is higher than the requirement according to the discount rate.)

### *Example for the Interpretation of Net Present Value as Discounted Surplus-yield*

The sum of investment of a project (correspondent with the conditions of typical investment) is 380 million HUF, one year after the investment the positive data line of EBITDA starts with the following yearly sums: 170 million HUF, 190 million HUF and 140 million HUF. The discount rate is 12 per cent.

To demonstrate the doctrinal interdependences through an example the net present value of the investment project is determined in the first step, then we show that the net present value of the project can be interpreted as a discounted value of surplus-yield arising beyond the yield requirement based on the discount rate.

Knowing the economic content of net present value, the net present value calculation of typical cash flow line investments and their different versions becomes logically controllable, the effects of changes in basic data becomes unequivocally traceable, the value-side of changes needed to reach the level of profitability can be easily mapped.

*Table 1. Determination of net present value of the given project*

Year	Revenue – Expenditures (million HUF)	$D^i$ $i = 12\%$	Discounted values (million HUF)
0.	– 380	1	– 380,00
1.	+ 170	0,89286	+ 151,79
2.	+ 190	0,79719	+ 151,47
3.	+ 140	0,71178	+ 99,65
NPV			+ 22,90

*Table 2. Calculation of fulfillment of yield requirements concerning the given project*

Year	Set of returns compared to the requirements on returns (million HUF)
1.	– 380 · 1,12 + 170 = – 255,6
2.	– 255,6 · 1,12 + 190 = – 96,27
3.	– 96,27 · 1,12 + 140 = + 32,18

A surplus-yield of 32,18 million HUF arises at the end of the 3. year. Its discounted value for the present gives exactly the sum of net present value. NPV= 32,18 · 0,71178=22,91

### *The Comparability of Net Present Value of Typical Investments*

The comparability of net present value can be considered as a relevant question only in the case of projects with typical cash flow lines. However comparability is definitely problematic even in this field, which results from the characteristics of the method.

A main characteristic of net present value calculation is that it treats the size and duration of the investment in a correct way only when charging yield-expectations according to the discount rate. The surplus yields arising above this are simply discounted by discount rate. Two important and from the point of view of comparability displeasing characteristics of the method result from this:

- It does not take into consideration the size of average investment laying behind the net present value of surplus yields (It is much easier to reach a net present value of 10 million through a 1-billion-project, then by a 10-million forint-project)
- It does not take into consideration the duration of investment resulting surplus yields (Through investing 1 billion HUF for 5 years a much bigger surplus yield can be reached, then by investing the same amount of money for 1 year). *From today's modern literature the conclusion can be drawn that this important characteristic of the method is not generally known among the experts.*

Although the two, above mentioned characteristics make it unequivocal that projects are usually not comparable based on their net present value, the literature is divided on this question.

<sup>4</sup> For example: Pappas – Hirschev (1987) p. 549., or Schmalen (2002) p. 593.

<sup>5</sup> About a one and a half or two decades ago we could meet the real economic content of net present value, but these were inaccurate or false even for typical yield investments. An example for the false version: „...net present value indicates the wealth increase resulting from the investment. This is equal to the increase in capital, which has not been realized yet.” Clifton – Fyffe (1981) p. 179.

In order to make the results of investments comparable, the net present value per unit of invested amount is often used. This partially eliminates the distortions deriving from the differences of average sum of investments, but it is not able to handle the differences of *durations*.<sup>6</sup>

In case of negative net present value, a need for comparison usually does not emerge. If it should emerge, a good starting point could be that a typical investment's net present value with negative sign quantifies the discounted value of yield-lack, which would be needed for the investment to reach the term of profitability.

## NET PRESENT VALUE OF NON-TYPICAL INVESTMENTS

Non-typical cash flow line investment is meant when in the data line containing the difference of revenues and expenditures a data with negative sign occurs again after the line has once turned into positive. In economic sphere it means that *some part of or the whole amount of the once already withdrawn yields must be returned to the same project later*. This could be also imagined as if the non-typical investment project would *lend a given amount of money for a given period of time for arbitrary use to the entrepreneur*. Therefore the successfulness of the project also depends on that the withdrawn, but later returned amounts how much yield generates in another project. As a consequence, the possible outcomes of external use of the temporarily excess amounts must be also taken into consideration when determining economic profitability.

The automatism of net present value calculation treats investment as an independent project in each cases, it does not analyze the *yield-possibilities* acquirable in other fields of temporarily excess amounts.

It treats for the project temporarily redundant amount (and amounts) in a schematic way. *According to the implicit automatism of the calculation the later returnable amount yields in the period of transfer based on the discount rate*. This automatism is such a characteristic of the method, which the adaptors' attention should be definitely drawn to. It would be also practical to indicate that the analysis of real utilization possibilities of the given amounts of money may improve the clairvoyance regarding profitability.

It admits of no doubt, that contrary to the hardly treatable information content of the more than one internal rate of interest, net present value calculation also gives only one kind of results for these projects. However, the unequivocalness of the calculation's result is only apparent. Whereas nothing guarantees, that the temporarily utilizable money is invested in a project with the same risk as the examined investment, and a yield according to the discount rate will arise in this project.

It may occur as a false effect that *the method automatically assumes of the bigger yield-expectation rate connected to the bigger risk, that the temporarily excess amounts also accomplish this*. The contradiction depending on the characteristics of each project concretizes in a different way. Net present values of versions with different risk may even prefer less good decisions

### *Example for the Analysis of Net Present Value of a Non-typical Cash Flow Line Project*

The following example intends to introduce the interpretational problem of net present value in case of non-typical cash flow line projects from the practical point of view.

An entrepreneur, B. G. is considering whether to buy the mining right of a smaller, during 1 year exploitable opencast coal-depot for 100 million HUF. A responsibility of returning the land in recultivated condition after two years is also part of the business. B.G. could sell the right of exploitation (and sales) to a mining entrepreneur for 625 million HUF. Next, the entrepreneur specialized also in recultivation would carry out the recultivation activity for 625 million HUF in one year. The 100 million HUF for the mining right is immediately due.

The mining entrepreneur would pay the agreed price in one year, after finishing his activity. The exchange-value of the recultivation activity would become due after the work will be done.

*Table 3. Revenues and expenditures of the project in the example*

<i>Year</i>	<i>Expenditure/revenue</i>
0.	– 100 million
1.	+ 625 million
2.	– 625 million

According to the data line, the project itself is showing deficit from the view of accounting. The sum of expenditures is greater than the sum of the revenues. *The possibility for yield in the project for B.G is that against the 100 million HUF given out in the start time he will earn 625 million HUF in one year for one-year arbitrary use*, and after one year the nominal value has to be paid back into the project.

Accordingly, B.G. would invest 100 million HUF for two years. The profitability of the 100-million-HUF investment depends on whether at what profitability he is able to transfer the 625 million HUF used arbitrarily all the year round in another project or another activity.

<sup>6</sup> In order to treat together the differences in the size of invested amounts and the length of the duration future value model has been worked out. Its description: Schmalen (2002) p. 602-605.

If he locked his money in the safe-deposit, the invested 100 million HUF would be lost and its potential yield as well.

Let's suppose that B.G. used the method of net present value calculation to support his decision regarding the project. He gained such information in quick time that the mining entrepreneur accomplishes his payment liability always late and it is not rare that an occurrent penalty claim can be proved only after long years of pleading. Because of the bigger risk related to the accomplishment of financial liabilities he has found it reasonable to apply a 27 % discount rate. The calculation carried out under these conditions showed the project profitable, with a net present value of 4,63 million HUF.

$$NPV = -100 + 625 \cdot 0,78740 - 625 \cdot 0,62000 = -100 + 492,13 - 387,5 = 4,63$$

Later it has turned out, that the information concerning the annoying paying habits of the mining entrepreneur is false, this behavior is regarding for another entrepreneur. According to the corrected information the entrepreneur involved in the project has been working in this business for several decades, and he has accomplished his payment liabilities exemplarily so far. Therefore the risk of the project is considerably less than the original conception. B.G. recalculated the net present value with a 15 % discount rate according to the new information. In this case though a negative net present value arisen, i.e. with a smaller risk the project would have not been profitable:

$$NPV = -100 + 625 \cdot 0,86957 - 625 \cdot 0,75614 = -100 + 543,48 - 472,59 = -29,42$$

According to the example a paradox situation has occurred, that is net present value shows profitability calculating with a higher risk, whereas it is obvious that in other cases under the same conditions a less risky situation would be more advantageous for the entrepreneur. Though net present value is negative in that case.<sup>7</sup>

The root of the problem is meant by the characteristic mentioned above, that *the method interprets the external yield-effect of the temporarily excess money on a rate according to the discount rate. The conditions of profitability would be accomplished by the investment yielding according to 27% discount rate increased because of the high risk or even extra-yield would arise. If in case of one-year out-placement of 625 million HUF only 15% yield could be realized, then the 15% capital yield expectation of the project also not accomplishes.*

It is generally true, that in case of higher discount rate the method ab ovo assumes higher yield possibilities

regarding the temporarily out-placed amounts, but from the increase of the given project's risk does not result a more profitable utilization of the temporarily disengaged monetary assets.

In case of the given example a cardinal question of profitability is that the 625 million HUF used arbitrary for one year at what percentage of profitability could be invested. In the favor of a more accurate orientation a critical yield rate can be determined, which would insure clearly and entirely that the mining project would accomplish the capital yield expected according to the calculative.

Assumption for accomplishment of the 15 % profitability expectation in case of the given mining project. ( $1,15^2 = 1,3225$ ):

$$100 \cdot 1,3225 + 625 = 625 (1+r)$$

$$\frac{757,25}{625} = 1+r = 1,2116$$

Assumption for accomplishment of the 27 % profitability expectation of the project. ( $1,27^2 = 1,6129$ ):

$$100 \cdot 1,6129 + 625 = 625 (1+r)$$

$$\frac{786,29}{625} = 1+r = 1,258$$

Based on the above mentioned, it can be stated that if the entrepreneur would like to realize a profitableness of 15% considering the given project, the 625 million HUF utilizable arbitrary for one year must be invest with a 21% profitableness. On the other hand though, in favor of the 27% profitability expectation of the project, an investment possibility with at least 26% must be found for the 625 million HUF.

In case of the 15% yield expectation net present value turned out to be negative because a money out-placement with such a yield rate does not bring an income, which would be required for a 15% profitableness of the given project.

A positive net present value arisen because a money out-placement with a 27% profitability would assure automatically a greater average profitability than it would be required for the expected profitability of the project.

(Nominal value return requirement of the entrepreneur's 100 million HUF investment:  $725:625=1,16$ .)

Consequently, to ensure a return at least on nominal value of the 100 million HUF, the 625 million HUF should be placed out at a profitability of 16%. )

In case on non-typical investments, concrete questions flashing on the questions of profitability can be conceived based on the content of the project.

<sup>7</sup> It is interesting, that two internal rates of return (two internal financial rate of return) arise in the project, 25% and 400%. It means at the same time, that in case of each discount rate greater than 25% and less than 400%, the sign of net present value will be positive. Net present values will be negative in case of discount rates fallen outside the given interval.

$$-100 \text{ million} + 625 \text{ million} \cdot \frac{1}{1,25} - 625 \text{ million} \cdot \frac{1}{1,5625} = 0, \text{ that is } [-100 + 500 - 400 = 0], \text{ further}$$

$$-100 \text{ million} + 625 \text{ million} \cdot \frac{1}{5} - 625 \text{ million} \cdot \frac{1}{25} = 0, \text{ that is } [-100 + 125 - 25 = 0]$$

## PROBLEM OF AMALGAMATION OF PROJECT-PROFITABILITY AND FINANCING-PROFITABILITY

Profitability means the examination of whether the requirement on returns gets fulfilled, and the level of over-fulfillment is also determined. Financing reveals whether the required financial assets are available to fulfill the accrued expenses and from which sources they can be ensured.

Nowadays the application of net present value formulas, in which the profitability of the project and the profitability of financing runs into one another, are getting more and more typical. It is not rare that the financing terms based on the corporate average capital structure and their financial conditions are taken further for the given projects. Relations of investment-profitability, financing-profitability and financing-expedience are amalgamated. In order to get a clear picture *it would be practical to examine separately the profitability of the project and the profitability of the different versions of financing.* After revealing these the conjointed examination of the profitability of the two sides cannot be criticized.

## APPLICATION OF RETURN NORMS DISCREPANT FROM THE PRINCIPLE OF OPPORTUNITY COST

Two or three decades ago the discount rate was very often interpreted as that it comprises of the return according to the bank rate of interest or the company's own average rate of capital profitability.<sup>8</sup>

Later it became unequivocal, that here *the use of capital-yield expectation based on the opportunity cost*

*interpreted for the capital* and defined by the microeconomics is *reasonable*. Collaterally with this, the use of capital-yield expectations with *differential* rate based on equity capital and debt appeared in the net present value calculation.

The basis of this is that regarding equity capital competitive market risk-premium expectation also must return besides the risk free rate, but for the debt it is satisfactory if the interest returns. Recommendation of this differentiated rate capital-yield expectation of equity capital and debt in literature gets more and more emphasis, but the underlying principles of the method are not enucleated scientifically.

➤ No scientific explanation exists, why capital-yield norm determined on the basis of microeconomics is not suitable to fulfill the role of yield-requirements. Literature does not concern the scientific explanation of two different kinds of yield-norms of equity and debt.

➤ No explanation exist for that either, why - though primarily equity capital bears also the risk of debt as primary risk-taker - the return requirement of risk-premium norm regarding debt must be put aside during examination of profitability. (Otherwise under the same circumstances equity capital bears the more risk, the bigger the rate of the debt.)

➤ The development of commodity market processes is not affected by whether the capital behind the production is equity or it derives from debt. Accordingly, the change of corporate capital structure does not cause alone changes in the commodity market processes, on the other hand though the average of differentiated capital-yield expectation is a category depending on the capital structure. No explanation can be found how the norm not correspondent with the commodity market correlations is able to convey the commodity market requirements.

<sup>8</sup> For example authors Clifton – Fyffe (1981) also places this two yield-requirements in their collective work: „...in the method of net present value discount rate is the interest rate, which is analogous with the interest payable”, can be found on page 164.. Later it changes a little bit: „Discount rate applied in the discounting of future current incomes or the interest rate (cost of capital) being in operation on the money market, or the current profit rate of the equity invested capital of the company.” (page 329.)

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# Genetic Algorithms as Optimisation Procedures

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## SUMMARY

*Drawing a parallel between biological and economic evolution provides an opportunity for the description of dynamic economic processes changing in time by using genetic algorithms. The first step in finding algorithms in biological and economic processes is to draw a parallel between the terms used in both disciplines and to determine the degree of elaboration of analogues. On the basis of these ideas it can be stated that most biological terms can be used both in economics and in the social field, which satisfies the essential condition for successful modeling.*

*Genetic algorithms are derived on the basis of Darwin-type biological evolution and the process starts from a possible state (population), in most cases chosen at random. New generations emerge from this starting generation on the basis of various procedures. These generating procedures go on until the best solution to the problem is found. Selection, recombination and mutation are the most important genetic procedures.*

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## THE PLACE OF GENETIC ALGORITHMS IN THE SYSTEM OF OPTIMALISATION PROCEDURES

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John Holland started dealing with computational modelling of genetic algorithms in 1975. These algorithms are derived on the basis of Darwin-type biological evolution and the process starts from a possible state (population), in most cases chosen at random. New generations emerge from this starting generation on the basis of various procedures. These generating procedures go on until the best solution to the problem is found. The characteristic features of the problem are coded with a determined string of words called chromosomes. Genetic algorithms produce a new population in the same way as generic reproduction. One or two entities are selected from the existing ones and with the help of generic processes new possible entities called descendants are generated.

Thus, a generic algorithm is an hospitalisation procedure which is essential to be placed in the system of procedures in order to establish its advantages and make it suitable for its application in practice. The optimisation procedures can be classified into three groups. (Figure 1)

The gradient-based methods using differential calculus are the most widespread ones. The essence of the gradient-based direct method lies in the fact that the local extreme value can be found only if the most gradient

steep is ascended or descended (local gradient). The indirect method is the best known optimisation procedure where the local extreme value is found by zeroing the derivated function.

In the case of procedures based on detailed search a predetermined problem area is looked at under the rules of a particular algorithm, each point of it is analysed and evaluated taking into consideration the target function. With the application of the so-called stepping back technology the analysis of one and the same point several times can be avoided. As far as more complicated problems are concerned their problem areas are so large that the procedures based on detailed search cannot be applied because the final result cannot be achieved within reasonable time. In such cases supplementary algorithms are used which make the area smaller. But even the application of these algorithms do not allow to reduce the size of the area to such extend as to use the method based on detailed search efficiently. Neither can they be applied in the case of moderately complex problems.

The shortcomings of the above mentioned two procedure groups generated the development and application of methods based on random choice. The basic characteristic features of these methods lie in the fact that they do not examine the whole problem area. That is the reason why well before their application it is very essential to define ‘when we reach our target’, namely the value of the target function that can ‘already’ be considered to be optimal. Obviously, this value usually means only local optimum. Thus, the application of the random choice method does not make obtaining the

global optimum easier. In spite of this fact in most cases the local optimum can also be used for solving practical problems. In the case of simulated cooling a method similar to physical cooling of materials is applied to search for local optimum point suitable for our purposes in the problem area. In the case of taboo search a taboo list is compiled in order to avoid stepping back and circulating round and round. As soon as the required step number and target value is achieved, the whole process is finished. The following method applying random choice is the genetic algorithm. The procedure - as introduced earlier - operates in the same way as the biological evolution. It conducts a multi-point search in the problem area. That is the reason why the process hardly 'freezes' and can provide several almost optimal solutions in the end.

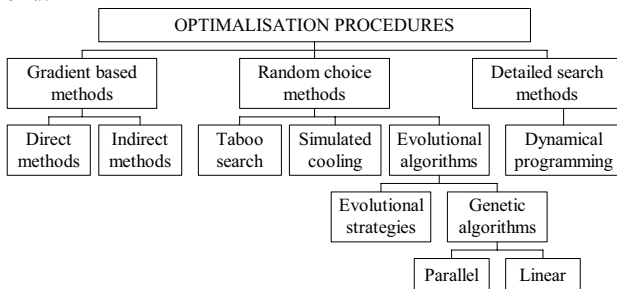


Figure 1. Grouping of optimisation procedures (Álmos et al., 2002)

## PRACTICAL APPLICATION OF GENETIC ALGORITHMS

Generic algorithms are applied in several fields of science (technical and medical sciences). They are successfully applied in technical sciences in process design, network optimisation, control engineering, automation and surface optimisation. Besides the above mentioned ones they are also used in making up timetables, mapping and image processing. In the field of medical science they find their primary application in spatial segmentation of pictures taken of human bodies when various techniques are used.

### Economic Applications

Since the beginning of 1990 there have been several publications about application and applicability, testing and research of genetic algorithms in the description of economic processes. Arifovic (Arifovic, 1994) and Dawid (Dawid, 1997) applied genetic algorithms in Cobweb-type market model in order to examine the production and profit formation. Brenner (Brenner, 1998) was interested whether evolutionary algorithms could be adapted to describing learning processes. Birchenhall (Birchenhall, 1995; Birchenhall et al., 1997) analysed the Cobb-Douglas type function of production. Lawrenz (Lawrenz, 1999) wanted to find out whether the securities market guided by genetic algorithms had as actual and

rational results as the ones similar to a real situation. Arifovic (Arifovic, 1998) modelled the formation of exchange rates on the basis of two interrelated countries. Reichmann (Reichmann, 1999) with the help of genetic algorithms analysed the stability of economic attitude.

### Genetic Algorithms in the Cobweb Model

Arifovic (Arifovic, 1994) provided analysis of several variants of genetic algorithms from the view point whether in a simple Cobweb-model genetic algorithms lead to the same results as economic processes observed in real life. He claimed that genetic algorithms simulated learning ability of the companies aiming to capture the market. According to the model market demands are external possibilities for companies:

$$p(t) = A - B \cdot \sum_{i=1}^n P_i(t),$$

where  $p(t)$  shows the price in  $t$  period,  $P_i(t)$  means the production of the  $i$ th company.

