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SUSTAINABLE COMPETITIVENESS OF SLOVENIA AND THE CHALLENGE OF EUROPEAN INTERNAL MARKET

The European internal market has forced the EU countries to increase their competitiveness. Macroeconomic determinants are now more similar among countries. From this point of view Slovenia and also other new member countries will need to put a lot of attention on competitiveness, while they would like to benefit from the European internal market. Competitiveness evaluation is done by selected determinants: domestic economy and internationalization, government and public administration, financial markets, management, infrastructure, science and technology and human capital. The prosperity of countries is associated with their ability to generate or attract economic activities which are able to increase income by performing well on the market. The catch-up of Slovenia with the EU countries in terms of welfare and economic growth is associated with the application of new technology and knowledge and with the creation of a sustainable economy. In this article the characteristics of the Slovenian economy as a new member country are also reviewed.

1. DEVELOPMENT OF THE CONCEPT OF NATIONAL COMPETITIVENESS

In this article we will show how the concept of sustainable development contributes to the measuring of national competitiveness. Analitical measuring of national competitiveness by determinants is very important, because they are the keys for balancing governmental policies. The first hypothesis is that a system of indicators shows us the strengths and weaknesses in national competitiveness. Because the high national competitiveness is not a result of entrepreneurship possibilities, but also the balanced governmental and regional policies, the analysing of national competitiveness must be done using different factors. The second hypothesis is that evaluation of competitiveness is a good basis for national strategies and policies. Both competitiveness reports (IMD and WEF) are important from the view of creation of strategy of economic development, which can be seen from the national strategy "Slovenia in the new Decade: Sustainability, Competitiveness, Membership in the EU.

In this article we will show the Slovenian position by different competitiveness determinants. We will compare Slovenia's position with some new EU member countries and also with old European member countries. On the EU level some determinants of macro components of competitiveness (Acquis Communautaire, macro stability, institutional quality) became more similar. The Slovenian economy can reach some progress, if some changes will occour on the micro level. In the first chapter we will be showing the development of the concept of competitiveness and the new views on competition. IMD and WEF reports include the questionnaires and they give us a qualitative and long term competitiveness picture which is fine

from the view of sustainable development. The third hypothesis is that questionnaire indicators give us a more qualitative picture of competitiveness that is closed to sustainable development concept. In the second chapter we focus on sustainable competitiveness as a new concept of the European Union. Governments emphasize national competitiveness, which is common not only for Least Developed Countries, but also for governments of industrialized countries, that put a lot of attention on losing of industrial leadership. Today the concept of national competitiveness is the legal basis for the creation of governmental policies. Competitiveness of the states depends on selecting the right strategies and policies on entrepreneurship and also on governmental level. Main governments put a lot of attention on ranks of countries by WEF competitiveness report or IMD competitiveness yearbook. Yearly competitiveness reports are the basis for the creation of development strategies. The key roles of the government are in the fields of education and science & technology. The nation is competitive if the enterprises interact in industries, and have a high added value which can be sustained in the long run.

2. SUSTAINABLE COMPETITIVENESS AS A NEW CONCEPT OF EUROPEAN UNION

The economic strategy of the EU was put forward in the Lisbon strategy, namely that the EU will became by 2010 the most modern and most competitive economy in the world. The EU will liberalize the markets and by the process of privatization, encourage the commercial sector and give more money for science and technology. The European Union's prosperity is based on its capacity to compete in the global market. For this reason, we need to measure and study our economy's position in terms of competitiveness. Governmental policies must concentrate on the creation of business environment for enterprises and for macroeconomic and social stability, while the risk of external influeces must be minimised. Governments must be adaptive on accepting the economic policies which take into account the changed international environment. A well developed infrastructure has to support the activities, while also protecting environment and cultural heritage. Competitive products show the management efficiency, the long term orientation, ability for accepting changes in competitive environment and the level of integration of entrepreneurship knowledge in different economic activities. Science capacities add to competitiveness. Also well educated labour force with the system of value has got an influence on competitiveness. Strucure of economy, internatioalization, financial markets, management, science & technology, environmental protection, infrastructure, human capital and government are the determinants of national competitiveness. If the countries can go step in the step with the productivity of main competitors, some results can be seen at incomes level. The modern countries are oriented on the new development paradigm. The concept of sustainable development brings the long term view on competitiveness determinants. Important determinants for policy makers are: start up conditions, quality of government, local suppliers, innovativeness, transfer of technology, red tape, intensivity of competition and cluster development. For governments it is important to see the correlations among determinants.