According to one of the ideas the learning algorithm is the so-called one population algorithm where each and every individual ( $P_i(t)$ ,  $i=1, \dots, n$ ) of the population ( $P(t)$ ) of the genetic algorithm represents a company, that is its decision about the volume of production. The entity (company) namely the produced amount can be expressed by binary code (genotype). For instance, let us take a company ( $P_1(1)$ ), whose volume of production is 1001010110110100 encoded, which means 38324 units of production in the period of  $t=1$ . It is obvious that each company has costs of production:  $C[P_i(t)]$ . Making it simpler, but essentially reflecting the real situation, let us suppose that there is a direct proportion between production costs and volume of production:

$$C[P_i(t)] = a \cdot P_i(t), \text{ where: } 0 < a < 1.$$

The profit - in the terminology of genetic algorithm it is the entity's fitness value - on which the decision about the volume of production depends can be defined as follows:

$$Q[P_i(t)] = P_i(t) \cdot p_t - C[P_i(t)].$$

This value plays an essential role in selection. If we assume that in the initial stage the  $p_1=1$  and  $a=0,7$ , the fitness value of an entity is as follows:

$$Q[P_1(1)] = 38324 \cdot 1 - 0,7 \cdot 38324 = 11515,2.$$

The selection between various quantitative decisions is made on the basis of the accustomed method of the genetic algorithm. The probability of the particular entity to be selected corresponds to the relative fitness value. If the solution to the above mentioned problem is developed on and it is assumed that the total fitness value of the population (total production) equals to 945321, the relative fitness value of the entity is  $P_1$ , that is the survival probability in biological term is:

$$Q_r[P_1(1)] = \frac{11515,2}{945321} \approx 0,01$$

Arifovic developed the Holland-type basic algorithm further, introduced the so-called selection operator. The operator operates as follows: each company takes new



decisions about the volume of production during a certain period of time  $[P_i(t)]$ . Both recombination and mutation play essential roles in decision making. However, before this amount is really produced and launched on the market, the company provides comparison analysis and takes into consideration the amount produced in the previous period  $P_i(t-1)$ , namely its profitability. The profit gained in the previous period  $Q[P_i(t-1)]$  is compared with the one expected from the sales of the new amount, namely with the potential fitness. The company defines this figure on the basis of the available data, market prices and production costs of the previous period. Thus, the potential fitness value of the  $P_i(t)$  quantity can be calculated as follows:

$$Q^p[P_i(t)] = P_i(t) \cdot p_{t-1} - C[P_i(t-1)].$$

Let us see how a company makes a new decision  $P_i(2)$  on the basis of this model. We selected two previous production strategies  $P_1(1)$  and  $P_8(1)$ . The  $P_1(2)$  was established from two previous quantities with the help of recombination:

$P_1(1)$ : 1001010110110100  
 $P_8(1)$ : 0100110000111010  
 $P_1(2)$ : 1001010110110100

After this the new entity  $P_i(2)$  suffers a mutation on the fifth place:

$P_i(2)$ : 1001110110110100

This genotype means 40378 units of production and its potential fitness value (profit) is:

$$Q^p[P_1(2)] = 40378 \cdot 1 - 0,7 \cdot 40378 = 12113,4.$$

The company applying the selection operator actually produces the amount which has a higher fitness value (profit), so the  $P_i(t)$  production volume is as follows:

$$P_i(t) := \operatorname{argmax}\{Q[P_i(t-1)], Q^p[P_i(t)]\}.$$

In our example the company produces 40378 units in the second period, because the fitness value (12113,4) of this amount is higher than the actual fitness value of the previous period (11515,2).

The second possible variation is the so-called multipopulation algorithm. It assumes several 'parallel' populations at one time and every single population represents feasible decisions of a company. The existing and the most viable volume of production is the one that is actually chosen by the company, namely launched on the market. The company finds out the market price only when it enters the market. The multipopulation algorithm happens by analogy with the one population with the difference that decision possibilities of companies turn out to be more differentiated. It is assumed that there is no exchange of information between particular populations (companies) of the algorithm, for instance market experience is not shared.

Arifovic provides analysis of the effectiveness of the selection operator. He simulates one and multi population procedures with the operator and without it. In the case of modelling without the operator neither algorithm converges toward the equilibrium. Thus, it can be concluded that genetic algorithms are not applicable in real learning and optimum search processes and do not

have relevant outcome. On the other hand, algorithm expanded with a selection operator does converge toward the equilibrium. The significant conclusion to the simulation is that the price even in the unstable Cobweb-model does not withdraw from the equilibrium. Both in the stable and unstable models the price and the amount converge toward the equilibrium. The convergence in its temporal function and at about equilibrium values is characterised by smaller fluctuation amplitudes than in the unstable case. These results coincide with the results gained during real observations, but on the other hand, they are inconsistent with the theory.

### *Modelling of Technical Changes*

According to Birchenhall (Birchenhall, 1995) technical progress is a social level learning process. In his model he looks at learning in a very broad meaning of this word. In his interpretation learning means spread of knowledge in the society on the one hand and acquisition of new knowledge, on the other. Regarding technical progress this definition involves not only 'real' innovation on the basis of which new 'ideas' start emerging, but spread of the existing technical knowledge and its completely new combinations as well. Birchenhall shows the ways how technological innovations and learning processes spread among mixed players of various economic spheres as a result of interaction.

His initial assumption is that the economic players do not have clear ideas about limits of technical facilities. He considers the change in the technical level to be a process which defines this limit and broadens it with the help of new and very promising ideas. He takes the so-called concepts of modular technologies as a basis. They are technologies consisting of components with defined functions.

According to the model economy consists of two basic sectors: engineers and financiers. Engineers and designers create technological variants from which financiers select and use the appropriate one. In the sectors (populations) behaviour and decision making mechanisms of entities are generated by genetic algorithms. There is a competition among engineers for technologies and only the ones for which there is a great demand can survive. This is the essence of the selective process. New technologies are developed either by placing the existing technological elements in a new context (recombination) or by establishment of new technological modifications (mutation). 'Users' create decision models in order to evaluate potential possibilities of technologies. Their activities involve market observation of available technologies and their evaluation on the basis of expected results. Decision making models are in competition with one another (selection) and that is the reason why they are reviewed and modified, their components are combined in a completely new way (recombination) or some components are newly modified (mutation). Financiers chose from technologies offered by engineers.

Different players imitate technologies having tremendous success, modify them all the time and assure resources for their application. The success of technologies is reflected in their profitability. The quality of the evaluation and decision models depends on their ability to explain the relative efficiency or failure of a strategy. Apart from the above mentioned genetic operators (recombination, mutation and selection) Birchenhall also applies the selection operator which in this model means comparison of profit-oriented technologies not introduced on the market yet.

After this let us see how the model is built up: in a farm a y domestic animal can be produced with the help of various technologies (X stands for technological set).  $y=f(x)$ ,  $x \in X$ ,  $X=\{x^h \mid h=1, \dots, N\}$ . This technologies consists of different units, the so-called modules:

$$x^h = (x_1^h, \dots, x_n^h).$$

The function of production is homogeneous and linear and expressed by components as:

$$f(x) = \prod_{i=1}^n x_i^{a_i}, \text{ where } \sum_{i=1}^n a_i = 1$$

In the genetic algorithm of the 'designer' sector (in other words technological algorithm) the population means set of technologies. Each entity corresponds to  $x^h$  technology consisting of one module. The production factors  $a_i$ ,  $i=1, \dots, n$  are known to the engineers. Innovations, namely technological inventions originate during recombination and mutation between technologies. The  $x$  value of the technology used in the process of production is defined by the profit attained with the help of it:

$$\Pi(x) = R[f(x)] - C(x),$$

on the basis of previous ones:

$$\Pi(x) = \prod_{i=1}^n x_i^{a_i} - \sum_{i=1}^n x_i \cdot$$

Although according to the model the users (financiers) know the structure of the production function, they do not know the real values of production parameters ( $a_i$ ). Consequently, they have no clear ideas about the real form of the profit function. Models are created in order to define the unknown factors. The users' models differ from each other only in supposed values  $a_i$ . The supposed production parameters can be shown with the help of a vector in the form of  $\hat{a}=(\hat{a}_1, \dots, \hat{a}_n)$  and the profit gained with the help of these technologies can also be defined:

$$\hat{\Pi}(x^h) = \hat{R}[\hat{f}(x)] - \hat{C}(x) .$$

The users' sphere can also be expressed with the help of a genetic algorithm. Technological models to which profit values can be established create population:

$$\hat{\Pi}^k(x), k = 1, \dots, M .$$

Profit values of the model are compared with the real profit of technologies appearing on the active market. The smaller the divergence between the 'model profit'  $\hat{\Pi}(x^h)$  and the real profit  $\Pi(x^h)$  is, the more applicable the model is. This divergence related to all existing technologies can be expressed as follows:

$$E(\hat{\Pi}, X) = \sum_{h=1}^N |\hat{\Pi}(x^h) - \Pi(x^h)| .$$

The algorithm of the users certainly contains genetic operators, recombination, mutation and selection, which leads to replacement, change and selection of the best model. In this case the selection operator is also at disposal and creates connection between the model and technological algorithm, producers and users of technology. The  $x$ ' technology changed by recombination or mutation will replace the technology applied at that particular time only if there is at least one user's model (k) which puts higher profit down to this technological variation, namely.

$$\hat{\Pi}^k(x') > \Pi(x)$$

On the basis of information about the introduced technology the users obtain ex post they can define the accuracy of the model ex ante.

Birchenhall repeated the algorithm of the technological and model sectors in completely different circumstances. The simulation proved his expectations namely that the technology is going towards equilibrium: the technical knowledge if spread evenly in the economy and the players in economy acquire new knowledge exponentially. As far as the selection operator is concerned he came to the conclusion that if the selection of the technology is not made on the basis of forecasting models of the users, the development of the technological algorithm does not depend on the model algorithm. Producers do not take into account their own knowledge based on results of the users' technological algorithms or their knowledge about market competitiveness of particular technologies. The comparison of outcomes of the algorithms run in quite different circumstances show that economies modelled by a selective operator develop quicker and in a broader circle than the ones without an operator.

## CONCLUSION

On the basis of the introduced examples it can be stated that with the help of genetic algorithms economic models make every effort to dinamise the statistic neoclassic models and this activity is proved in both models by a simple, one-factor fitness function. The weakness of the models lies in the fact that they use simple and linear correlation and target functions which do not coincide with reality and consequently considerably reduce their strength.

With the help of selection operator model processes (similar to economic processes) become manageable because the negative mutation and recombination in the population do not obtain validity at all, which speeds the achievement of the optimum solution up.

The multipopulation genetic algorithm model gives a more differentiated description of the behaviour of the economic players than that of the single population

model. If a two-level analysis is conducted (company, branch), a parallel application of both seems to meet the objectives, because both company and market processes can be connected despite the time divergences in the processes.

On the basis of the above mentioned ideas it can be concluded that in the case of economic optimisation

problems genetic algorithms are advised to be used only when the problem area and target function are as complicated and complex as the ones in the real life. Otherwise any of the above mentioned optimisation procedures lead to success.

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# Chances of Convergence of the Region of Northern Hungary

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## SUMMARY

The period 2007-2013 may be of decisive importance regarding the social and economic processes in the region of Northern Hungary for at least two reasons. The first long-term development program (7 years) was prepared after the changes in economic policy of 1989 in order to improve the competitiveness of the region.

On the other hand, the amount of the funds that can be called (as proved by the analyses) will facilitate to induce a demonstrable economic growth in the region.

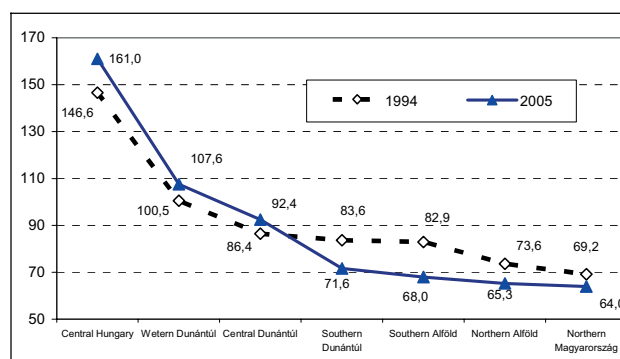
The plans take a change in paradigm into account: the convergence of the region is planned to be based on creating and strengthening the foundations of a competitive economy.

If the political intention will back these efforts, it will be possible to stop the process of the region of Northern Hungary drifting towards the periphery that has been going on for two decades now, and there will be hope to establish a new expansion path.

## INTRODUCTION

In the past fifteen years the socio-economic-ecological maps of the post-socialist countries, among them that of Hungary, have undergone considerable changes.

In the last decade of the 20<sup>th</sup> century economic polarisation between the regions has intensified, and as proven by the statistical data, the regional development policy (which has treated the convergence of the backward regions as a declared top priority since 1995) has not achieved any spectacular results. The tendency has namely not changed in effect: the better-off regions in Hungary have got into a more advantageous position<sup>1</sup> and the disadvantage of the backward regions (although only by a few per cents, but still) continued to increase (Figure 1)<sup>2</sup>, while only the smaller part of the regional development subsidies found its way to the backward regions, e.g. to the region of Northern Hungary (Figure 2).



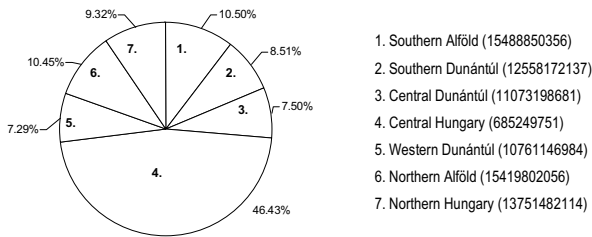
Source: Central Statistics Office (KSH)

Figure 1. Per capita GDP as percentage of the national average

<sup>1</sup> The Central Statistics Office (KSH) has been calculating data of regional and county GDP suitable for measuring and comparing the economic performance since 1994.

<sup>2</sup> The ranking of the regions has not basically changed in the nine years till 2003. According to the per capita GDP value, the first three ranks were taken by Central Hungary, Western Dunántúl and Central Dunántúl, respectively, each year. The other four regions have also shown only moderate and temporary steps forward or backward during the years. Although the regions have maintained their rankings according to the status in 1994, the differences between regions representing the extreme values have become more pronounced: the first three regions could claim an even higher percentage of the per capita national average GDP, while the other regions could claim an even lower percentage than nine years before. The region of Central Hungary has shown particular strengthening, while the economic performance of Southern Alföld was the poorest.

By contrast, as can be seen from the allocation of funds, the most developed region of Central Hungary receives nearly half of all the funds (Figure 2).



Source: National Development Office

Figure 2. Per capita decentralised regional development subsidy, 2004 (bn. HUF)

It poses a question what quota of the new seven-year EU budget the backward regions will be able to call, and whether the funds collected will promote convergence. (According to preliminary calculations in 2007-2013 Hungary will be able to call annually two and a half times as many funds - 3.5-4 % of the Hungarian GDP - as it did in the first three years after accession.)

It is justified to raise the questions: to what extent will the next 7 years contribute to the convergence of the region of Northern Hungary; will the negative tendency prevailing for more than 15 years be reversed, and if it is, what extent of convergence can be counted with?

## COMPETITIVENESS VERSUS CONVERGENCE

Uneven regional development (independent of the level of development) can be detected and shown in all the countries of the world<sup>3</sup>.

The specialist literature of regional economics dealing with the issues presents a basically uniform standpoint regarding the causes underlying regional disparities and the issue of the state (budgetary) intervention required for their moderation; but is less uniform in judging the issue of the nature of the role.<sup>4</sup>

Beyond the differing economic policy approaches, the fact that for a long time less attention has been devoted to the socio-economic usefulness of development

interventions as well as to showing their impact on regional convergences also plays a role. Perhaps it can also be attributed to that that the rate of regional convergence has fallen behind the desirable level in most countries in spite of the increasing subsidies.

In the regional policy of the EU, the Lisbon strategy<sup>5</sup> launched a change in paradigm. In addition to the previous, almost exclusive objective of convergence, a growing emphasis is laid on increasing competitiveness. This means that it is becoming more and more obvious: when there are no measures strengthening competitiveness, convergence will proceed much more slowly. On the other hand, the deterioration of the competitive position of the Community will generate budget disputes again and again, as a result of which fewer and fewer funds can be obtained for funding the programs designed to achieve convergence.

These signs have already appeared; in spite of the emergence of the new member states (an increase in the number of "mouths to be fed" and a growth in regional disparities), the amounts of the funds available for regional equalisation have not increased in specific terms. Therefore more definite changes in the methodology are needed, many more characteristic efficiency analyses and impact studies have to be performed than at present at the national level in the allocation of the funds. The practice in Hungary also has to be changed, for today we only now and again find ex-ante analyses. Although the legislation background is well-ordered in Hungary (Act XXI of 1996 on regional development and country planning obliges the government to report biannually to the Parliament on the development of regional processes and the experiences of regional development policy<sup>6</sup>), however, as it is proven by the first two reports, no essential steps have been taken towards the allocation of funds with efficiency as its priority.

We are of the opinion therefore that, in the planning phase preparing the allocation of funds in the next period, it is justified to raise the question of what impact regional development interventions have.

This is a particularly exciting exercise if we think of the fact that the Community funds available annually in the period 2007-2013 are by orders larger than those in 2004-2006.

<sup>3</sup> An example is the post-accession European Union, where taking the average of the 25 member states as the basis, in the 10 regions with the highest performance in 2004 the per capita GDP was 189 % of the average, while in the 10 most backward regions it was 36 %. As a result, the per capita GDP of 64 regions (more than one fourth of the population of the Union) does not reach an average of 75 %. In the new member states this affects 90 % of the population (with the exception of the regions of Prague, Bratislava and Budapest as well as the population of Cyprus and Slovenia, practically all the population). In the EU-15 it affects only 13 % of the population. ([http://uropa.eu.int/comm/regional\\_policy/sources/docoffic/official/reports/interim3:en.htm](http://uropa.eu.int/comm/regional_policy/sources/docoffic/official/reports/interim3:en.htm)).

<sup>4</sup> The specialist literature mentions several causes of the development of regional disparities, such as intraregional factor mobility (e.g.: Romer [1990]) and differing growth rate of trade (e.g.: Grossmann – Helpman) [1990]), sector-specific differences, differences in the efficiency and diffusion rate of R&D intensity (Sepl – Feser – Schulze [2005]), differences in transaction costs, qualifications (e.g.: Haas – Möllner [2001]), as well as in location factors (e.g.: Niebuhr [2000]).

<sup>5</sup> In March 2000 the leaders of the member states set the objective that by 2010 the EU "shall become the most dynamic and competitive knowledge-based economy in the world", "which is capable of sustainable economic growth, with more and better jobs and greater social cohesion and respect to the environment."

<sup>6</sup> The formal framework of the report is included in the National Regional Development Concept adopted by an order of the Parliament in 1998, (resolution of the Parliament No. 35/1998/III.20.)

On the other hand, the domestic own resources required for making use of the funds will practically deplete the domestic budgetary allowance for development (that is, beyond what is formulated in the National Reference Framework being prepared now, there will be hardly any government funds for funding further programs). Therefore it does matter what for and with what efficiency the potential financial estimates are used!

The efficiency of using the available funds (beyond the standards of the programs and projects) depends to quite a considerable extent on how the practice in planning in Hungary changes; that is:

- a) Does the decision maker intend to demonstrate the expected and actual impacts? Does the amount of the impact shown by the experts play a role in the allocation of funds; are the decision makers influenced in drawing up the financial plans by the social usefulness of the programs, by the extent of their regional impacts, or will they ignore them?
- b) Are the experts involved in regional planning familiar with the methods of impact studies?
- c) Are the data supplied by the Hungarian statistics system sufficient to show regional impacts?
- d) Can the threshold of subsidies quantified, i.e. subsidies whose consequences cannot be measured any longer (in such cases, instead of a concentration of funds, politics uses the principle of 'all those involved should be given a little')?
- e) What accountability can be expected; will there be any consequences if the usefulness of the subsidy falls short of that predicted in the ex-ante analysis?