Table 1: Correlations among determinants of competitiveness

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. start up conditions		0,285	0,776	0,800	0,358	0,078	0,406	0,515	0,770	0,758	0,758
2. quality of government	0,285		0,636	0,600	0,285	0,600	0,685	-0,248	0,564	0,479	0,479
3. local suppliers	0,776	0,636		0,842	0,394	0,515	0,588	0,455	0,709	0,939	0,636
4. innovativeness	0,800	0,600	0,842		0,758	0,176	0,182	0,370	0,794	0,818	0,782
5. transfer of technology	0,358	0,285	0,394	0,758		-0,115	0,030	0,539	0,236	0,188	0,206
6. red tape	0,078	0,600	0,515	0,176	-0,115		0,539	-0,273	0,152	0,418	0,370
7. intensitiy of competition	0,406	0,685	0,588	0,182	0,030	0,539		-0,297	0,661	0,636	0,636
8. cluster development	0,515	-0,248	0,455	0,370	0,539	-0,273	-0,297		0,115	0,442	0,333
9. GDP	0,770	0,564	0,709	0,794	0,236	0,152	0,661	0,115		0,697	0,830
10. Index WEF	0,758	0,479	0,939	0,818	0,188	0,418	0,636	0,442	0,697		0,939
11. Index IMD	0,758	0,479	0,636	0,782	0,206	0,370	0,636	0,333	0,830	0,939	

Source: WEF Geneve 2003, own calculation

Correlations are calculated with the Sperman correlation coefficients. It is clear that innovativeness is one of the main determinants, while the correlations with both IMD competitiveness index WEF (0,818) and IMD (0,782) is very strong. The correlation matrix is calculated with ten countries (Israel, Spain, New Zealand, Taiwan, Portugal, Greece, Slovenia, Korea, Argentina and Mexico), that have GDP per capita in the line 6.300 USD to 17.000 USD. Slovenia with 10.000 USD per capita ranks in the middle of the group. While the WEF's competitiveness methodology is connected with Porter's diamond of competitive advantages, it is normal that correlation among local suppliers and WEF index (0,939) is strong. The cluster development of Slovenia has turned out to be very important in the last period. I also see a strong connection with transfer of technology (0,539) and with local suppliers (0,455).

Table 2: Correlation among the main WEF's indexes of competitiveness

	1.	2.	3.	4.	5.	6.	7.	8.
1. Tehnological index		0,552	0,733	0,709	0,442	-0,067	0,879	0,733
2. Macroeconomic environment	0,552		0,236	0,200	0,139	0,430	0,636	0,594
3. Strategy and the action of enterprises	0,733	0,236		0,927	0,794	-0,091	0,842	0,855
4. Quality of business environment	0,709	0,200	0,927		0,915	-0,139	0,830	0,879
5. GDP	0,442	0,139	0,794	0,915		-0,018	0,697	0,830
6. Growth of GDP	-0,067	0,430	-0,091	-0,139	-0,018		0,018	0,079
7. Global competitiveness index WEF	0,879	0,636	0,842	0,830	0,697	0,018		0,939
8. Global competitiveness index IMD	0,733	0,594	0,855	0,879	0,830	0,939	0,939	

Source: WEF Geneve 2003, own calculation

The strong correlation is recognized among the quality of business environment and strategy-operations of enterprises (0,927). Governments can improve the quality of business environment, so it can influence business success. While the wealth is created on the micro level it is normal that a strong correlation among strategy-operations of enterprises and GDP (0,794) can be found. The technological level has an influence on competitiveness, which can be recognized from the correlation with the WEF index (0,879) and IMD global index (0,733). Also the quality of busi-

ness environment correlates with WEF (0,830) and IMD (0,879) competitiveness indexes.

3. BENCHMARKING WITH EU BY MAIN DETERMINANTS OF COMPETITIVENESS

In Slovenia we want to foster the convergence process to EU. So I would like to know where we lags to EU-15 countries. In article I show the competitiveness lagging to EU-15 by seven groups of competitiveness. The benchmarking is done with selected groups: domestic economy and internationalization, government and public administration, financial markets, management, infrastructure, science & technology, human capital. The key research hypothesis is that lagging of Slovenia to EU must be eliminated by main determinants.