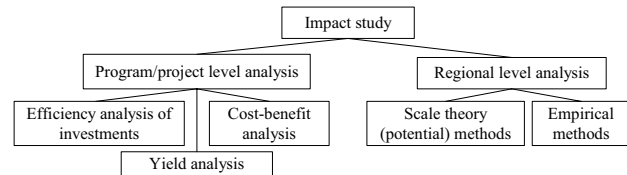
## CURRENT PRACTICE

The developers of Hungarian regional development policy (following the change in paradigm after 1989) have not really brought anybody to account. The decision makers did not want (or did not dare) to face the low efficiency of the application of funds or its unsuccessfulness, the creation of virtual jobs financed from public moneys, etc. (It cannot be a coincidence that e.g. in the county of Borsod-Abaúj-Zemplén there was not a single ex-post impact study on the regional development subsidies used in 1995-2004, while at the same time a number of studies deal with praising the supports granted to the region.)

It seems that politics has chosen a more convenient and safer method; it has developed 'soft' aspects of assessment, which are suitable for wrapping the subjective (not infrequently selfish) intentions underlying the decisions in an appearance of objectivity.

In the past 15 years demonstrating the expected impacts of regional development was only incidentally dealt with in the period of program making. If, however, there are some examples, mostly verbal impact studies were written, which do without numerical analyses (e.g.: in terms of the number of employed, creating new jobs, and

retaining the existing ones, etc.). It is even harder to find examples for showing the expected and actual regional impacts of the development programs, while there are several dozen methods known for demonstrating the consequences of regional development programs (projects) ranging from the simple ones to more complex empirical methods (Table 3).



Source: constructed by the author

Figure 3. Methods for demonstrating regional development impacts

The use of empirical methods obviously requires more time and better professional skills, which may contribute to the fact that we can mostly find verbal analyses in the Hungarian practice.

## POTENTIALS AND LIMITS

The development objectives of the next seven years (2007-2013) will be fundamentally influenced by the following:

- The region of Northern Hungary is one of the least developed regions of the European Union in economic terms.
- The education level of the Roma population concentrated regionally (living mainly in less developed small regions and in certain parts of the towns of Miskolc and Salgótarján) is low, which results in serious welfare and social problems.
- In the region of Northern Hungary there are few large companies having a strong market position and considerable capital, so the large towns of the region are unable to counterbalance the economic attraction and central role of Budapest.
- The small and medium-sized enterprises of the region lack capital, are struggling with regular liquidity problems, their market positions and competitiveness are weak, and show little willingness to cooperate.
- In the centres of the deprived small regions there is a shortage of industrial zones, incubator houses and related consultancy services promoting the settlement and operation of enterprises or helping new ones. The transfer organisations encouraging the innovation activities of enterprises are missing or are of low standards; the relations between R&D organisations and enterprises are insufficient.
- The income-producing capacity of tourism in the region lags behind the potentialities, primarily due to the non-harmonised and low-standard product structure and supply of accommodations.

➤ Unemployment in the region of Northern Hungary is higher than the national average, the rate of those permanently unemployed is high, multi-general unemployment is emerging; the level of employment is low, the number of people drawing disability pensions and social welfare exceeds the national average, particularly in areas with small villages.

➤ The health of the population is poor, there are many inactive people and disability pensioners, and the mortality rate is higher than the national and European average. The population of the region and that of the more backward small regions is continuously aging.

➤ Lower income levels in the region, the population getting poorer and poorer.

➤ The education level of the population is lower than the national average, and the number of jobs employing people with higher qualifications is few (particularly in the medium-sized and small towns).

➤ The towns in the north of the region (Salgótarján, Ózd, and Sátoraljaújhely) are difficult to reach by road; and their public transport infrastructure is obsolete (coach stations, passenger information systems, etc.).

➤ There are large contaminated industrial areas left after the factories of heavy industry (e.g.: in Ózd, Salgótarján, Kazincbarcika, and Miskolc), and landscape wounds (pit-heaps).

## DEVELOPMENT OBJECTIVES

The development program of the region of Northern Hungary for 2007-2013 aims to strengthen the competitiveness of the region, and to reduce the regional, social and economic differences within the region at the same time.

The program formulates five priorities:

- Creating the knowledge-based *competitive economy* of the region.
- Strengthening *the tourism potential*, improving the quality of products and services based on natural and cultural values, creating new jobs, a sustainable application of the resources.
- Rehabilitation of urban areas*, renewal of urban areas being segregated and contaminated in social terms, strengthening social cohesion.
- Improving regional infrastructure*, including the accessibility of the centres of small regions, a renewal of humane public services, improving IT-based public services.
- Technical assistance* to support the implementation of the program and to achieve the objectives of the program.

In line with the above objectives, four programs (1. Creating a competitive economy; 2. Strengthening the tourism potential; 3. Rehabilitation of urban areas; and 4. Improving regional infrastructure) have been formulated for the period 2007-2013 together with the related objectives (Table 1).

Table 1. Strategy and priority level expected impacts, quantification of indicators

Objectives	Indicators	Targets (2014)
Priority 1: Creating a competitive economy	Number of jobs created (pcs)	4,000-4,500
	Number of enterprises settled in the supported logistics parks (pcs)	25-30
	Number of logistics centres supported (pcs)	4-5
	Number of new, supported cooperation with enterprise and/or R&D institutions (pcs)	25-30
	Number of supported investments in creating jobs (pcs)	200-300
	Number of supported technological innovations in the enterprises (pcs)	350-400
	Number of supported innovation services in the SMEs (pcs)	350-400
	Number of supported innovation-technological centres (pcs)	4-6
	Number of persons participating in training (pcs)	1,300-1,500
Priority 2: Strengthening the tourism potential	Number of organisations transferring supported innovation (pcs)	25-30
	Number of jobs created in tourism (persons)	4,500-5,000
	Number of commercial accommodations (pcs)	41,000-43,000
	Average time spent (nights)	2.7-3
	Number of nights per 1000 permanent residents (nights)	2,100-2,300
	Supported priority tourism products, attractions (pcs)	40-50
	Number of supported refurbished accommodations (pcs)	12,000-15,000
	Number of supported tourism accommodations (pcs)	200-300
	Number of supported tourism management organisations (pcs)	12-16
Priority 3: Rehabilitation of urban areas	Number of those participating in training (persons)	800-1,000
	Number of jobs created due to support (persons)	4,000-5,000
	Number of organisations, enterprises settled or offering services in rehabilitated areas (pcs)	150-200
	Number of those successfully completing training (persons)	700-800
	Number of employees returning to the labour market (persons)	700-1,000
	Number of segregated parts of towns supported (pcs)	10-15
	Number of centres of towns supported (pcs)	30-35
	Number of brown-field areas rehabilitated (pcs)	7-10
	Area of brown-field areas rehabilitated (ha)	130-170 ha
Area of towns rehabilitated (ha)	150 ha	
Number of inactive persons supported in employment programs (persons)	3,000	

Objectives	Indicators	Targets (2014)
	Number of supported employment initiatives (persons)	30
	Number of persons participating in training (persons)	1,000
Priority 4: Improving regional infrastructure	Number of students in supported educational institutions (persons)	50,000-60,000
	Number of local governments interested in IT development (pcs)	300-400
	Number of supported small region programs (pcs)	82-86
	Number of constructed or reconstructed roads with 4- or 5-digit markings (km)	1,400-1,600
	Number of supported public transport service projects (pcs)	20-25
	Number of educational institutions improved or refurbished (pcs)	150-200
	Number of health institutions improved or refurbished (pcs)	70-80
	Number of projects supported in order to modernise public administration (pcs)	80-100

Source: NORDA (2006)

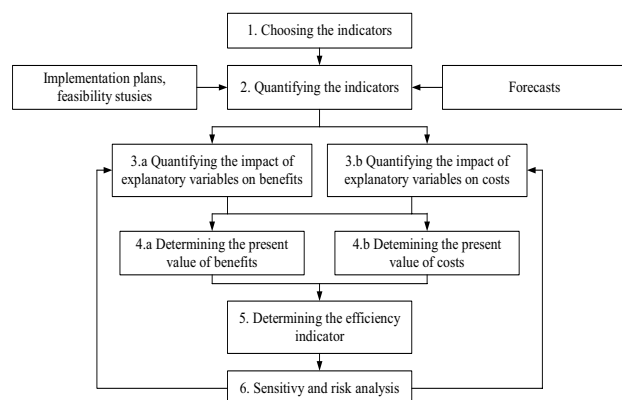
The program counts with EU funds of approximately 399.0 billion HUF arriving in the region of Northern Hungary in the period 2007-2013 (Table 2).

Table 2. Development programs of the region of Northern Hungary (2007-2013)

No.	Program	Sub-program	Funding requirement	Grand total (bn HUF)
1.	Creating a competitive economy (techno-region)	1.1 Developing integrated supplier networks in the region.	15.0	73.0
		1.2 Attracting environmental protection industry	20.0	
		1.3 Biomass energetics industry	15.0	
		1.4 Establishing a regional knowledge centre	8.0	
		1.5 Developing a regional logistics network	10.0	
		1.6 Developing business services supporting enterprises	5.0	
2.	Developing a regional tourism network together with the region of Northern Alföld	2.1 Developing a coherent and integrated communication strategy, developing region-marketing tools	0.5	101.0
		2.2 Establishing a joint regional cluster centre with the region of Northern Alföld	3.0	
		2.3 Supporting the establishment of regional tourism clusters	82.0	
		2.4 Development of program-related services	10.5	
		2.5 Development of program-related human resources	5.0	
3.	Creating the conditions for high-standard life, rehabilitation of urban areas			111.0
4.	Improving regional infrastructure			110.0
Total				395.0

## EXPECTED BENEFITS OF THE PLANNED PROGRAMS

The ex-ante evaluation of the planned programs was performed by cost-benefit analysis (Figure 4).



Source: constructed by the author

Figure 4. The logical process of ex-ante-type cost-benefit analysis

The allowable costs were classified in three groups:

- costs arising in connection with preparation (e.g.: preliminary studies, feasibility studies, etc.);
- costs incurred during implementation (e.g.: property development costs, costs of purchasing machinery and equipment, costs incurred by public procurement, account management, and leasing, the material, energy, wages and contribution costs of the implementation, etc.); as well as
- annual costs incurred by operation (e.g.: management, maintenance, troubleshooting, etc.). Drawbacks affecting society (and emerging in the course of realisation of a project) are also included here (e.g.: increase in the load on the environment, health deterioration, etc.).

Costs were determined by a calculative method (e.g. technical, time, etc. norms) on the basis of the feasibility studies or based on the costs of similar programs.

The system handles three benefit tables: direct benefits ( $H_1$ ); indirect benefits ( $H_2$ ) and spill-over benefits ( $H_3$ ). Accordingly, the benefit of a program ( $H$ ) is given by the sum of the three factors depending on a given utilisation ( $Q$ ):  $H(Q) = H_1(Q) + H_2(Q) + H_3(Q)$ .



- a) *Direct benefits* appear in the implementation of the project (e.g.: surplus sales revenues, savings in fuel costs, savings in maintenance costs, etc.).
- b) *Indirect benefits* take into account income arising for the budget (e.g.: personal income tax, contributions by employers, social security contributions, value added tax, company tax, duties, etc.), savings for the budget due to the retention of jobs, as well as savings expressed by shadow price (e.g.: savings arising from a reduction in the number of road accidents, benefits due to a reduction in the time to get to work, benefits due to a reduction in the load on the environment, etc.).

In determining indirect benefits the *multiplication factor*, which expresses the spill-over effect of the intervention (appearing in a different sector), plays an outstanding role.

In line with the specialist literature, the software interprets four multiplication factors in theory.

➤ The income multiplication factor, which expresses the spill-over effect of the expenditure effected in a given sector and appearing in a different sector.

➤ The output multiplication factor, which expresses the impact of unit output in the transportation sector (under examination) appearing in a different sector.

➤ The employment multiplication factor, which expresses the impact of unit expenditure in the transportation sector (under examination) on employment in other sectors.

➤ The budget multiplication factor, which expresses the impact of unit expenditure in the transportation industry (under examination) on the central budget.

It was quite a job to determine the current output multiplication factor, i.e. to take into account the spill-over effect of the programs within the region.

The specialist literature offers three models for solving the task: the balance of sectorial connections, the Computable General Equilibrium (CGE), and the Social Accounting Matrix (SAM).

In view of the fact that the Central Statistics Office does not quantify the balance of either the country connections or the balance of regional sectorial connections, the multiplication factor was determined on the basis of the data of the turnover between the sectors (Table 3).

- c) *Spill-over benefits*, which express the increase in solvent demand appearing in the region (Table 4).

The program quantifies five indicators of the cost-benefit data determined above (Table 5). Two of them are conservative.

Table 3. The total multiplication factor of the region of Northern Hungary

Sectors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total
1. Agriculture	1.40	0.02	0.03	0.01	0.02	0.02	0.01	0.02	0.00	0.01	0.02	0.04	0.31	0.01	0.01	0.01	0.01	0.01	1.96
2. Mining	0.01	1.08	0.03	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	1.22
3. Food industry	0.04	0.06	1.20	0.01	0.02	0.03	0.01	0.02	0.01	0.02	0.05	0.04	0.02	0.02	0.03	0.02	0.02	0.04	1.66
4. Clothes industry	0.02	0.01	0.01	1.02	0.04	0.02	0.01	0.01	0.02	0.01	0.02	0.02	0.01	0.04	0.07	0.03	0.01	0.02	1.39
5. Other light industry	0.07	0.04	0.05	0.03	1.19	0.03	0.02	0.05	0.01	0.02	0.04	0.02	0.03	0.02	0.02	0.01	0.01	0.01	1.67
6. Chemical industry	0.04	0.02	0.06	0.02	0.03	1.19	0.02	0.08	0.04	0.04	0.18	0.03	0.03	0.02	0.02	0.03	0.01	0.01	1.87
7. Other processing industry	0.01	0.00	0.00	0.10	0.01	0.01	1.01	0.00	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.29
8. Machine industry	0.03	0.02	0.03	0.02	0.05	0.02	0.02	1.27	0.04	0.02	0.02	0.03	0.02	0.05	0.06	0.05	0.05	0.02	1.82
9. Energetics	0.05	0.03	0.04	0.06	0.07	0.08	0.02	0.02	1.16	0.15	0.03	0.03	0.05	0.04	0.02	0.03	0.02	0.02	1.92
10. Construction ind.	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	1.02	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	1.1
11. Accommodation, catering	0.02	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.04	0.06	0.11	0.02	0.03	0.02	0.02	0.07	0.02	0.02	0.52
12. Railway transport.	0.14	0.07	0.11	0.03	0.05	0.08	0.03	0.04	0.03	0.05	0.12	1.08	0.10	0.08	0.06	0.06	0.04	0.05	2.22
13. Financial activities	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	1.05	0.00	0.05	0.01	0.00	0.00	1.22
14. Property	0.03	0.02	0.03	0.02	0.02	0.03	0.03	0.02	0.03	0.01	0.03	0.05	0.02	1.03	0.04	0.03	0.01	0.01	1.46
15. Public admin.	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	1.01	0.01	0.01	0.01	1.15
16. Education	0.01	0.00	0.01	0.03	0.01	0.01	0.03	0.00	0.01	0.00	0.01	0.01	0.01	0.04	0.13	1.04	0.00	0.00	1.35
17. Health care	0.02	0.01	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.02	0.02	0.03	0.03	1.05	0.05	1.39
18. Other services	0.03	0.02	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.04	0.02	0.04	0.04	0.03	0.05	0.04	0.04	2.23	2.78
Total	1.95	1.42	1.7	1.41	1.6	1.62	1.27	1.61	1.51	1.5	1.66	1.49	1.79	1.45	1.64	1.49	1.31	2.51	28.93

Interpretation: Impact of unit demand for the products of the sector in the column on the output of the sectors in the rows with consideration of the induced impacts of spending the wages.

Source: Joint calculations by the county headquarters of the Central Statistics Office in Borsod-Abaúj-Zemplén and the Department of Regional Economics of the University of Miskolc.

Table 4. Equations of benefit elements (REINPLAN©)

Direct benefit	<p>Sales revenue: <math>\Delta SI</math> (HUF) = IND * FA.                  Revenue from contribution by employers: <math>\Delta ET</math> (HUF) = ALKSZ * BATL * MJAR.                  Revenue from personal income tax: <math>\Delta PI</math> (HUF) = ALKSZ * BATL * SZJA.                  Replacement of unemployment benefit: <math>\Delta NUE</math> (HUF) = <math>\Delta ALKSZ * MNELK * MJAR * 0.75 * 0.85</math>.                  Surplus company tax: <math>\Delta CT</math> (HUF) = NA * ADOK                  Local industrial tax: <math>\Delta LT</math> (HUF) = NA * ATLA                  VAT <math>\Delta VTI</math>: (HUF) = B * AFAI                  Surplus VAT (services): <math>\Delta VTS</math> (HUF) = A * AFASZ                  Surplus local duty revenue: <math>\Delta LTP</math> (HUF) = B * I</p>	<p>IND – indicator                  FA – specific price (HUF/indicator)                  ALKSZ – number of employees in the sector (person/year)                  BATL – gross average wages (HUF/person/year)                  MJAR – contribution by employers (%)                  SZJA – average personal income tax rate (%)  <math>\Delta ALKSZ</math> – increment in the number of employees (person)                  MNELK – number of unemployed employed due to the program (person/year)                  MJAR – unemployment benefit (HUF/person)                  A – gross sales revenue (HUF)                  NA – net sales revenue (HUF)                  B – investment costs (HUF)                  AFASZ – VAT rate for services (%)                  AFAI – VAT rate for capital goods (%)  <math>\Delta AB</math> – net (VAT-free) increment of the revenues of the sector (HUF)                  ADOK – average company tax rate (%)                  ATLA – average tax rate (%)                  Mi – oilio sector multiplication factor                  I – average contribution (%)                  NATL – net average income (HUF)                  FI – consumption rate (%)</p>
Indirect benefit	<p>Surplus revenue from other sectors: <math>\Delta SII</math> (HUF) = <math>\Delta AB * M_i</math>                  Surplus revenue from contribution by employers in other sectors: <math>\Delta ETI</math> (HUF) = <math>\Delta ALKSZ * M_i * BATL * I</math>                  Personal income tax from other sectors <math>\Delta PII</math> (HUF) = <math>\Delta ALKSZ * M_i * BATL * SZJA</math>                  Replacement of unemployment benefit arising in other sectors: <math>\Delta NUI</math> (HUF) = <math>\Delta ALKSZ * M * BATL * SZJA</math>                  Company tax revenue from other sectors: <math>\Delta CTI</math> (HUF) = <math>\Delta LKSZ * MUNKN * M * MNELKJ * ATLA</math>                  Revenue from local industrial tax from other sectors: <math>\Delta LTI</math> (HUF) = <math>\Delta AB * M_i * I</math>                  VAT (services) from other sectors: <math>\Delta VTSI</math> (HUF) = <math>\Delta AB * M * AFASZ</math></p>	
Spill-over benefit	<p>Benefit of increase in income: <math>CB</math> (HUF) = <math>\Delta ALKSZ * NATL * FI</math></p>	

Table 5. Profit and loss indicators of cost-benefit analysis (constructed by the author)

Type	Indicator		
	Definition	Interpretation	Notation
Return rate (M)	$M_t = \frac{\sum_{t=1}^n H_t \frac{1}{(1+r)^t}}{\sum_{t=1}^n K_t \frac{1}{(1+r)^t}}$	The program is socially beneficial if $M > 1$	H – benefit K – cost
Benefit present value indicator (HJ)	$HJ_t = \sum_{t=1}^n H_t \frac{1}{(1+r)^t} - \sum_{t=1}^n K_t \frac{1}{(1+r)^t}$	The program is socially beneficial if $H > 0$	
Budgetary return (KV)	$KV = \frac{TJ}{KVJ}$	To what percentage the subsidy granted for the implementation of the program is returned from the budgetary revenues during time T.	KVJ – present value of budget revenue TJ – present value of subsidy
Import ratio indicator (IH)	$IH = \frac{KJ}{IJ} \cdot 100$	What percentage are imports of the costs arising during time T of the program.	IJ – present value of imports KJ – present value of costs
Benefit intensity (HI)	$HI_t = \frac{\sum_{t=1}^n H_t \frac{1}{(1+r)^t}}{\sum_{t=1}^n T_t \frac{1}{(1+r)^t}}$	What percentage of the subsidy is returned from the benefit.	T – subsidy

## FINDINGS OF THE IMPACT STUDIES

Costs were determined on the basis of feasibility studies built on estimates by experts. In the calculations a 3 % increase in wages and a constant contribution percentage were used.

According to preliminary calculations by the experts, the programs will induce a considerable demand for employment (Table 6).

Table 6. Aggregate job creating impact of the programs

Program	Persons
Creating a competitive economy	25,000
Regional tourism network	29,000
Improving the conditions for high standards of life	21,000
Total	75,000

Regarding the current output multiplication factor the assumption was used that it was static in the period under examination, i.e. in 2007-2013 the values of the elements of the matrix were constant.

The social usefulness of all the three programs is clear, however, as regards their impacts, the three programs do not show the same strengths (Tables 7 and 8).

Table 7. The cost-benefit indicators of the three programs

Indicator	Program of competitiveness	Program of tourism development	Program of improving the standards of life
Return rate (M)	7.29	4.58	3.09
Benefit present value (HJ)	572.983 bn HUF	395.627 bn HUF	371.114 bn HUF
Benefit intensity (HI)	16.28	6.10	1.96

The program of competitiveness generates the highest added value, therefore this program has obviously the highest return rate and benefit intensity as well; while the program of improving the standards of live shows the lowest specific values. This latter one aims at creating social cohesion primarily.

## INVESTIGATING THE REGIONAL IMPACT

The investigation of regional impact has a considerable econometric literature<sup>7</sup>.

The models adopt mostly the Cobb-Douglas production function (Table 9).

Table 8. The cost-benefit curves of the programs

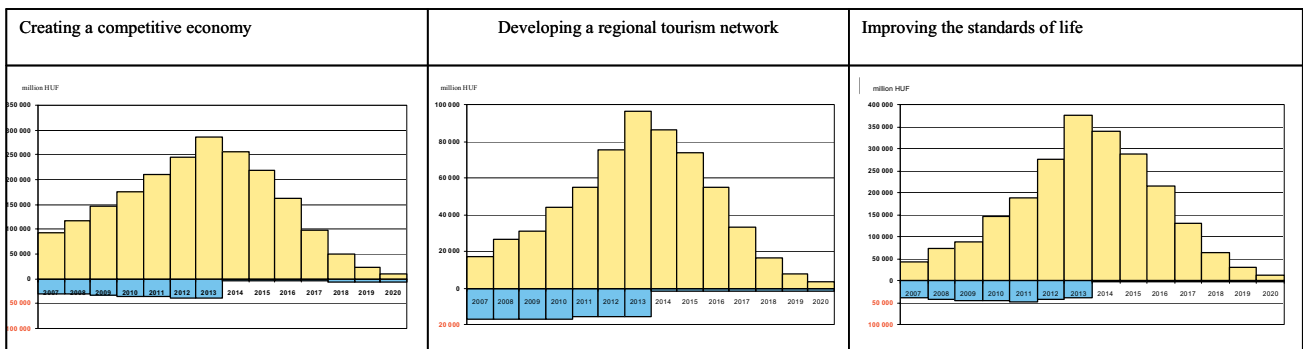


Table 9. Production functions (constructed by the author)

Author	Model	Notation
Eckey/ Kosfeld/ Türek [2000]	$Y=f(\alpha_t, L, H, K)$ $\ln Y = \ln \alpha_t + \alpha_L \cdot \ln L + \alpha_H \cdot \ln H + \alpha_K \cdot \ln K$ $+ \frac{1}{2} \cdot \beta_{LL} \cdot (\ln L)^2 + \frac{1}{2} \cdot \beta_{HH} \cdot (\ln H)^2 + \frac{1}{2} \beta_{KK} \cdot (\ln K)^2$ $+ \beta_{LH} \cdot \ln L \cdot \ln H + \beta_{LK} \cdot \ln L \cdot \ln K + \beta_{HK} \cdot \ln H \cdot \ln K.$	$\alpha_t$ – level of knowledge L – labour H – human capital K – physical capital
Sala-Martin [1993]	$Y = f(t, K, L)$ $Y = A(t) K^\alpha L^{1-\alpha}$	A – technical level t – time L – labour K – capital

We attempted to demonstrate regional impact on the basis of two indicators (added value and changes in regional GDP) (Table 5). The added value (HÉi) of a particular sector (i) of the region was determined using the following relationship:

$$HÉi = \alpha + \beta Bi + \gamma ALKi + \delta MKi + \varepsilon CPI,$$

where:

➤  $i$  = number of sector,<sup>8</sup>

- $\alpha$  = constant,
- $\beta, \gamma, \delta, \varepsilon$  = parameters,
- $Bi$  = investment effected in the sector in a given year,
- $ALK$  = number of employed in the sector in a given year,
- $MKI$  = average wages in the sector,
- $CPI$  = average inflation.

<sup>7</sup> The models have developed two groups (with some simplification). The first includes the models that aim at quantifying the impact of economic growth on changes in regional GDP (e.g.: Lucas [1988], Grossmann – Helpman [1989]); the second group aims at modelling regional convergence.

<sup>8</sup> The model REINPLAN© developed by the Department of Regional Economics of the University of Miskolc in 2005 can handle 18 sectors simultaneously (agriculture, mining, food industry, clothes industry and other light industry, other processing industry, machine industry, energy and water supply, construction industry, trade, accommodation, catering, transportation, storage, communication, financial activities, property deals, public administration, education, health care and other services).

Regional GDP is equal to the cumulated added value in the sectors:  $GDP = \sum_{i=1}^n HE_i$ .

The output indicators under examination were determined in the econometric model were determined on the basis of two hypotheses:

- Supposing a ‘natural’ growth; that is the changes will develop in line with the current economic policy practice;
- Supposing a ‘generated’ growth; that is what change can be quantified as a result of the subsidy.

The difference obtained between the data as a result of the quantification of the two functions gives the extent of the expected change.

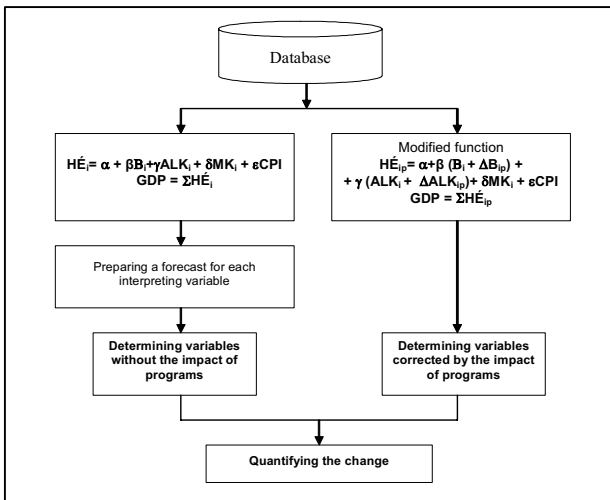


Figure 5. Model of demonstrating regional impacts (REINPLAN©)

In determining a national tendency, we counted with the following:

- The rate of technological development remains unchanged;
- The growth rate of GDP in Hungary will exceed the EU average by 2-2.5 per cent in the next 10-15 years.

Regarding regional tendencies we applied the following assumptions:

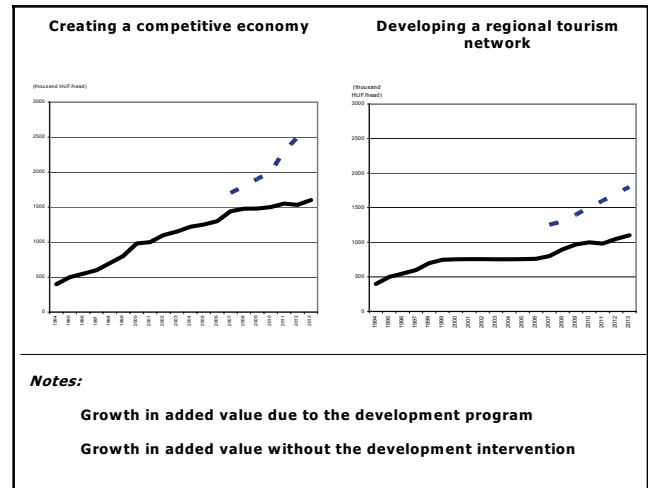
- The sectorial weight of mining is low in the region and is expected to remain so;
- The agriculture in the region will have a similar fate in the years to come.

## CHANCES OF CONVERGENCE

The mezo-econometric model was used to find the answer to the question whether it will be possible to achieve a growth rate higher by 2-2.5 per cent, which would enable the region to converge upon the average of the domestic GDP in the long run.

Analyses of the regional impact prove that the impact of the planned programs in increasing the added value may ensure a growth above the national average by 2.0 – 2.2 per cent in the period 2007-2009, and by 2.4 – 2.6 per cent in the period 2009-2013 for the region (Table 10).

Table 10. Regional impact of the development programs



## SUMMARY

The period 2007-2013 may be of decisive importance regarding the social and economic processes in the region of Northern Hungary for at least two reasons. The first long-term development program (7 years) was prepared after the changes in economic policy of 1989 in order to improve the competitiveness of the region.

On the other hand, the amount of the funds that can be called (as proved by the analyses) will facilitate to induce a demonstrable economic growth in the region.

The plans take a change in paradigm into account: the convergence of the region is planned to be based on creating and strengthening the foundations of a competitive economy.

If the political intention will back these efforts, it will be possible to stop the process of the region of Northern Hungary drifting towards the periphery that has been going on for two decades now, and there will be hope to establish a new expansion path.

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# E-business Diffusion in Hungarian SMEs: Challenges and Opportunities

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## SUMMARY

*In this paper we introduce the main results of a survey describing the e-business adoption situation of Hungarian small and medium sized enterprises (SMEs). We used the e-w@tch methodology, and this enables European wide comparison of the status of e-business applications, but does not explain how individual SMEs might take advantage on using ICT resources.*

*Therefore, we propose a theoretical framework based upon recent research, in order to better understand the e-business value creation process. We outline a multi-layer model where the value creation process is in the core, and several environmental factors exert their influence. We demonstrate the impacts of the macro level economical environment and the influence industrial sectors. After that, going deeper to the corporate level – in our cases we were mainly focusing on SMEs – we refer to the importance of using the concepts of online information capabilities and digital options to transform ICT resource toward organizational outputs.*

*In the last section of our paper we used the EU-5 2003 and the 2004 Hungarian SME e-business adoption measurement to specify the resource side of the European e-business value creation. We found that the resource specifications are rather consistent, and concentrate around six groups of e-business resources: communication, remote access, complex ICTs, operational efficiency, knowledge and content management, and on-line sales resources.*

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## INTRODUCTION

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Significant achievements have been accomplished in measuring European e-business activities. There is an ongoing quest to understand how information communication technologies (ICT) create organizational value; more effective process management, customer satisfaction and very importantly improved economic performance. We believe this issue is especially significant in the period of EU enlargement when the region's global competitiveness will depend on how quickly the newly joined economies close the digital divide, how efficiently companies put ICT into operation and squeeze business benefits in order to provide more values to their stakeholders.

In this paper we first introduce the main results of a survey describing the e-business adoption situation of Hungarian small and medium sized enterprises (SMEs). We used the e-w@tch methodology (The E-business Report, 2003) and this enables European wide comparison of the status of e-business applications but does not explain how individual SME might take advantage on using ICT resources.

In the second major part we propose a theoretical framework based upon recent research in order to better understand the e-business value creation process. We outline a multi-layer model where the value creation process is in the core, and several environmental factors

exert their influence. We demonstrate the impacts of the macro level economical environment and the influence of the more immediate industrial sector. After that going deeper to the corporate level – in our cases we were mainly focusing on SMEs – we refer to the importance of using the concepts of online information capabilities and digital options as first steps to transform ICT resource toward organizational outputs.

## E-BUSINESS ADOPTION OF HUNGARIAN SMEs ACCORDING TO THE E-W@TCH CONCEPT

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The Small Business Development Center and the E-business Research Center of the Corvinus University of Budapest completed a pilot survey amongst Hungarian Small and Medium Size Enterprises (SMEs) according to the e-business w@tch 2002/2003 research methodology during the first half of 2004. This project had been initiated by the Hungarian Ministry of Economics and Transportation with the main objective of exploring the level of ICT usage and e-business adoption amongst small and medium sized companies (SMEs). The broader context of the inquiry was to use the results as inputs to develop policies to enhance e-business diffusion in this sector of the Hungarian economy, and to harmonize

Hungarian e-business measurement with the already established e-w@tch project.

The investigation was focusing on the following issues:

- ICT infrastructure and e-readiness of SMEs
- Diffusion of e-business
- Integration and sophistication of e-business solutions
- Significance and impact of e-business
- Sectorial perspective of e-business

The sample was representative, the research was based on 320 personal interviews, mainly with SMEs which have shown some interest in applying e-solutions. Of the total 320 SMEs 30,3% were micro (less than 9 employees), 43,1% were small enterprise (10-49 employees), and the rest 26,6% were medium enterprises (50-249 employees). The original EU-5 survey was not dividing the small and micro groups, and it also contained 10% over 250 employees.

Companies were selected randomly from the following industries: food, beverages and tobacco, chemical, electrical machinery and electronics, transport equipment, retail, tourism, and ICT services.

Generally, the survey concluded that 96,9% of these SMEs have used computers and 94,5% of them have had internet connection of some kind. They have operated in a stable economic environment, generating steady revenue streams, producing net profits and increasing employment. Details of the results are available in (Szirmai et. al., 2004) according to the e-w@tch representation.

As we stated in the introduction, our objective in this paper is to discuss the theoretical aspects of the e-business value creation process in the context of the enlarged EU. In Figure 1. we summarized the widely accepted e-w@tch concept adopted from the 1999 OECD e-business assimilation model. We also organized the key findings of the Hungarian SME survey according this structure in Figure 1. The essence of this model is, that appropriately used ICT infrastructure and ICT skills lead to higher level of e-activities (on-line sales, internal process management and on-line procurement) which in turn create some kind of business impact.

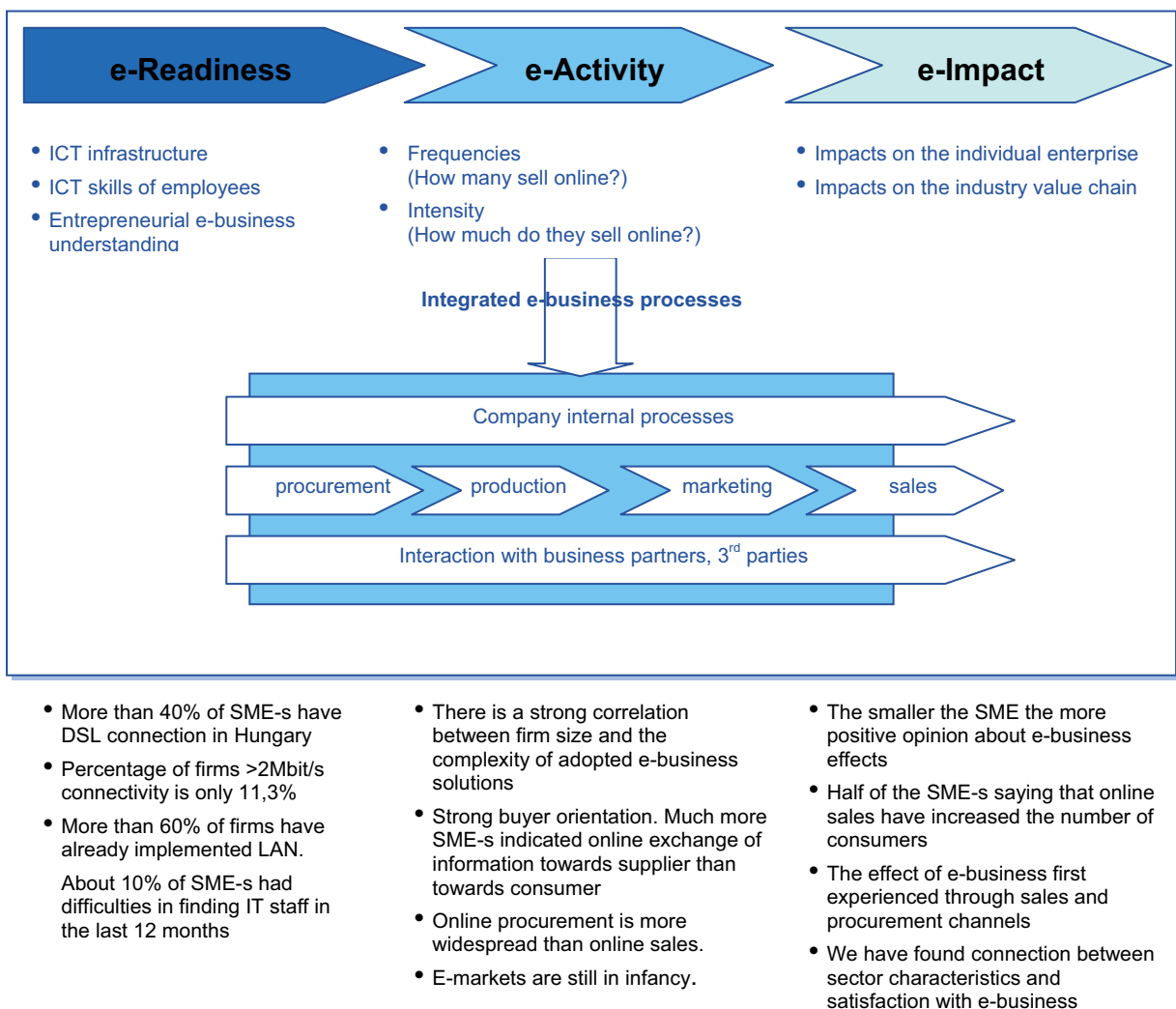


Figure 1. The e-w@tch e-business adoption model and the status of Hungarian SMEs

The OECD model provides an opportunity to compare the status of SME e-business adoption, for instance using our Hungarian data we can assess the major differences in ICT infrastructure and most widely used e-business solutions. Building upon this powerful descriptive feature we propose the theoretical extension of this concept in order to go beyond the static “situational” analysis to understand deeper connection between e-business infrastructure and potential business results. Using some of the findings of the e-w@tch surveys and combining them with recent theoretical achievements in the area of the resource based view (RBV) of strategic management and its off-springs we can understand more clearly the transformational steps how an SME level e-infrastructure leads to e-activity and that to measurable business impacts.

## ICT AND BUSINESS VALUE CREATION MODEL

Results of the e-business w@tch measurements have proved that the level of e-business adoption and the articulation of real or perceived organizational impacts are influenced by country and industry characteristics. To conceptualize these influences we have adopted (Melville et. al. 2004) who argued that IT resources make their impact on organizational performance through an onion-like layer structure, as it is described in Figure 2.