3. 1. DOMESTIC ECONOMY AND INTERNATIONALIZATION

Domestic economy and internationalization is the first determinant of competitiveness. Coutries with high productivity, high investments and with good results in the past often scored well. Internationalization usually supports competitiveness. Foreign direct investments improve the resource efficiency in the country. Economic performance is based on GDP, investments, savings, consumption, cost of living and adaptiveness. We must be adaptive on changies in consumer behaviour on global market. Internationalization can be seen as meny time of international cooperation. I can evaluate the industrial competitiveness by trade bilance with EU-15. The benchmarking is done with Croatia, Estonia, Hungary, Slovenia, Czech R. and Slovakia.

Source: Eurostat, own calculation

Picture 1: Industrial trade balance with EU-15, in 1000 euros

Slovenia has a lowest position compared to other countries. In observed period 1995-2004 Slovakia has increised the industrial competitiveness. Hungary also has the well position. One of the main questions conected with the convergence can be explain through the industrial competitiveness. It is normal that service sector is now more important. But Slovenia will need to increise the industrial export to EU-15 in the next years.

3.2. GOVERNMENT AND PUBLIC ADMINISTRATION

The government has an important role in generating competitiveness. It is not just the industrial policy and the creation of qualitative business environment. The government's involvement into creating businesses of its own must be minimised, while the government must focus on the business environment (Rosselet, 2001). The expansion of governmental involvement can be explained by the fact that governmment is not an enterprises, so the profit motive is not the same. Motivation is usually the set of interesed groups, which have influence on policy directions. Competitiveness policy is often explained as a new industrial policy. It supports the economic growth and efficiency with balancing economic structures to economic, technological and cultural changes.

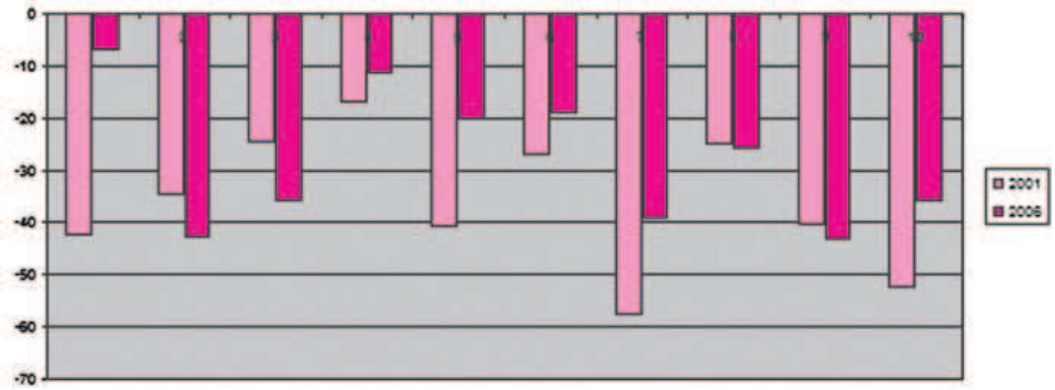
Table 3: Evaluation of government by questionnaire indicators