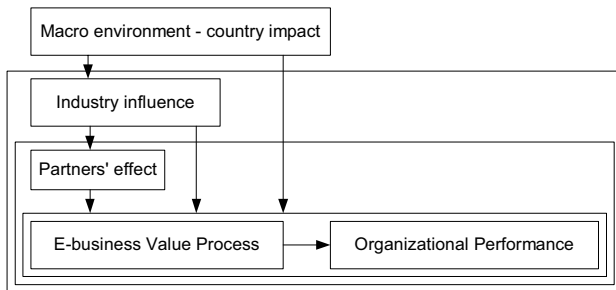


Figure 2. E-business Value Model – adopted from Melville et. al. 2004.

### Country Impact

The impact of country characteristics are illustrated for instance by Dutta and Jain (Dutta – Jain, 2005) who plot the relationship between GDP – as a key country performance indicator – and internet adoption, measured by their eEurope 2005 Index.

Without discussing the computational details, the index compounds the following parameters:

- internet indicators (access of citizens, access of enterprises, access costs),
- modern on-line public services,

- dynamic business environment,
- secure information infrastructure,
- broadband services.

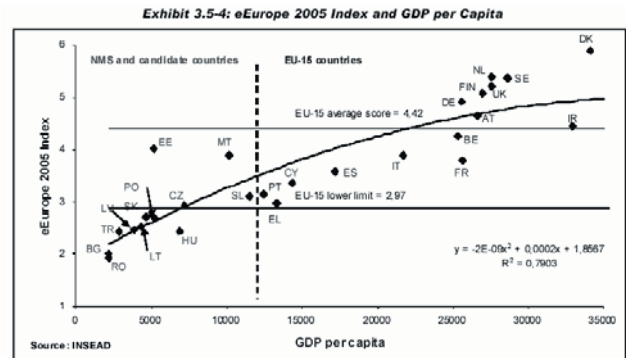


Figure 3. The eEurope 2005 Index and GDP per capita – Dutta – Jain (2005)

Dutta and Jain have shown that given their economical potentials some are performing better than others. For instance in the newly joined country group Estonia and Malta are in the former while Hungary is in the latter group (above or below the average line).

Economic Intelligence Unit (EIU) has also been measuring country level e-readiness for 5 years, comparing the following compound indicator:

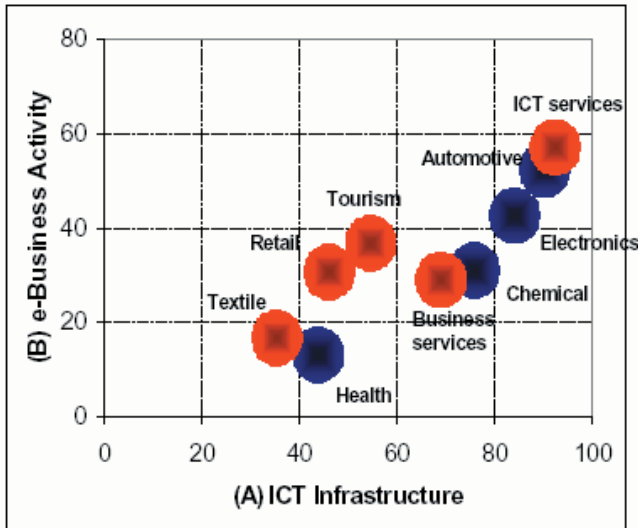
- Connectivity and technology infrastructure (25%)
- Business environment (20%)
- E-commerce consumer and business adoption (20%).
- Legal and regulatory environment (15%).
- Social and cultural infrastructure (15%).
- Supporting e-services (5%).

The EIU measurements separate regions in the global economy according to the similarities in their macro environment: for instance the Scandinavian Region, Western European Region, US, Canada and Australia, Central-Eastern Europe etc.

### Industry Impact and Partners' Effect

One of the surprising conclusions of the e-w@tch measurement over the last two-three years is the significance of the sectorial impact on e-business activities. In some cases -like for instance Slovenia and Estonia – industry influence is more dominant in SME e-activity than the regional impact. In Figure 4. and Figure 5. we show the 2004 e-w@tch data and the Hungarian results amongst SME companies.





Source: e-Business W@tch: e-Business Survey 2003

Figure 4. Sectorial impacts of e-business activities

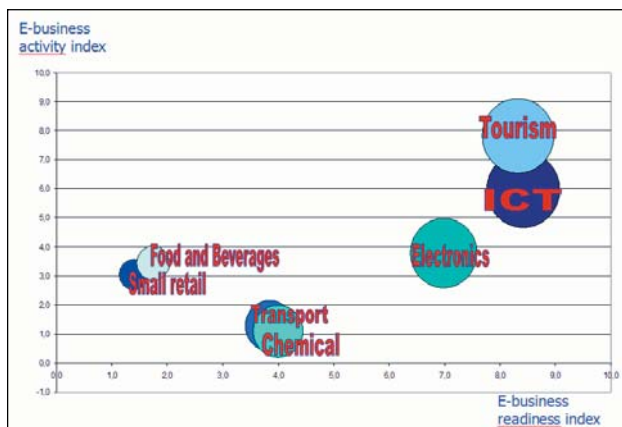


Figure 5. Sectorial impact of e-business activities in Hungarian SME

It is interesting to compare the position of the tourism sector in the Hungarian sample and in the original EU survey. Probably, the strong position in the Hungarian context is due to the fact, that customers in this sector are more global accessing the internet from more “e-ready” regions. At the same time this industry is heavily information driven, hotel reservations, airline bookings, cultural program organizations, ticket access and other coupled services can be organized into integrated portals which provide clear value for their customers.

Concluding the essence of the first two layers in Figure 2., we might say that e-business activities are determined by the macro economical environment, but even in the less internet ready geographical regions opportunities exist for adopting contemporary e-business solutions which might operate as springboard for wider ICT usage.

### The E-business Value Process

In the heart of the onion-like structure SMEs face the the core problem of how e-business infrastructure is transformed to organizational performance improvement. To explore this process we turn to the concepts of net enabled business transformation and the use of the resource based view of strategic management theory.

Case studies of successful companies demonstrate that the internet and related technologies have enabled them to change the way to interact and coordinate value chain activities with customers and suppliers with the objective of improving operational and financial performance. These changes referred to as Net-enabled Business Transformation (NBT) (Barua et. al., 2004). Conceptually, we see des-intermediation, when elements of the supply chain are eliminated, we experience repositioning the power structure amongst business partners, and also witness impacts with new value services focusing on the concept of reach (providing access to information) and richness (information content). During the last years the Resource Based View (RBV) has become a dominant theory base to study firms’ abilities to deploy technological, organizational and environmental resources in the context of NBT (Wade, Hulland, 2004). The RBV approach provides useful help in the following areas:

- > specification of ICT resources
- > using ICT resource attributes they can be compared with each other
- > RBV sets out a clear link between resources and organizational performance (or outcome constructs), for instance sustainable competitive advantage or financial improvements.

Figure 6. describes our interpretation of the RBV theoretical framework. Putting the e-w@tch methodology into this context we might say that e-business resources (which we consider as a subset of ICT resources) together with other complementary organizational resources, when deployed and exploited properly, lead to improvements in financial performance, competitive position and customer and partner relationships – together defined as outcome construct.

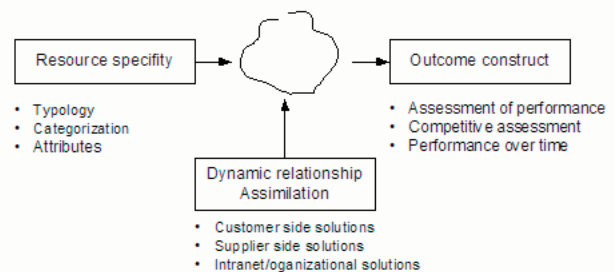


Figure 6. Application of the Resource Based View to understanding and measuring e-business impact – adopted from (Wade – Hulland, 2004)

A quite intriguing research area is the center of Figure 6. i.e. through what mechanisms can the ICT resources be turned into successful business outcomes. Without the desire to fully overview this stream of scholarly contributions we would like to refer to two key concepts which attempt to explain how the value creation process work.

The first construct is the terminology of Online Information Capabilities (OIC) which is defined as the ability of a firm to exchange strategic and tactical information online with customers and suppliers on demand (Barua et.al, 2004). On the customer side these capabilities are for instance product information available on-line, capability of customers to configure their orders and the communication capabilities with service representatives. On the supplier side OICs focus on the ability to share process information with partners (quality, quantity, yield etc.), capability to track changes, share inventory information, update production schedules and continuously update product information.

The OIC construct nicely harmonizes with concept of digital options introduced by (Sambamurthy et. al., 2003). Digital options are rights to future investment choices without a current obligation for full investment. According to Sambamurthy companies extend their OICs to develop capabilities in the areas of knowledge management and process improvements using the above mentioned concepts of information reach and richness. The philosophy of options is essential, thus these capabilities are not necessarily transformed into direct profitability outputs, they might be abandoned in certain time, might also be further extended through additional investment. It also draws the attention of management to the importance of understanding the sequential nature of the ICT investments, that is unless taking risks at present achievements cannot be attained in the future.

We believe that further research exploring these variables will lead to promising results specially in the context of SMEs in the greater EU region since the way they use e-business solutions will be determining to the entire macro environment.

In the following section we will use the Hungarian SME and EU-5 2003 e-w@tch data to highlight some issue on the resource specificity.

## E-BUSINESS RESOURCE SPECIFICATION DIFFERENCES IN EU AND HUNGARIAN SMEs

In order to illustrate what kind of basic questions the RBV approach puts forward first we focus on the resource classification of the e-business value creation process. We compared the Hungarian SME sample with EU-5 measurement introduced under Section 1. Given the exploratory nature of our paper we do not discuss the methodology in detail but for a deeper analysis both data and the statistical computation should be harmonized. For the illustrative purposes and the sake of simplicity we used the infrastructure sections of the e-business w@tch surveys without major alterations. The main questions were:

- What type major e-business related resource groups can we identify in the EU-5 and the Hungarian SME sample?
- What characterizes these resource groups in general and what kind of further investigation is needed to better understand the implications to the value creation process? The results of the factor analysis can be seen in Table. 1. and Table 2.

Table 1. Specification of e-business resources in the EU-5 sample

Variables	Factors					
	1	2	3	4	5	6
Employee training: Does your company offer – participation in computer or IT training offered by third parties?	0.67					
Employee training: Does your company offer – employees can use some of their working time for learning activities?	0.60					
Employee training: Does your company offer – in-house computer or IT training?	0.56					
Does company use the Internet or other online services to purchase goods or services?	0.55					
Can employees access company computer system remotely from a non-business location (eg from home or a hotel)?	0.52					
Use of online technologies other than e-mail – to exchange documents electronically with customers?		0.75				
Use of online technologies other than e-mail – to exchange documents electronically with suppliers, eg orders?		0.71				
Use of online technologies other than e-mail – to negotiate contracts?		0.59				
Use of online technologies other than e-mail – to collaborate with business partners to forecast product demand?		0.51				
Use of online technologies other than e-mail – to collaborate with business partners in design of new products?		0.49				
Has company implemented – an ERP (Enterprise Resource Planning) system?			0.75			

Variables	Factors					
	1	2	3	4	5	6
Has company implemented – an SCM (Supply Chain Management) system?			0.73			
Has company implemented – an CRM (Customer Relationship Management) system?			0.66			
Has company implemented – services of an ASP (Application Service Provider)?			0.55			
Use of online technologies to support internal processes – to track working hours and production time?				0.74		
Use of online technologies to support internal processes – to support internal processes – to support the human resources management?				0.70		
Use of online technologies to support internal processes – to share documents between colleagues or to perform collaborative work in an online environment?	0.44			0.47		
Use of online technologies other than e-mail – to exchange documents electronically with suppliers, eg orders?				0.47		
Has company implemented – a Knowledge Management solution?					0.62	
Has company implemented – an e-learning application (eg learning material for employees available on Intranet or Internet)?					0.62	
Does company make use of a content management system?					0.48	
Does company sell goods or services on the Internet or through other online distribution channels?						0.73

*Group 1 – Education/Remote access/  
Purchasing*

The connection between remote access is logical, since companies apply e-learning and training where independence from space and time are essential.

*Group 2 – Communication*

These set of resources focus on relationship building and information exchange along the supply chain. They involve suppliers, business partners, customers, but also may turn internally to support R+D processes or employee collaboration.

*Group 3 – Complex systems*

Companies in the EU have adopted complex, integrated ICTs over the past years, such as ERP, CRM or SCM solutions. It is interesting to note that also the ASP solutions fell into this category indicating, that outsourcing or „rightsourcing” business solutions also implies collaboration with specific area experts.

*Group 4 – Operative resources*

Capacity management, HR management and workflow systems support the efficient operation of business processes.

*Group 5 – Content management/Knowledge resources*

This groups collects those resources which are in relationship with maximizing organizational memory, e-learning, and knowledge dissemination.

*Group 6 – On-line selling resources*

This last group is not attached to any other since its elements depend on product and service characteristics. These resource enable companies to exploit their marketing channel.

The analysis of the Hungarian SME data shows similarities but it is interesting to review the differences, as they indicated in Table. 2.

*Table 2. Specification of e-business resources in the Hungarian SMEs*

Variables	Factors					
	1	2	3	4	5	6
Use of online technologies other than e-mail – to exchange documents electronically with suppliers, eg orders?	0.83					
Use of online technologies other than e-mail – to exchange documents electronically with customers?	0.79					
Use of online technologies other than e-mail – to negotiate contracts?	0.68					
Use of online technologies other than e-mail – to collaborate with business partners in design of new products?	0.62					
Employee training: Does your company offer – employees can use some of their working time for learning activities?		0.82				
Employee training: Does your company offer – participation in computer or IT training offered by third parties?		0.78				

<i>Variables</i>	<i>Factors</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
Employee training: Does your company offer – in-house computer or IT training?		0.65				
Can employees access company computer system remotely from a non-business location (eg from home or a hotel)?		0.46				
Use of online technologies to support internal processes – to track working hours and production time?			0.69			
Use of online technologies to support internal processes – to support internal processes – to support the human resources management?			0.66			
Has company implemented – an ERP (Enterprise Resource Planning) system?			0.58			
Has company implemented – an CRM (Customer Relationship Management) system?						
Use of online technologies other than e-mail – to exchange documents electronically with suppliers, eg orders?				0.69		
Use of online technologies other than e-mail – to collaborate with business partners to forecast product demand?				0.67		
Has company implemented – an SCM (Supply Chain Management) system?			0.41	0.44		
Does company sell goods or services on the Internet or through other online distribution channels?				0.42		
Use of online technologies to support internal processes – to share documents between colleagues or to perform collaborative work in an online environment?					0.68	
Does company make use of a content management system?					0.64	
Does company sell goods or services on the Internet or through other online distribution channels?					0.52	
Has company implemented – a Knowledge Management solution?						0.75
Has company implemented – services of an ASP (Application Service Provider)?			0.40			0.66
Has company implemented – an e-learning application (eg learning material for employees available on Intranet or Internet)?				0.41		0.46

### *Group 1 – Communications*

This group shows a great similarity with Group 2 in the EU sample – focusing on communication resources along the supply chain.

### *Group 2 – Remote access/Education*

Basically the same as Group 1 in Figure 7, indicating that remote access is a key resource in e-business activities.

### *Group 3 – Resource management especially in the HR context*

In Hungary the HR support in ICT applications seems essential. It is also interesting to note, that ASP connections are specified in this group. Logically, we might assume that given the lack of competencies this parameter is rather an HR and knowledge transfer resource than an operational one as in the EU sample case.

### *Group 4 – Operative resources*

This group resembles great similarity with group 4 in the EU-5 companies.

### *Group 5 – Workflow and on-line purchasing*

This is a different specification than in the EU-5 dataset. The connection of workflow systems and on-line purchasing demonstrates that Hungarian SMEs couple the supplier side e-commerce with the internal process, and workflow is rather operative than contributing to knowledge sharing and management.

### *Group 6 – Organizational knowledge*

We find e-learning systems, and knowledge management systems in this group and also the application of ASPs what with a much lesser weight than in Group 3.

The six factors both in the EU and in Hungary were containing more than half of the variance explained by the sample variables. The first two factors were explaining 21% and 9% in the EU case and 20% and 10% in the Hungarian SME case – in the reverse order. That is Hungary communication resources were more dominant while in the EU-5 the remote access and education. According to this data we might hypothesize that the most important resources for companies to start the e-business value creation are in communication, remote access to ICT resources and education of IT people. The other factors are also similar, like for instance, the importance of application service providers and operational efficiency applications.

## SUMMARY AND IMPLICATIONS

It is a well accepted notion in the RBV literature that the relationship between the IT resource constructs and the outcome construct is determined by a complex dynamism. In this paper we proposed a multiplayer model to explore how can companies create value from deploying their e-business resources.

First we illustrated the impacts of the macro level economical environment and the influence of the more immediate industrial sector. We used the e-w@tch measurements to underline these impacts and illustrate the importance of business environment on e-business value creation.

On the corporate level – in our cases we were mainly focusing on SMEs – we referred to the importance of using the concepts of online information capabilities and digital options as first steps to transform ICT resource

toward organizational outputs. We demonstrated that in order to provide a more action oriented model for SMEs the e-w@tch concept should be extended with measuring the above constructs.

Given the available datasets we used the EU-5 2003 and the 2004 Hungarian SME e-business adaption measurement to specify the resource side and the output side of the European e-business value creation. We found that the resource specifications are rather consistent, and concentrate around six groups of e-business resources: communication, remote access, complex ICTs, operational efficiency, knowledge and content management, and on-line sales resources.

We do hope that further refinements of the e-w@tch model mainly with the inclusion of the concepts of online information capabilities will lead to better understanding of how SMEs create organizational value from their e-business processes.

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# Nvos (Networked Virtual Organisations) and Other Forms of Networks Small and Medium-Sized Enterprises in the “Web” of New Cooperation Forms

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## SUMMARY

*The so called association-based systems are not new-fangled ideas; they have long been known in various economies. Nowadays network-forming is mentioned as a way of successful innovation, moreover, it is often assigned as a crucial condition of staying on the market. Although Hungarian journals have attempted to draw a picture of the benefits of networks for SMEs - as “appetisers” based on the examples of developed market economies - since the 1990s, the interest of Hungarian entrepreneurs has been rather meagre. However, this situation seems to be changing slightly. The indifference of SMEs, especially in the knowledge-based sectors has now been replaced by perceptible interest.*

*This article – focusing on the latter circle of enterprises – seeks to answer the following questions:*

- *What are the realisations and typical motives of the recent interest of SMEs in forming networks?*
- *What are the main goals and advantages of forming networks for SMEs in Hungary?*
- *What type of networks would be the most efficient for this circle (considering the characteristics of domestic enterprises)?*
- *What are the most effective tools and solutions assisting SMEs in becoming acquainted with modern networks and joining them adequately?*

## INTRODUCTION

As mentioned above, systems based on associations have been in existence in different economies for a long while. What has put the issue into the centre of contemporary cooperation of economic organisations in developed economies is the uncountable possibilities offered by information technology. There are several different kinds of networks, but their common characteristic is the small and medium sized entrepreneurial structure. Forming networks among SMEs has recently been described as the basis of successful innovation, yet it is also mentioned as the principal condition of being on the market. Numerous articles, studies and surveys have been published for quite a long time in Hungarian journals which show - as appetisers, mainly through the examples of developed market economies - the advantages of forming networks. However, according to various researches and exact counselling experiences, the interest among domestic enterprises has been little. The main reasons of meagre interest are as follows:

- SME circles’ lack of information about the benefits of networks, and the inadequacy of information provision;
- the unpreparedness of the education system, training and further education (however, the compensatory possibilities of this field could be used efficiently to ease or solve the problems of providing information);
- one of the most serious problems is the financing of network-forming, for which solutions have not been found (not even for longer terms);
- the adaptation of foreign experiences in network building are inadequate, and the special features of domestic SMEs and the characteristics of entrepreneurial culture in Hungary are not always taken into consideration;
- the domestic SMEs’ willingness for innovation is little and the ones which would be ready for innovation do not form a ‘critical majority’ that could influence and encourage the spread of networks.<sup>1</sup>

<sup>1</sup> According to the surveys of GKI-Economic Research Co., from the innovation point of view 75 % of SMEs in the industrial sector are inactive, approximately 22-23 % are innovative, but the proportion of those which actually form, elaborate and implement new ideas are only 2-3 %!