Scale 1-10	Hungary			Czech R			Slovenia			Poland		
	2000	2001	2006	2000	2001	2006	2000	2001	2006	2000	2001	2006
1 – management of public finances over the two next years is likely to improve	7,50	5,81	5,43	3,79	4,72	5,65	4,72	3,80	5,01	5,16	4,02	3,00
2 – real personal taxes do not discourage people from working or seeking advancement	4,40	4,36	4,16	4,38	4,68	4,69	2,87	2,91	2,42	3,80	2,96	2,64
3 – real corporate taxes do not discourage entrepreneurial activity	6,95	5,64	6,33	4,06	4,30	5,71	3,89	4,20	3,26	4,20	2,85	3,04
4 – tax evasion does not hamper business activity	3,85	2,91	4,20	2,99	3,15	5,09	3,84	4,00	4,23	3,64	2,89	3,53
5 – policy direction of the government is consistent	6,00	5,64	3,80	3,48	4,72	5,03	2,81	3,49	4,21	3,32	3,19	1,84
6 – adaptability of government policy to changes in the economy is high	6,80	5,27	3,76	2,87	4,19	4,57	3,27	3,89	3,43	5,08	3,54	2,08
7 – bureaucracy does not hinder business activity	4,00	3,21	2,83	2,58	2,57	3,14	1,89	1,63	2,17	3,08	1,71	0,91
8 – the legal and regulatory framework encourages the competitiveness of enterprises	6,51	6,38	5,35	3,51	4,91	4,40	4,73	4,94	3,39	4,80	5,19	2,29
9 – competition legislation is efficient in preventing unfair competition	5,80	5,94	5,31	4,23	4,91	5,58	3,97	3,97	3,56	3,80	3,87	4,00
10 – transfer of tehnology and knowledge among enterpises and universities is high	4,80	4,97	4,82	3,01	3,43	4,53	2,49	2,20	3,05	4,20	3,44	3,57

Source: IMD Lousanne, IER-EF Ljubljana

Questionnaire indicators show the source of competitiveness. I have calculated the backwardness of Slovenia in comparison with the EU-15. For the period of 2000-

2001 it was normal, that the governmental action in Central European countries was ocuppied with the Acquis Communautaire. The quality of legal system has increased in the Czech Republic (3,51–2000, 4,91–2001, 4,40–2006). The best scores can be seen in Hungary (6,51–2000, 6,38–2001, 5,35–2006). European integration process has changed the governmental quality. The Lisbon Strategy is the basis for a higher transparency of policies. This can be seen in the Czech Republic (3,48–2000, 4,72–2001, 5,04–2006), while Slovenia is not so successful (2,81–2000, 3,49–2001, 4,21–2006). The efficiency of competition legislation improved in the Czech Republic (4,23–2000, 4,91–2001, 5,58–2006). In Slovenia the competition regulation is not so strong, compared to other EU countries (3,97–2000, 3,97–2001, 3,56–2006).



Source: IMD, own calculation

Picture 2: Backwardness of Slovenia to EU on the field of government and public administration

Compared to EU-15 in 2001 I can see the largest lagging in red tape (7), in transfer of tehnology among enterprises and universities (10), in management of public finance (1). The smallest differences can be seen in tax evasion. If we observe the movements in the period of 2001–2006 we can see the improvements of the main indicators. The management of public finance is more similar to EU. The backwardness in tax evasion was not so large in the last period. Problems can be seen in the system of personal income tax and by functioning of competition legislation, which explains why there are still some critics of the Slovenian governmental system. If we observe the GDP we can be satisfied. But how is this important for foreign investors that chose this location for investments? Competitiveness evaluation by IMD is close to the picture of foreign investors. This picture is not however a macroeconomic picture. The state is important which supports the competitiveness of enterprises, while the competition regulation increases the efficiency of production factors and the technological progress. Slow privatization processes gives good scores on government and public administration.

3.3 FINANCIAL MARKETS

Owners of capital, managers of enterprises and finacial institutions support the progress of the economy. With better mechanisms we can achieve higher compet-

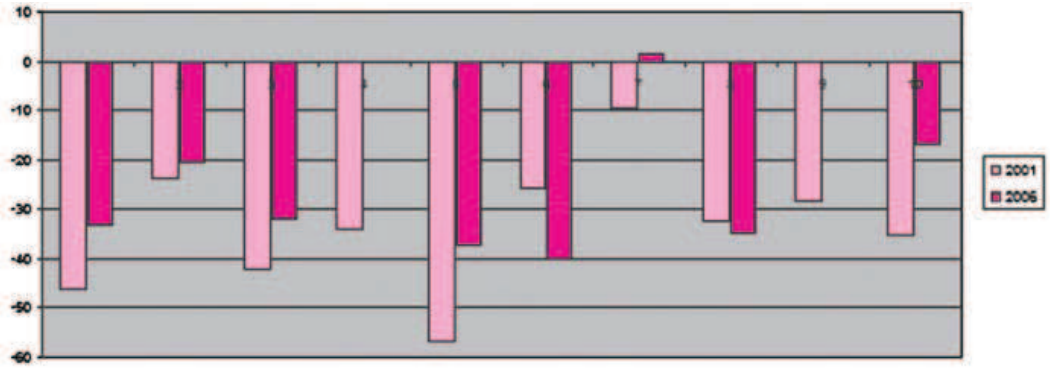
itiveness (National Competitiveness Council, 2001). In Slovenia we have seen the notices that slow privatization of banks made some problems for foreign investors. European Union has complained over the Slovenian financial regulation for a long time. Competitiveness of the banking system can be measured by interest spread. The more competitive is the banking system, the smaller the interest spread. In Slovenia (2000) the interest spread was around 5,7. In Switzerland the interes rate was 1,8, in Hungary 3,0 and in the Czech Republic 3,7. In the year 2004 the interested rate in Slovenia was still high (4,8) compared to other new member countries.

Table 4: Evaluation of financial system by questionnaire indicators

Scale 1-10	Hungary			Slovenia			Poland			Czech R		
	2000	2001	2006	2000	2001	2006	2000	2001	2006	2000	2001	2006
1 – cost of capital encourages business development	3,85	4,36	4,24	3,16	3,63	4,36	3,64	2,65	3,32	3,13	3,66	6,86
2 – banking and financial services do support business activities efficiently	4,50	4,85	5,84	5,70	5,46	5,37	5,52	4,02	5,20	3,97	2,68	6,51
3 – access of institutions on domestic financial market	8,45	8,42	7,51	5,48	5,06	5,54	7,40	7,22	5,25	8,06	8,26	7,24
4 – domestic enterprise have an access on foreign financial markets	6,45	6,79		4,92	5,59		6,25	6,05		6,44	7,62	
5 – stock markets provide adequate financing to companies	5,95	4,36	4,65	3,30	2,82	4,05	5,72	4,23	5,49	1,82	1,81	3,49
6 – shareholders' rights are sufficiently protected	7,00	6,48	7,55	5,54	5,57	4,28	5,84	6,18	5,28	4,09	4,79	6,17
7 – policy of central bank has a positive influence on competitiveness of enterprises	8,05	7,39	4,86	6,91	5,80	6,40	6,20	5,00	6,35	5,30	5,81	7,20
8 – financial institutions' transparency is sufficiently implemented	7,40	6,79	6,45	5,48	5,04	4,34	6,16	5,09	4,40	5,57	6,15	6,34
9 – education about finance is sufficient	6,75	6,30	6,08	5,24	4,00	4,56	4,40	3,49	4,19	4,29	4,38	5,88
10 – availability of financial experts on labour market is sufficient	6,80	7,21	6,08	5,00	4,38	5,84	5,36	5,47	4,56	4,74	4,98	6,06

Source: IMD Lousanne, IER-EF Ljubljana

A questionnaire of financial markets is done every year in the Slovenian competitiveness evaluation, and it has shown a good picture of giving credits to enterprises (5,70–2000, 5,46–2001, 5,37–2006) while the access of domestic enterprises on foreign markets is also good (4,92–2000, 5,59–2001). Surveyed managers have a bad oppinion about financing the enterprises over the stock exchange (3,30–2000, 2,82–2001, 4,05–2006) and about education in finance (5,24–2000, 4,60–2001, 4,40 –2006). Hungary has the most developed capital market among new member countries. Surveyed managers have reached good scores on access of foreign financial institutions on domestic market (8,45–2000, 8,42–2001) and about availability of financal experts on labour markets (6,80–2000, 7,21–2001, 6,08–2006). The backwardness of Slovenia to the EU-15 is calculated as a percentage of backwardness of Slovenia to the EU-15 average (SLO indicator–EU15 indicator/EU15 indicator).



Source: IMD, own calculation

Picture 3: Backwardness of Slovenia to EU on the field of financial markets

By bechmarking Slovenia to the EU, the smallest gap can be seen in the first observed period (2001) by financing the enterprises over the stock exchange (5), price of the capital (1) and the access of financial intitutions on domestic market (3). The smallest gap can be seen in policy of central bank (7).

With Slovenia's integration into the EU a strong competition among banks can be found. The banks must follow the trends of EU in networking, rationalization of costs, information technology implementation and so on. In the second observed period (2006) the best position of Slovenia was achieved in central bank policy, which had an influence on enhancing the competitiveness of the economy.