Most hindering factors are connected to the acceptance of the network as a possible way of establishing a system as well as to the insufficiency of network-organisation /see e.g.: (Buzás, 4/2000), (Imre, 2002), (Lengyel, 11/2001), (Lengyel, 2002) and various other researches/. An additional obstacle is the unwillingness of SMEs for innovation (see e.g.: the surveys of GKI and Szakály-led workshop at Miskolc University).

However, this situation seems to be improving nowadays as the indifference of small and medium-sized enterprises has begun to move towards keen interest, particularly among companies operating in the so called knowledge-based sectors (such as information technology, counselling, environmental protection, development of environmental devices, biotechnology, usage of modern, alternative energy sources, etc.).

My study focuses primarily on this circle, examining the possible, effective ways of network-forming.

## THE BACKGROUND OF THE INTEREST OF SME CIRCLES IN HUNGARY AND THE OBJECTIVES OF FORMING NETWORKS

Forming networks has a number of advantages, such as:

- the possibility of obtaining information faster and of internalising 'external' knowledge;
- better chances of enforcing common interests;
- increasing competitiveness to meet the challenges of the global market;
- cooperation on the market, by which larger market share could be gained (regarding supply as well as market segment) and more chance for a possible entry to the international market;
- common R+D (research and development), faster and more efficient innovation (10);
- in certain network forms (clusters) the 'supplier status' becomes more stable more favourably;
- certain multiplicative effects which can contribute to the development and rise of an area or region;
- possibilities to compensate the disadvantages of SMEs deriving from their sizes, etc.

Despite these well-known advantages - as also mentioned in the introduction -, there has hardly been any interest in forming networks among domestic SMEs so far. There have only been a few active networks and clusters which could have been used as good examples.

Recently the interest and demand for networks and their benefits appear to be awakening among SMEs operating in the knowledge-based sectors. Seeing this interest

during our counselling work inspired us to do further research on this topic. According to our empiric surveys<sup>2</sup> from the area of counselling, this newly experienced 'revival' – besides the actual advantages – is connected mainly to three factors:

➤ One of the most significant impulse was Hungary's EU accession and the EU's invitation of applications (with their conditions), most of which only larger consortiums had a chance to win. This fact – not underestimating their possible effects – is merely a formal question rather than an actual content element of a network, if we look at the establishment of consortiums only by themselves.

Moreover, if they are seen as an inevitable 'threshold condition', not a project to be realised in a real integration, it might as well turn into a negative factor along with serious drawbacks. (In case of smaller enterprises it may also become a 'crisis factor'.)

Furthermore, it carries another type of 'danger' with itself. If an unsuccessful application rouses the feeling of failure in the participants of consortiums (for some objective or subjective reasons), the entrepreneurs who are otherwise willing to build networks might become reluctant to cooperate even in longer terms. The typical characteristics of these 'occasional or ad-hoc networks' – even though they only partly belong to the category<sup>3</sup> of so called 'rushed networks' – cannot be disregarded. These characteristics are as follows:

- On the one hand, the participants' lack of competence in forming networks and cooperating within them, since most of them are set up 'forcibly' because certain financial sources can only be obtained this way, rather than building a network from the ground up primarily with the initiatives for solving problems coming from below, and apply for extra sources secondarily.
- On the other hand, the availability of resources providing the basis of long term existence of the networks. In most cases, appropriate own sources are not available, which means that all the money previously won by submitting applications are spent. Consequently, the 'promised' multiplicative effects cannot be realised fully.

To sum up, networks formed only for occasional applications and project proposals should be observed with precaution and decide later whether the gained 'network experiences' have increased the SMEs willingness and abilities for cooperation or not.

<sup>2</sup> We plan to do a more extensive empiric survey among innovative SMEs, of which pre-surveys are currently in progress. The most essential questions of our pre-survey cover the following areas: willingness for forming networks, interest in networks, network preferences, and the most common entrepreneurial attitudes regarding networks.

<sup>3</sup> See their details in (Pikhala at al., 1999), their realisation in (Lengyel, 11/2001) and their systemizations in (Vilmányi, 2002).

➤ The other factor is connected to the unprecedented competition in the knowledge-based sectors. Nowadays there are more and more sectors in which constant renewal and the ability for innovation producing added value are vital conditions. Generally, independent companies (especially smaller ones) are incapable of keeping pace with the requirements of high-speed innovation. At the same time, SMEs operating in the sectors in question have to be able to adjust flexibly to the changes on the market, and develop continuously. This is why their views and strategies need to be altered in such way that they would be able to initiate the required knowledge and skills, capacity for development, know-how and other resources producing added value by means of their connections. For this, such new cooperation forms are required that can mobilise not only the internal but also the external problem-solving skills and creativity. The best tool to realise this appears to be the horizontally built networks integrating various skills and competencies. It is interesting that ‘network logic’ can also influence the operation within participating SMEs. Simply, network cooperation addresses other kinds of organisational and personal competencies and builds upon different things than the usual operation of an SME<sup>4</sup>. It is particularly interesting that the latter – at individual level – strongly needs personal risk-taking abilities, or private relationships while forming knowledge-integrating networks, and also intuition which may be able to answer to questions, such as who to turn to, who to persuade to join the network, etc. In addition, it requires, for instance, the ability of confidence-building between the organisation and its staff as well as flexibility backed by personal responsibility at work which guarantees that it does not turn into laziness or law-standard work.

➤ The third essential factor has been called into being by a new market demand and notion – although in the birth of some networks EU applications have played a significant role – which is likely to make a radical alteration in traditional market views and in organisational operation. This is the model of which can be said most generally that it would not be worth mentioning, not even at theoretical level, if the support and solutions offered by information technology (fast and secure data communication, database softwares which make the operation of a company faster, better arranged and information from both the customers and the suppliers more easily manageable - they could even be operated together -, data mining devices and other support systems backed by expert advisory panels,

etc.) did not make them real and easily accessible on a reasonable price for any enterprise.

The main point of networked virtual organisations (NVOs) is that the mentioned information technology services make it possible to initiate potential customers in articulating demands in such way that the actual needs (including single, individual ones) can be met faster, more accurately and more specifically. Moreover, by eliminating ‘market misunderstandings’, greater added value can be achieved.

It is important to outline two matters related to NVOs. The first is that their realisation could be highly favourable for SMEs in Hungary in order to compensate their disadvantaged situations stemming from their sizes (which seem extremely hard to catch up on, especially after the EU accession).

The unique business and operation model of NVOs differs from the traditional organisations in several ways. In the latter case, customers meet the new products at the first time on the market, whereas according to the NVO model, they can articulate their demands (related to the characteristics of the given product) with active participation before production. Furthermore, entrepreneurial associations set up especially for certain products or services are more flexible, consequently, the apparent market contradictions can be dealt with more easily and adequately in the virtual cooperation of different sized enterprises.

## TYPES OF NETWORKS AND EFFECTIVE SOLUTIONS IN THE VIEW OF THE GENERAL CHARACTERISTICS OF DOMESTIC SME CIRCLES

In actual fact, the names of different network forms are not yet clear. Terms are often mixed up applying networks, clusters, regional association, university ‘knowledge centres’ and innovation centres as synonyms. However, what definitely seems to become clear is that in the systematisation of terms, the following factors have major significance:

- the structure of the network;
- the open or closed character of the network;
- the structure of the participants;
- the geographical area (macro, regional, local networks and/or clusters);
- the contents of the network (marketing, research and development, production, information- and knowledge-sharing, motivating, development-supporting and other networks).

<sup>4</sup> See (Harrison, 2000) for this and similar type of connection-based and knowledge-integrating SME networks and their fascinating characteristics (from a different, interesting point of view).



If we look at any of the above factors, it is obvious that these elements are not separate; therefore it is well worth examining some of the components in details.

➤ The structure of a network can be vertical or horizontal. Vertical networks are usually 'held together' and led by a strong integrator organisation which is surrounded by other companies like a ring. Forming vertical networks is most typical of bigger companies and their supplier circles. However, this network-building form is unsuitable for solving every kind of problems and dealing with certain situations. According to a number of negative experiences, it can be said that networks built from the ground up, based on the equal cooperation of SMEs, e.g. networks specialized in common marketing, do not have good future prospects (especially not in domestic environment) if they are organised vertically. Not even if they find a 'reason' to appoint one organisation which would hold together, manage and coordinate the various tasks.

It is interesting - and unfortunately there are also some bad experiences for this - when the network-forming participants know that the only possible way to set up a common network is to base it on equal participation of their companies, therefore it has to be horizontal. In a network built this way, the indispensable coordinator and organisational tasks are undertaken by one of the participants, however, it is not at all unlikely that after a while this participant loses its neutral coordinator role and creates extra opportunities and benefits for itself, at the cost of the others. Relying upon these findings, it is evident that before building a network, it is advisable to consider which network form would be more favourable and efficient as well as identifying and laying down the principals and rules of operation (and even the values and ethical rules to be followed).

➤ We can also talk about networks and so called clusters on the basis of the structure of the participants and the open or closed character of the network. The table below attempts to show the differences between various types of network organisations by their relevant characteristics.

	<i>Networks</i>	<i>Clusters</i>
Membership	Pre-defined (closed)	Open
Ground of cooperation	Contracts	Social values
Character of cooperation	Based on cooperation	Based on cooperation and rivalry
Cohesion	Common business objectives	Collective vision
Participants	Companies	Companies, institutions, professional organisations

Source: (Szabolcs, 2002)

The above described differences point out that before initiating the building of a network, it is advisable to act circumspectly and think out carefully which network form would suit our objectives from the start. Undoubtedly, - besides the possibilities opening up new perspectives for SMEs - building networks has disadvantages and dangers as well. These negative experiences and unsuccessful beginnings can easily turn the currently forming interest of domestic SMEs to its 'wrong side'. (The entrepreneurs may pull back from the issue in fear of failure.)

➤ The content of a network very often determines the geographic extension as well (Maillat – Perrin, 1990). Obviously, companies within one industrial sector which are hoping to strengthen their market positions and are rivals but at the same time concentrated in the same geographic area can compete with other enterprises with a better chance if they form regional clusters (Lengyel, 2002). Building and operating a so called macro network – which might as well embrace the whole country – have reality only if it can achieve such goals of which regional basis is the whole area of the country and the partnership networks as operational conditions have already been realised.

One of the most excellent examples of a nationwide network system is the so called FIR (France Initiative Réseau) which has been in existence in France since 1998 and of which operation was regulated in 2001. (AFNOR NF X 50-771) FIR is supported by the state but is at the same time an independent network institution. Its aim is to animate small enterprises, support the establishment of more and more enterprises (partly to reduce unemployment), lead existing enterprises towards the road of development and to strengthen declining companies by setting up relevant funds and allocating them to SMEs in preferential forms (interest-free loans). On the one hand, FIR has guarantee licences and on the other hand it represents the participants joining the network.

The moral and financial background of FIR is a strong partnership system, including different ministries (particularly important member is the ministerial secretary of small enterprises), the Chamber of Craftsmen, Regional Centres and Offices, European Social Fund, Association of Depositors and several other large national and international companies and institutions. The latter provide most of the financial funds which are the basis of loans supporting the establishment of preferential enterprises and their animation and revitalisation. The FIR system is operated by the so called PFIL (platform of local initiations). Currently there are 237 active local organisations. The tasks of each local organisation are as follows:

- seek out and call together potential preferential entrepreneurs and guide them towards the partners of PFIL;
- define the needs of candidates (counselling, financial support, etc.), prepare a so called ‘folder’, a document containing the full material of the candidate and its later progress and achievements. The preferential loans have a major role in satisfying financial needs as they make it easier to obtain ordinary bank loans – if they are also needed. (In addition, the whole operation system of PFIL assists in utilizing various other forms of subventions, especially in the case of previously unemployed entrepreneurs.);
- PFIL also provides ‘patronage’ for the candidates, for example with such advisory participation which helps prepare the required materials (e.g.: business plan) for the examination committee defining in it the actual real sources and demands of the entrepreneur. What is also essential is to find a mentor who lives in the same geographic area as the supported candidate and follows the whole project from beginning to end. This is the person who supports the enterprise throughout the project with his/her professional skills and experiences and ‘guarantees’ its successful implementation, increasing the chance of repayment.

## SUMMARY CONCLUSIONS

The most important inference we have drawn from various approaches and from our experiences is that the establishment of networks could be assisted by different kind of public or other tools (e.g.: applications) and be motivated supportively, however, if they are built formally, there is not much hope for their actual operation. The realisation, demand and activity of the participants and initiatives coming from below are essential requirements of the operation of networks.

Furthermore, confidence among participants is also an indispensable element, however it does not replace regulations reinforced by contractual relations within smaller and larger networks (especially in case of NVOs associating only for the production of particular goods). A number of reasons would explain for Hungarian SMEs to be the network ‘front-line fighters’ of the new EU Member States – mainly the size of domestic SMEs which is in several cases unsatisfactory for economical operation (Román, 2002). Although it is indeed questionable how far we are from this, the revival of interest in networks should be noted and appreciated as an encouraging sign. (Despite the fact that the majority of this is still the ‘application networks’, while there are only a few networks aiming for knowledge-integration among SMEs operating in the knowledge-based sectors.) It is true that there are serious attempts to build information-providing and innovation-animating networks and innovation- and knowledge centres (in the latter case these are often the notions of universities of each region), however, initiating local SMEs is rather difficult as the strength of such initiatives coming from below are missing. Nowadays it is well-known that the geographical closeness to these centres is not enough by itself if the participants lack the necessary confidence towards each other. This situation could be dissolved with the assistance of such people (eminent respected experts, researchers, counsellors, etc. with excellent communication skills) who could take the role of a ‘bridge’ between innovation- or knowledge-centres and local SMEs, and set up a base for communication, cooperation and trust among enterprises. According to our experiences, the problem is that there is a considerably great communication gulf between SMEs and innovation- and knowledge-centres and the mentioned bridging role does not seem to be enough to fill this gap as to achieve this, more ‘real bridge-building’ people would be needed.

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# Foreign Direct Investments and Mergers & Acquisitions in Slovakia

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## SUMMARY

*The paper gives answer why Slovakia is so attractive for Foreign Direct Investments. There are discussed economics factors in Slovakia and there are compared with economics factors in some another countries.*

## INTRODUCTION

In Slovakia, an enormous and revolutionary economy - development took place over the last seven years. At the beginning of the nineties, the country seemed to be dependent on the Czech Republic. Meanwhile the capital Bratislava is said to be the most dynamic region of all countries of the CEE region apart from Prague. As a matter of fact Slovakia was disadvantaged at the beginning: In Czechoslovakia a by far larger share of government aid went to the Czech constituent republic. Until 1998 the country was viewed by many with a great deal of caution and the prospect of entry to NATO and the EU was a pipe dream. Today Slovakia is a full member of the EU, NATO, OECD and has been described in the media as being Europe's Best Kept Secret and as a “Crouching Tiger”. The current government is a long way down the path of reform and has made the country an extremely attractive place to do business, with some of the lowest tax rates in Europe and a highly skilled and cost-effective work-force.

Sound macroeconomic policy, assertive product, capital and labour market liberalization, and fundamental tax and welfare reform have transformed the Slovak business environment in recent years. Foreign direct investment (FDI) has responded particularly well, becoming the prime engine of capacity and productivity growth, and helping to put the economy on a strong and well balanced growth path.

Investing in any new location is always a challenge and even the most experienced business people need support and information, together with total confidence in their professional advisers. The main focus of the industrial development was primarily in the energy and commodity intensive areas like metallurgy and defense industry. The country was said to be the armorer of the Warsaw Pact. Approximately 60 percent of companies summarized

under the title of engineering were part of the defense industry.

The share of the servicing industry rose from 33 percent in 1991 to 58,9 percent in 1999 on the back of newly founded small enterprises. The rate declined again at the beginning of 2003 to 32,8 percent. Meanwhile the privately run sector earns almost 90 percent of the Slovakian GDP.

As a result of the slow privatization policy and the limited flow of foreign capital delayed the restructuring emphasis. The input of resources and especially the input of energy of the industrial sector is still substantially higher than the EU average. The restructuring is not finished yet. Although the influx of foreign direct investment (FDI) into Slovakia is lower than its neighbouring countries, the results show that foreign investors have discovered the Slovak Republic and consider this country to be one of the best investment places in Europe.

In 2003 PSA Peugeot Citroen started construction of a plant near Trnava and in 2004 the South Korean car maker Hyundai decided to invest € 700m and the German company Getrag Ford announced the construction of a € 350m transmission plant in the Slovak Republic. Tax reform and cheap labour were cited as the main reasons behind this decision.

The driving force behind such a sharp increase in FDI was primarily the investor friendly policies adopted by the current government of the Slovak Republic. Many instruments and laws have been introduced within the last three years to help foreign investors in Slovakia.

As at 31 December, 2003 the industrial sector accounted for over 37.9 percent of FDI, of which the majority was directed towards automotive components, consumer electronics and precision engineering. Other important sectors were banking and insurance (22,7%), transport, warehousing and communications (10.1%), wholesale and retail trade (11.5%) and production and distribution

of electricity, gas and water (12,0%). FDI inflows have been heavily skewed towards the western regions of the country, which are geographically closer to the rest of the EU, Slovakia's main source of FDI. Bratislava alone absorbed 69.7% of total FDI up to the end of December 2003. The industrial region of Kosice, which ranked second, only accounted for 10.1% of the total FDI inflow. Privatization of the energy utilities (which are based in Bratislava) only widened these regional disparities.

## WHY BECAME SLOVAKIA SO ATTRACTIVE FOR FOREIGN DIRECT INVESTMENTS?

In daily business director of "CONIS Consulting Industrie Service GmbH", (www.conis.at), an Austrian firm with its business - focus on the Mergers & Acquisition field following arguments for Slovakia's attractiveness for FDI and/or M&A's are to be highlighted:

1. Politically stable.
2. EU Member State, EMU membership onwards 2009.
3. 19% investor – friendly flat tax regime.
4. No taxes on corporate dividends.
5. Investment incentive packages (subject to EU rules).
6. Rated by World Bank as one of the 20 most investor friendly countries in the world.
7. Almost the whole of the EU within a radius of 2000 km.
8. 220 million potential customers within a radius of 1000 km.
9. Gateway to the Balkans and another 440m inhabitants.
10. Highly skilled and flexible workforce.
11. Low cost of labour.

12. Liberal labour code.
13. Low cost of living.
14. Wide selection of land available for purchase.
15. Excellent telecommunications infrastructure.
16. Highway network growing steadily.
17. Excellent rail services for both passengers and freight.
18. Trans European water transportation via the River Danube.
19. Direct international air services between Bratislava and many European cities including Brussels, London, Milan, Munich, Paris, Prague, Rome, Warsaw and Zurich.
20. A country of great natural beauty.

The current government has embarked on a future – orientated and challenging program of major economic reforms including to:

- Decrease inflation and government spending to below 3% of GDP in order to meet the Maastricht criteria. Slovakia aims to adopt the Euro in 2009.
- Finish reforms of healthcare and education sectors as well as of public administration systems to reduce financial burden on fiscal spending.
- Improve infrastructure and the business environment to attract high value-added Investments and decrease unemployment.
- Maintain the level of growth of GDP at a constant 5% target (constant prices).

### *Foreign Direct Investment (FDI)*

Slovakia's growing economy has also led to healthy growth in foreign direct Investment (FDI), which reached a year-on-year increase in 2000 – the highest increase among all EU candidate countries.

<i>Indicator</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
FDI (SKK mil)	47 109	58 107	78 568	96 038	177 141	234 396	313 118	346 121
FDI (USD mil)	1 477	1 671	2 128	2 272	3 738	4 836	7 821	10 514

Source: The statistical yearbook of the Slovak Republic; The National Bank of Slovakia

As in 2003 and 2004 the top investor country for private sector was Austria, followed by Czech Republic and the Netherlands.

### *Investment Incentives*

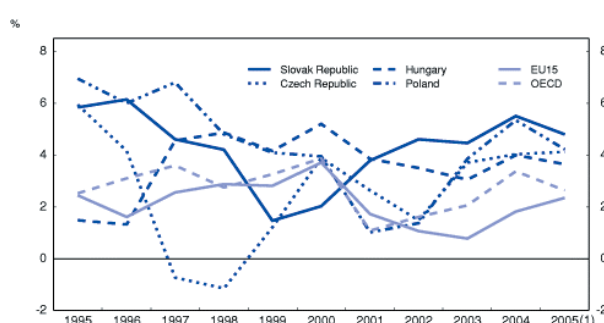
The Slovak Government provides a series of attractive incentives for both foreign and domestic investors. These include an attractive tax credit system, together with cash grants for newly created jobs and for training. Legislation relevant to these incentives includes the Act on State Aid, the Act on Investment Incentives, the Income Tax Act and the Employment Act.

Slovak Investment and Trade Development Agency (SARIO) is the leading implementation agency for FDI support and is a direct competitor to agencies in Hungary, the Czech Republic and Poland. SARIO's activities leading up to an influx of investments will have to be challenged into the following four venues – image making, Investment generation, support for investors and Investment climate improvement. The strategy for FDI is to encourage existing investors to realize their projects with a high level of added value and earn the highest possible Investments volumes with high added value on the part of investor.

## ECONOMIC KEY - FACTORS AND PERSPECTIVES ATTRACTING SLOVAKIA FOR FDI

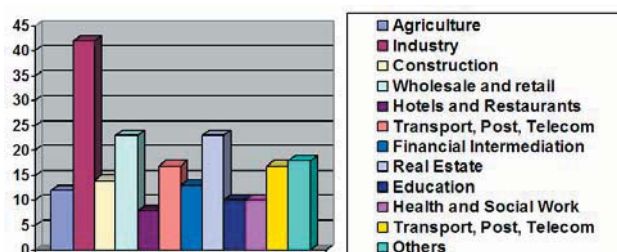
### Economic Growth

Slovakia's gross domestic product (GDP) has been growing steadily, reaching 3.3 per cent in 2001 and projected at 3.6 per cent in 2002. Growing domestic demand has been driving the rise, aided by gains in fixed investment. In 2004 real GDP has reached US\$ 41.1 billion, the GDP growth has reached 5.5% in 2004 and is forecast to rise to 5.8% in 2005. The Nominal GDP per capita has reached US\$ 7.600.



Source: Economic Survey of the Slovak Republic 2005

Figure 1. Slovakia's reforms have contributed to impressive GDP growth rates



Data - Source: Slovak Statistical Office

Figure 2. Gross Domestic Products by economic activities in 2004

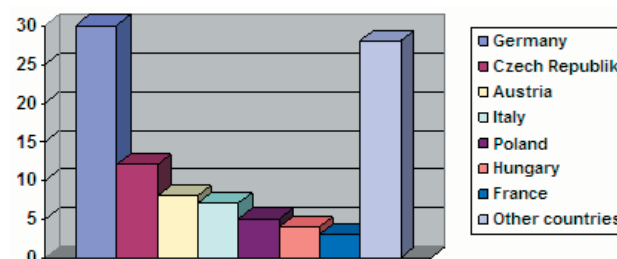
### Export

Slovakia's export earnings continue to grow, particularly to countries in the European Union. In 2001, exports were up 11.3 per cent, year-on-year, 61.7 per cent of which went to the EU. Sectors driving Slovak exports include mechanical engineering, chemicals, pharmaceuticals, rubber and metallurgy.

Besides exports, Slovakia has been increasing its share of imports – by 21 per cent year-on-year in 2001. A big part of this surge was from the import of machinery, electrical appliances and motor vehicles, excluding passenger cars.

Structure of Foreign Trade	2001	2002	2003	2004 (2.Qu)
Import	713,8	747,9	826,7	691,1
Export	610,6	652,0	803,2	686,3
Ballance	-95,9	-103,2	-23,4	4,8

Source: The statistical yearbook of the Slovak Republic; The National Bank of Slovakia



Data - Source: The statistical yearbook of the Slovak Republic; The National Bank of Slovakia

Figure 3. Percentage of Slovak exports

### The Tax Credit System

The tax credit incentive has been fully accepted by the European Union and as a result, Slovakia is currently the only country in the Visegrad - Four that can offer certainty with regard to its tax based incentive package. The Slovak tax credit system provides a benefit of up to 50 per cent of the qualifying expenditure on Investment outside the Bratislava region. In the Bratislava region the benefit can amount to up to 20 per cent of the qualifying expenditure. These tax credits apply for a period of up to 10 years, subject to these regional state aid limits.

### Tax Reform

Great international attention to Slovakia's Tax Reform of 2004 has been paid and as a result, the Tax Reform became the most attractive factor for FDI in Slovakia. The Introduction of a single 19-percent VAT rate has increased prices of all the goods and services. The revision to the VAT law has taken effect in July 2003 due to the introduction of taxation of advance invoices, which would raise state-budget revenues already this year. According to the Finance Ministry, the revision should simplify the mechanism of VAT implementation and boost state-budget revenues from indirect taxes. The introduction of a single VAT rate ease the administrative burden of taxpayers and tax administrators and prevent speculative tricks enabled by the earlier existence of two VAT rates. According to a report about the macroeconomic impact of tax reform elaborated by the Finance Ministry, household consumption has increased by only 1.8 - 2.2 percentage points compared to the originally expected 2.9 percent.

Further to this, the drop in aggregate demand should reduce imports. The Finance Ministry expected that an increase in Investments by 0.3 percentage points to 6.1 percent should partially compensate for the decrease in household consumption. Thus the tax reform has leaved economic growth untouched, while the foreign trade balance has improved. In the medium and long term, reduced income taxes should bolster Investment activities, attract foreign investors to Slovakia, and strengthen productivity of Slovakia's economy. This should have a positive impact on economic growth and rising employment at least until end of the decade.

### *Indirect Taxes*

The Slovak VAT law is valid since 1 May 2004 and is harmonised with the EU Sixth Directive, which is the basic directive for VAT in the EU. The standard rate of value added tax (VAT) in Slovakia is 19%. There is no reduced VAT rate.

The Slovak VAT law obliges recipients (taxable persons) of certain taxable supplies from other EU-member states to self-tax (reverse charge) Slovak VAT on the received taxable supplies. Special VAT rules apply to the acquisition of new means of transport from other EU-member states. Besides VAT returns, a Slovak VAT payer must submit the following reports:

- quarterly EC Sales Lists, if he is supplying goods to other EU countries; and
- Intrastat reports each month, if his acquisitions of goods from other EU countries or supplies of goods to other EU countries exceed certain thresholds.

### *Excise Taxes*

The new Excise Taxes Acts are effective since 1 May 2004 and are fully harmonized with EU legislation. Excise taxes are imposed on categories of goods produced in, delivered to, or imported to the Slovak Republic such as: Mineral oil, Spirits, Beer, Wine, Tobacco products, etc..

The tax rate, tax period, and payment of excise tax depend on the exact nature and quantity of the goods. Excise tax is included in the tax base for calculating VAT. Entities that want to produce, receive or send goods subject to excise tax under a tax-exempt regime (suspension arrangement) must register at the local Customs Office as a warehouse or an authorised receiver. The delivery of goods to Slovakia under a tax-exempt regime must be carried out with accompanying administrative documents. If the company or individual uses tax-exempt goods, it has to apply for a consumption card, on which the purpose for using the goods is recorded.

Cigarettes and alcohol in consumer packaging produced in, or delivered to, the Slovak Republic must be marked with a certified stamp. Slovakia applied for a transitional period for the imposition of excise tax on electrical energy, coal, and natural gas.

### *Income Taxes*

The Slovak income tax law valid as of 1 January 2004 was partially harmonised with the EU legislation and is now fully harmonised since 1 January 2005.

#### *Personal Income Tax*

The Slovak personal income tax rate is 19%. The following incomes are subject to personal income tax: employment income; income from business activities, other self employment, and rent; income from capital property; and other income. Slovak tax residents are taxed in Slovakia on their worldwide income. Slovak tax residents include individuals with permanent Slovak residence, as well as those who stay in Slovakia for 183 days or more in a calendar year. Non-residents are subject to Slovak personal tax on their Slovak-source income only.

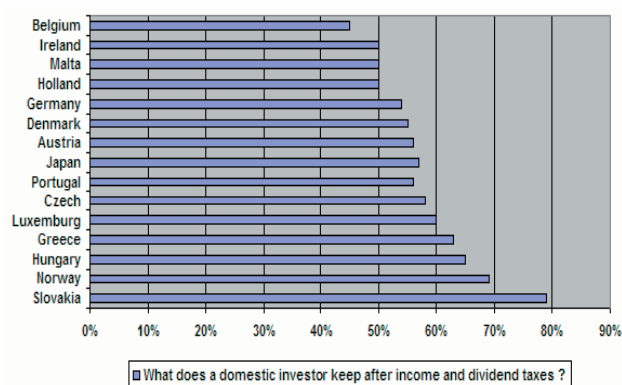
#### *Corporate Income Tax*

Slovakia has the best tax regime in the region for investors, there is no Tax on Dividends. The corporate tax rate in Slovakia is 19%. The following entities are subject to Slovak corporate income tax: A company that is treated as a Slovak tax resident (if it is incorporated, or has its place of management in Slovakia). Resident companies are subject to Slovak tax on their worldwide income, subject to double taxation treaty relief. The provisions of double taxation treaties may take precedence over the Income Taxes Act. Slovak tax-non residents are generally taxed on Slovak-source income only, subject to Double Taxation Treaty relief. Since 2004, it is possible for a Slovak entity to have a taxable period different from the calendar year. Distribution of 2004 and onwards profits are not subject to Slovak taxation.

*Table 2. Corporate Taxation (in %)*

	<i>Corporate ITR (2004)</i>	<i>Effective ITR (2006)</i>	<i>Tax on Dividends</i>
Slovakia	19.0	16.8	00.0
Hungary	16.0	14.0	20.0
Poland	19.0	17.5	20.0
Czech Republic	28.0	17.1	15.0
Germany	26.5	36.0	23.5

Data Source: EU-statistics ([www.EUstatistics.net](http://www.EUstatistics.net)), modified by the authors

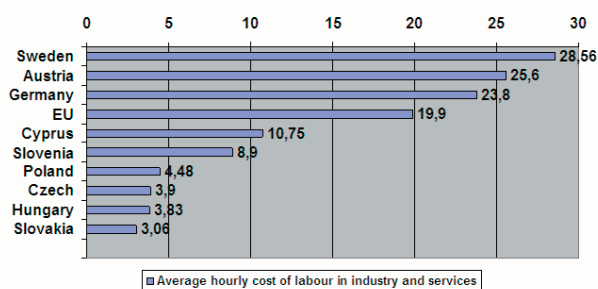


Data Source: EU-statistics (www.EUstatistics.net), modified by the authors

Figure 3. A comparison with other countries shows the attractiveness of the Tax - Regime ...

### Low Labour Cost

At identical productivity rate, labour in Slovakia is ca. 30% cheaper than in Czech Republic, Hungary and Poland and approx. 6.5 times lower than in much of Western Europe.



Data Source: EU-statistics (www.EUstatistics.net), modified by the authors

Figure 4. Average hourly cost of labour in industry and services

Average Monthly wages	2001	2002	2003	2004
In SKK	12 365	13 511	14 365	15 472

Source: Slovak Ministry of Labour, Family and Social Affairs

### Social Benefits

Employers are required to contribute a minimum of 0.6% of gross monthly salary to a separate company bank account on behalf of their employees. The purposes for which payments from the Social Fund can be made are explicitly specified by law, e.g.; employees' rest and recuperation, subsidy on commuting etc. Both the employer and the employee are required to contribute to the social and health security systems. According to the Slovak social health care security system, an individual pays contributions to the social security and health care system. The rate is determined by Slovak domestic law, the rate in the table is effective since July 1, 2005), from 1. January 2007, this amount shall vary from 0.3% to

2.1% according to endanger to employee's health, current rates are shown in the table below:

Table 3. Contributions and social fund

Insurances and funds	Min. comp. base in SKK	Max. comp. base in SKK	Employee in %	Employer in %
Retirement insurance	6,500	43,095	4.0	14.0
Disability insurance	6,500	43,095	3.0	3.0
Sick leave insurance	6,500	21,548	1.4	1.4
Unemployment insurance	6,500	43,095	1.0	1.0
Contribution into Reserve fund SIC	6,500	43,095	0.0	4.75
Guaranty insurance	6,500	43,095	0.0	0.25
Injury insurance	No limit	No limit	0.0	0.8
Health care insurance	6,500	43,095	4.0	10.0
<b>TOTAL in %</b>			<b>13.4</b>	<b>35.2</b>

Source: Slovak Ministry of Labour, Family and Social Affairs

Table 4. Sick leave

Period of Absence	Paid by Employer	Paid by Social Insurance
Days 1 to 3	25% of salary	-
Days 4 to 10	55% of salary	-
Day 11 onwards	-	55% of salary

Source: Ministry of Labour, Family and Social Affairs

### Labour Market

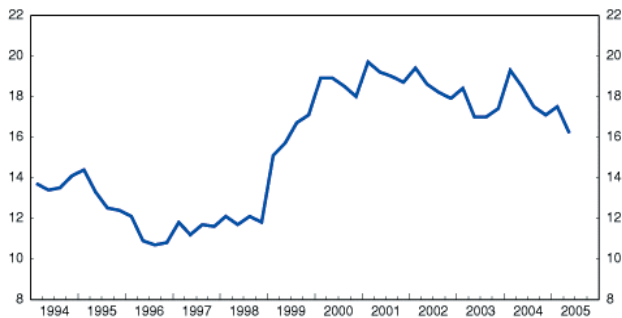
The key law governing employment is the Labour Code. Under this code, all employers in the Slovak Republic are obliged to conclude written employment contracts with their employees. The employment contract usually covers matters such as the name of positions salary and the length of the trial period (up to three months). Employment contracts can be for limited or unlimited periods. The maximum working time in one week is 40 hours. Employees may not work more than 8 hours overtime per week, with maximum of 150 hours per annum. Remuneration for overtime may consist of granting additional time off or the payment of additional wages. The minimum annual holiday is four weeks. Any employee who has worked for 15 years or more is entitled to five-weeks annual holiday. The labour code also specifies the time of maternity leave, which is 28 weeks.

Table 5. Unemployment

Unemployment rate	2001	2002	2003	2004 (2. Quarter)
	19,2	19,4	17,4	18,5

Source: Slovak Statistical Office





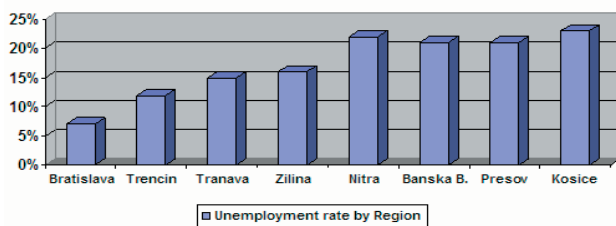
Source: Slovak Statistical Office

Figure 5. Unemployment in Slovakia as per cent of labour force

Unemployment has begun to fall, but remains still very high

### Unemployment Rate by Region

Slovakia is a country with enormous regional differences. In the Bratislava region the average income is more than double of Slovakian average salary. Where as the unemployment rate in the capital is below 5%, it is more than 30% in the structurally weak areas in the Carpathians in the east of the country.



Source: Slovak Statistical Office

### Investment Stimuli Legislation

Slovakia has specific Investment stimuli legislation which provides for both tax incentives in the form of a tax holiday for up to 10 years and labour subsidies. The latter are connected with the creation of new jobs and to the training of employees.

The general conditions for Investment stimuli under this legislation are:

Establishment of a new plant or modernization or extension of an existing plant to be used for the production of goods or provision of services; Investment of at least SKK 400 million in assets (of which at least SKK 200 million must come from the founders' equity) or SKK 200 million (with SKK 100 million founders equity) when the company is domiciled in a region with an unemployment rate exceeding 10%;

The Investment must be made and relevant activity must commence within three years after the final decision on Investment qualification is issued; At least 80% of the sales of the company are sales from activities stated in the Investment plan; A confirmation of the Slovak Government is required.

It should be stressed that:

- There are many additional detailed provisions and exceptions which need to be taken into account.
- There is no automatic entitlement to (tax) incentives or other grants under this legislation in the Slovak Republic: All incentives need to be agreed with the Slovak Government and have to be formally applied for;
- All incentives are subject to limits set by EU law and must be approved by the EU;

It should also be noted that Slovak law and practice in this area has changed frequently in the past and is expected to change again in the future since draft legislation has already been prepared for a new Investment Stimuli Act. The final version of this new Act is not yet known but it is anticipated that incentives will continue to be discretionary and will be allowed in the form of corporate income tax relief (for a limited period), transfer of land at prices below market value, cash grants for acquisition of fixed tangible assets and intangible property; cash grants for education and training of employees and for the creation of new jobs.

### Inflation

Inflation in Slovakia has recently been at low levels, hitting 2.7 per cent in spring 2002, which has contributed to a growth in domestic demand. Although this figure was down from 2001 inflation of 7.1 per cent, the National Bank of Slovakia expects the present rate to stabilize at around 4.2 per cent by 2005.

## CONCLUSIONS

Slovakia's impressive reform program has accelerated the catching-up process and brought Euro area accession within reach.

Slovakia's combination of sound macroeconomic policies, comprehensive tax and social welfare reform, and new regulations for the product, capital and labour markets, has resulted in an acceleration of growth over the past five years and has increased the pace with which Slovakia is catching up to the living standards of wealthier nations. The coherence and consistency of the reforms, together with EU membership, has helped to convince large multi-national corporations that the Slovak economy is an attractive investment destination.

The penetration of foreign direct investment (FDI) has been high, with business investment particularly in the export-oriented manufacturing sector becoming the prime engine of capacity and output growth. FDI has brought with it new technology and better business practices, many of which have now trickled down to domestic firms who have been forced to compete in the more dynamic business environment. Indeed, productivity gains have been most notable in those

sectors that have seen significant FDI inflows and in those where competition is strongest.

At the same time, interest rates, inflation, and the public deficit have been converging to European Union benchmarks, further enhancing the credibility of the reform agenda and increasingly facilitating the access of smaller firms to credit. Thanks to a robust increase in potential output, strong export and domestic demand over the past two years have faced no major supply constraints and the economy has remained on a balanced growth path of around 5% per year. Looking ahead, however, the extent of excess capacity in the economy is diminishing, suggesting possible risks for inflation.

Slovakia's introduction of a flat tax as part of wider economic reforms Slovakia's fundamental tax reform of 2004 considerably improved the simplicity and efficiency of the tax system by eliminating exemptions and special regimes and setting the rates for the personal income tax (PIT), the corporate income tax (CIT) and the value added tax (VAT) all equal to 19%.

This paper overviews also the impact of this reform in the context of Slovakia's wider package of economic reforms. With respect to economic efficiency, the two key conclusions are as follows:

First, the reforms are expected to improve both the level and efficiency of capital investment in Slovakia –

although further improvements could be made by eliminating the double taxation on projects financed by retained profits.

Second, the combination of the tax and social benefit reforms has enhanced the incentives for unemployed workers to seek work, which should result in higher labour supply. Labour demand should also have increased, thanks to the more flexible labour market. However, as overall taxes on labour remain high, labour demand for very low skilled workers may not pick up without further reforms to reduce the cost of employing such workers.

With respect to equity considerations the assessment is less clear cut. On the one hand the flat personal income tax has benefited both low income earners and very high earners, particularly those with families, while middle-income earners, particularly single earners appear to be somewhat worse off. The increase in VAT and the welfare reform also have distributive effects. The net result of these reforms has been a significant cut in the real incomes of social beneficiaries who are not working. On the other hand, by raising labour productivity and reducing structural unemployment the reforms have the potential to benefit the low-skilled population also – provided other public policies are in place to facilitate this outcome.

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# Quality Management in Public Service

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## SUMMARY

*Nowadays the efficient use of quality management systems and methods is becoming an important requirement in the institutions operating in the field of public services. The article deals with some elements of the quality efforts in public health, public administration and higher education. My aim is to give an overview of the most important features and operational pieces of experience of quality management systems in the public services in order to make the institutions of these sectors able to adapt those quality management approaches, systems and methods which meet the requirements of their clients and of the organization.*

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## INTRODUCTION

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During the recent decades, raising quality to a strategic level has become an essential condition of successful operation in every field of the economy. No production or service organization can avoid applying quality management tools and methods on a system level. These systems have developed parallel with the change of the concept of quality and partly this change may have forced the evolution and application of various quality approaches and systems. (Topár, 2001)

What is called quality? There are numerous different definitions of quality; however, pointing out its essence, we can say that quality means meeting all expressed or latent demands of a client (customer, partner). According to this definition, in essence, the number of various demands arising against services is the same as the number of your partners or clients. (Tenner – De Toro, 2005)

To meet specific unique client demands, of course, a part of public service institutions must consider the fact when creating their quality management systems that the majority of institutions fulfill authority functions. In these cases, legal background and client demands do not always fully comply. Of course, more extensive customer demands stipulated by the law have priority in these cases; these are the ones specified by the creator of the law.

Talking about quality matters of public service, you must not forget that basic quality management methods and techniques have evolved in connection with industry production. Creating or developing your quality management systems, good results can be usually reached with proper adaptation of these methods and considering the special features of the applying sector and organization when applying them.

The efficient application of modern quality management systems and methods is a critical requirement also in case of public service institutions. (Dudás, 2002)

As far as the work of these organizations is regarded, the focus has been moving from fulfilling official functions to service functions. Anyhow, the features of official authority processes today also include service approach and consulting, professional analyzing, after all, supporting activities, as this means supporting the work of the clientele and reaching client satisfaction, i.e. quality. (Topár, 2002)

In the following, I summarize the efforts of some public service sectors relating to quality management system development and their experience. The detailed analysis of these fields is far beyond the scope of this article so I intend to cover some elements of the quality efforts of healthcare, public administration and higher education in the following.

## QUALITY IN HEALTHCARE

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No healthcare system can afford to disregard quality. Quality in healthcare has come into the focus of the public, healthcare professionals, managers, decision makers of healthcare politics and subsidizers.

Limited sources, changing medical and nursing practice as well as the evolution of management function have resulted in a situation where, with the available sources and circumstances, a widespread acceptance of quality management systems and quality approach is required to reach maximum results in the field of improving the state of health of the population.

The Healthcare Act stipulates that all healthcare institutions shall conduct various activities relating to improving quality. However, it is not specified what quality system shall exactly be operated in practice, what specific processes shall be developed, what structure,

process or outcome indicators shall be formed or used, or how to measure and interpret the quality of medical attendance using these indicators.

Quality assurance in healthcare makes healthcare objectives and expectations explicit, analyses the current situation and introduces required amendments. For that very reason, it is a continuous operation, analysis and improvement process. It still remains a problem that the concepts of 'health' and 'disease' is often subjective and difficult to specify. However, it is possible in many cases and quality assurance activities can help in setting objectives and criteria systematically. It is very interesting to see that quality assurance in healthcare experiences the same evolutionary process as it occurred in the field of industry. Following the period of handling complaints and 'output control', currently the processes of healthcare services and the duties of all healthcare workers relating to quality medical attendance get more attention. The application of various systems meeting these requirements has started recently in healthcare attendance system.

After a decision regarding the necessity of a compatible strategic development of quality is made in the specific healthcare institution, the next question is how to start this in an organized form. Usually the first question arising is whether applying the certification against the ISO 9000:2000 standard system or based on the EFQM Model for Business Excellence or maybe based on the Hospital Accreditation Standards (HAS) would be appropriate in respect of the institution.

Institutions should choose the model or method that:

- meets the patients' needs (demands) in the specific field of attendance;
- ensures the obligatory quality level (minimum requirements) stipulated by law in the healthcare institutions;
- supports the institution both in the short and long run to reach the expected (owners, subsidizers, healthcare politics, national and local politics) quality level (or to exceed it to a degree required by the competition and other factors);
- promotes to accomplish aims set by the management and the employees (mission and vision).

This means that the appropriate system that should be selected supports the strategic aims of the institution to the maximum degree; specifically, it supports a critical part of those: the long-term quality policy of the institution.

### *The ISO 9000 Standard System in Healthcare*

The guidelines helping the introduction of quality management systems complying with the ISO 9000 standard system in healthcare were published by ISO in September 2001: „IWA 1, Quality management Systems – Guidelines for Process Improvements in Service Organizations”. (Gulácsi, 2000)

IWA 1 Guidelines are based on the ISO 9004:2000 system and contain a major part of its text, expanded by a direction regarding application in healthcare. The aim of the development of guidelines was not the certification or accreditation but to help the introduction and application of the specific system. (Similarly, the ISO 9004:2000 standard also helps application and does not serve certification.) The institutions can be certified according to the general requirements set forth in the ISO 9001 standard.

In Hungary, a guideline has been developed for the application of the MSZ EN ISO 9001:2001 quality system in healthcare service organizations with the coordination of the Ministry of Healthcare, Social and Family Affairs. This guideline consists of an explanation relating to the standards and a guiding part supporting their application.

### *EFQM Model for Business Excellence*

The European Model for Business Excellence was introduced by the European Foundation for Quality Management (EFQM) after the model of Malcolm Baldrige Model in 1991. The model was designed to serve as the framework of organization self-assessment and awarding the European Quality Award. The mission of EFQM is the following: spreading the philosophy of Total Quality Management (TQM) in business practice and in the communication of companies with their partners.

The improvement of EFQM model has made it possible also for other entities than the companies of business sector to join the organization. As of 1999, the model has a new name lacking the former “business” attribute: EFQM Excellence Model. Several public service organizations attempted to implement the EFQM model in the 90's but they faced difficulties especially in the field of education and healthcare. In 1994, EFQM established the Public Sector Steering Group (PSSG) that has drawn up a Public Sector Guideline promoting the application of the model for organizations operating in the three major segments of the public service sector (education, healthcare and public administration). There is already a possibility for applying for the European Quality Award in the public service category. (Gulácsi, 2000)

The EFQM model consists of two equally important parts: 'Enablers' and 'Results' containing 9 main criteria and 32 subcriteria (Figure 1). The field of 'Enablers' covers 24 subcriteria enabling organizations to assess the process and method of approaching and solving tasks/problems (Approach) and the way of application broken down to specific tasks (Deployment). 'Results' defined by 8 subcriteria requires an objective assessment based on facts and makes the comparison with other organizations possible. Within the 'Results' section, excellence of the results and coverage of the application are assessed.

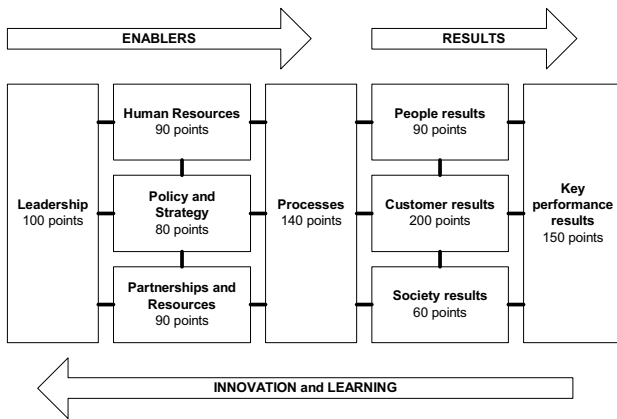


Figure 1. EFQM Excellence Model

In Hungary, the healthcare adaptation of the EFQM model is in progress. So far, the Healthcare Quality Awards based on the EFQM model have not been announced in Hungary yet.

### *Accreditation Based on Hospital Standards (Gulácsi, 2000)*

The history of quality improvement based on standards started with the establishment of the US accreditation organization operating as a government organ in effect (Joint Commission on Accreditation of Healthcare Organisations, JCAHO) and the independent Canadian accreditations center (Canadian Council on Health Services Accreditation, CCHSA) in 1951. These two countries have been followed by numerous other ones. Standards are statements/declarations with professional bases describing the 'state of the art', planned, envisioned state of the organization intended to reach. They demonstrate the way experts imagine the operation of a healthcare institution.

Comparing the accreditation systems, there are significant similarities and differences in the field of operation and objectives. However, all accreditation systems have the following common features:

- an officially recognized organization establishes standards and publishes them; conducts on-site assessment in healthcare institutions and announces its decisions,
- standards are created and the results of the on-site assessment are evaluated by fraternal agreement of the experts,
- they focus on continuous quality improvement instead of control.

There are considerable differences between accreditation systems as well. The most important ones are the following:

- accreditation can be voluntary or obligatory,
- standards can be minimum versus optimal ones,

- accreditation can be subsidized by the government or by other entities,
- the systems can be independent or under control of a government organization,
- there are differences regarding the frequency of on-site assessment and
- the role of consultation,
- there are also major differences between the accreditation systems regarding how detailed the published results are.

In the recent years, healthcare institutions in Hungary have also received the Hospital Accreditation Standards (HAS). These standards draw up the requirements towards the applying institutions in a rather general form, suggesting values in the following next chapters:

1. Admission and discharge of patients
2. Examining patients
3. Medical attendance
4. Patients' rights, providing information and education
5. Quality improvement
6. Leadership
7. Human resources management
8. Operation and safety of buildings and equipments

The published Hospital Accreditation Standards draw up general requirements concerning the above fields; these requirements then serve as a base for institutions specifying the directions and requirements of their own systems. Essentially, a reasonable compliance with HAS provisions moves the applying organization towards TQM. Application of HAS provisions is not obligatory. (Topár-Gulácsi, 2002)

### *Healing Based on Evidence*

Medical activity today could not be conceivable without the proper usage of reliable scientific facts. The primary sources of information for scientific evidence are well-planned and conducted randomized controlled clinical trials (RCT). During RCT-s, participants are selected and classified randomly. Usually, there is a therapy and a control group formed and these groups are compared in terms of the treatment in question and the outcome. Randomizing ensures that the factors affecting the outcome of the therapy be divided nearly evenly between the therapy and control groups and so it helps avoiding that these factors influence the judgment of the examined therapeutic effect. However, the sources of scientific facts are much more diverse than this. The concept of healing with scientific basis is vaguer though; it includes the best scientific facts available, the patients' preferences and the doctors' professional experience. All decisions on therapies or other treatments are made based on these three components.

## QUALITY MANAGEMENT IN PUBLIC ADMINISTRATION

Basically, also the institutions of public administration choose between two ways in Hungary. A part of them steps towards a quality management system complying with the requirements of the ISO 9001:2000 standard. Other institutions consider the application of TQM leadership philosophy efficient. As public administration is controlled (in some cases, overcontrolled) by acts, decrees and statutes, in my opinion, complying with the requirements of ISO 9001:2000 is only reasonable if this appears also as a tool of “making order”. To establish a client-focused operation, I would suggest the application of TQM leadership philosophy for the organizations concerned. [4] A tool designed for measuring the results reached during the application of TQM leadership philosophy and defining the development tasks for public administration organizations is the Common Assessment Framework (CAF). The essence of the CAF system is summarized in the following.

### *Common Assessment Framework (CAF)*

The CAF system was established for the field of public administration based on the EFQM model. The unified European assessment framework was created and later improved using the criteria of the EFQM model, taking into consideration the special features of public administration and simplifying the criteria. The creators of CAF also emphasize that their aim was making the principles and methods of TQM applicable and promoting the assessment of the application in the field of the public administration. CAF may not be deemed an individual quality management system approach; instead, it is a special assessment tool that endeavors to move the values of the applying organizations’ quality management systems towards the TQM leadership philosophy, considering the special duties and values appearing in public administration organizations.

Joining the self-assessment system recommended by CAF is voluntary. It is not obligatory to use it in public administration institutions in Hungary either. Following the establishment of a proper quality culture base, however, it is able to considerably support setting the organization’s objectives and creating the system of tools required for reaching those aims; furthermore it ensures the basis of a continuous improvement. The application of the CAF system and comparison of the results helps starting the process of benchmarking, learning from each other as well as in efficient implementation.

The criteria of the CAF system have been developed according to the specific features of the sector and are presented in Figure 2:

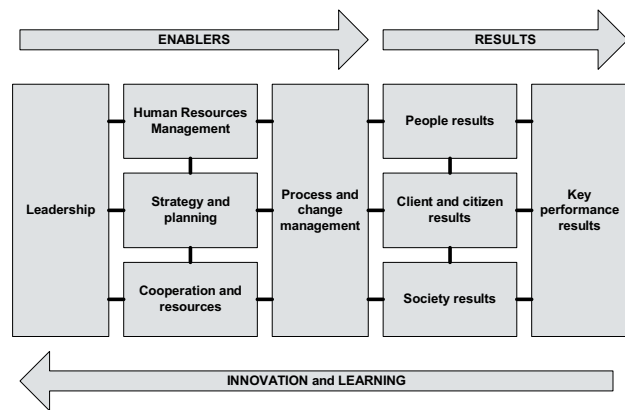


Figure 2. The criteria of the CAF system

All main and subcriteria for enablers and results expressly take the specific features of public administration into account.

The CAF system as a tool is efficiently applicable for the improvement of the quality management systems of institutions and organizations holding an ISO 9001 certification and for supporting the work of organizations endeavoring to establish TQM values.

### *Quality Improvement Experience in Public Administration*

Recently I have had the possibility to examine in detail the results and experience of 52 public administration organizations in the field of quality improvement. All institutions examined were granted government subsidy for the improvement of their quality management systems. The staff number in these 52 organizations varies as follows:

- up to 20 employees            10 organizations,
- 20-100 employees            19 organizations,
- over 100 employees        17 organizations
- associations                    6 organizations.

The quality improvement process was assessed based on on-site interviews as well as written documents and self-assessment of the organization. In the following I only intend to point out some of the major findings.

Out of the 52 surveyed organizations, 9 ones have developed ISO 9001:2000 systems; 38 of them have developed CAF self-assessment systems and 5 of them have applied some other quality improvement method during the past two years.

In case of small organizations, only the CAF self-assessment model has been used as a quality improvement tool. This method is actually the one that can support the work of these organizations the best. To efficiently implement this task, the online system of the Ministry of the Interior provides considerable support. It is regrettable that these entities did not use the special implementation tools and methods upon application of the CAF system. For these organizations, an informal conversation based on the assessment results and the development of values and attitude may be a significant

drive in improvement and cooperation processes. At the same time, in case of an organization with autocratic leadership, it might be impossible to make use of the results, or even to conduct an objective self-assessment.

It is completely unfounded from a professional aspect that, based on the results of the application of the CAF system, some organizations came to the founding that the development of a system in accordance with ISO 9001 means the future. In my opinion this is not the way of development for an organization of this size.

In case of medium and large sized organizations, beside unique results, it has to be noted that the reports and data of county public administration bureaus present a high-level CAF self-assessment project. This must be explained by the fact that the application of CAF and other quality improvement tools has had a tradition with leaders and employees of public administration bureaus already in the recent years.

In case of medium and large sized organizations the number/ratio of those participating in the assessment was defined rather timidly (in a low key). Undoubtedly, it requires hard work from the participants but their commitment to quality grows together with the number of participants (if it is done well) and it is worth exploiting this.

In the execution of the aims drawn up in the tender, consultants played a too dominant role in some organizations. Consulting organizations are interested in selling their materials and methods as widely as possible. As a result of this as well, only formal solutions came to light instead of establishing actual leadership commitment. It gives food for thought that the quality management knowledge of some leaders is insufficient; in many cases, it shows substantial mistakes.

The application of CAF self-assessment was usually preceded by training. It is a general feature that the training was focused only on the employees participating in the assessment. From the aspect of developing quality attitude, it is much more efficient if the training involves all members of the staff.

## QUALITY MANAGEMENT IN HIGHER EDUCATION

Higher education institutions have started applying elements of quality management systems systematically during the past decade. Similarly to other sectors of public service, complying with the law is also typical for higher education institutions, which is ensured as an external quality system by the Hungarian Accreditation Committee (HAC; Magyar Akkreditációs Bizottság, MAB). At the same time, requirements drawn up by HAC include the demand that a quality assurance system should operate also within the institutions, enabling the continuous improvement of institution processes.

Quality management systems developed according to the ISO 9001:2000 standards can also be found in higher

education institutions, but in a smaller percentage as in other fields of public service.

In my personal opinion, such a system should be developed primarily in institutions where the development and harmonization of processes requires operating a formalized subsystem. I have seen positive results of the system operating during the efficient implementation of institutional integration efforts.

At the same time, in my professional opinion, the majority of the main and supporting processes typical for higher education institutions as well as the specific features of these institutions give the grounds rather for establishing and operating an own institution's quality assurance system taking the principles of TQM leadership philosophy into account. Only the commitment of the leadership (on all levels of the higher education institution) can ensure the high-level operation expected from the institutions by "customers" or partners.

A self-assessment system based on the TQM principles makes it possible to define strengths and fields ready for improvement on all leadership levels and, as a result, to carry out continuous improvement in higher education.

Any self-assessment model may be suitable for this though, but it will work efficiently only if the values of the self-assessment are adapted to the specific features of the institution.

Upon establishing this self-assessment culture, the system of criteria drawn up in the Accreditation Guide of HAC (MAB, 2005) can be of assistance, offering a usable framework for the assessment of the institution's (faculty's) potentials and the operating results.

## SUMMARY

Giving an overview of the main features and some operational experience of the quality management systems applied in public service, I intend to promote that, in order to improve their work and make it more efficient, the institutions of these sectors can select a quality management approach, a system and the relating quality management methods fitting well to the demands of their clientele and to the features of their organization. Getting an overview of these systems is reasonable also because, according to my experience, the application of quality systems complying with the ISO 9000 standard system has become too widespread with Hungarian businesses, institutions and enterprises in the past decade. Though I admit the advantages of the application of this system, I still believe that it is the TQM leadership philosophy and quality award models designed to assess the successful application of this philosophy, primarily the consistent application of the EFQM model for example, or its version specifically developed for public administration, the CAF system that would efficiently support the execution of the long-term tasks of public administration among others.

I would like to make it absolutely clear that, in my view, spreading quality culture and developing an attitude required for the efficient application of quality management systems is a process that cannot be implemented rapidly. It cannot be implemented efficiently without the commitment of the leaders. In many cases, ordering the obligatory application of different quality management systems (e.g. HACCP) does more harm in forming the quality approach of a specific institution than good. Due to the fact that they are obligatory, they often move the organization applying a formalized quality management system and its employees towards unreasonable and formal solutions. And this can become a significant obstacle to developing a long-term quality approach.

The EFQM model can be a widely used tool in the improvement of quality management systems of public service institutions.

At the same time, quality award models in themselves cannot be used efficiently for the improvement of quality management systems, or to be more precise, the

organization's business processes. It is not a good approach if you only wish to meet the criteria. This does not result – or results only in exceptional cases – in the development of a system representing unified values. As a first step, you have to create the bases of TQM and only then you can use the models to define your strengths, weaknesses and, based on this, the fields to be improved.

I am convinced that also in the field of public service there are as many good solutions as institutions. There are no general solutions applicable for every organization. Efficiently applicable quality management philosophies, models and methods always have to be selected taking the organization's organizational culture and conditions as well as its tasks into consideration. The leader of the organization has a key role in this; without leadership commitment you can only operate formal quality management systems that do not support real solutions. This cannot be your aim. You have countless optional solutions. You can do a lot of things expect one: neglecting quality and disregarding the demands of your clients and internal customers.

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