3.4. MANAGEMENT

Management in enterprises must be organized and led in a way so that the organization will achieve its goals. Competitiveness rate among prices and quality of products shows the abilities of management (Guertechin, 1997). Management in enterprise has improved in new member countries.

The problems of Slovenian management can be seen in not entirely precisely defined responsibilities among management and owners. Competitiveness of management can be evaluated by productivity level, by labour cost per unit and by performance of enterprises, by management efficiency and by culture.

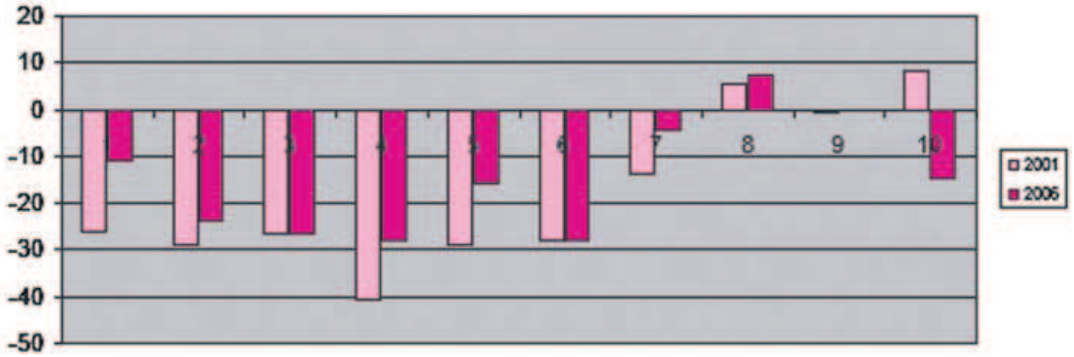
In the period of 2000–2001 the management in Central European countries have an important influence on foreign investors. Entrepreneurship development is fostered. According to the questionnaire the management have a sense for entrepreneurship in Hungary (6,45–2000, 6,67–2001, 5,76–2006) and in Slovenia (6,89–2000, 6,51–2001, 6,11–2006). The creation of new enterprises is common in Hungary (8,25–2000, 8,06–2001). Poland scored low by this indicator (6,88–2000, 6,13–2001). International experiences are common in Hungary (4,95–2000, 5,33–2001, 5,47–2006), and is a little higher when compared to Slovenia (4,14–2000, 4,26–2001, 5,06–2006). Slovenian management has a high social responsibility (6,76–2000, 6,23–2001, 5,13–2006). In the year 2006 only the Czech Republic ranks higher. The high social responsibility or sustainability of responsibility supports the balanced local development. Interests of the shareholders are implemented in Slovenia (6,27–2000, 5,40–2001, 6,11–2006) more than in other new member countries.

Table 5: Evaluation of management by questionnaire indicators

Scale 1-10	Hungary			Czech R			Slovenia			Poland		
	2000	2001	2006	2000	2001	2006	2000	2001	2006	2000	2001	2006
1 – labour relations are generally productive	6,45	6,55	6,73	5,77	5,89	7,31	5,46	4,84	5,95	5,52	4,11	5,19
2 – working motivation is high in your economy	6,00	6,06	5,88	4,73	5,13	6,29	4,81	4,64	4,69	5,14	4,37	3,79
3 – skilled labour is readily available	7,70	7,58	6,12	5,94	6,53	6,57	5,27	4,71	4,55	5,56	5,51	4,29
4 – competent senior managers are readily available	6,45	6,42	5,76	3,62	4,04	5,09	4,70	4,06	4,42	5,36	5,00	3,63
5 – international experiences of senior managers is generally significant	4,95	5,33	5,47	3,10	3,32	5,14	4,14	4,26	5,06	4,12	3,98	4,51
6 – management has a high credibility among society	5,95	5,33	5,96	3,33	3,43	5,71	4,92	4,66	5,66	5,12	4,76	4,24
7 – shareholder value is efficiently managed	5,25	4,97	6,38	2,81	3,13	6,00	6,27	5,40	6,27	4,92	3,95	4,89
8 – entrepreneurship of managers is widespread in business	6,45	6,67	5,76	4,78	5,09	5,83	6,89	6,51	6,11	6,00	6,04	5,52
9 – creation of new enterprises is common in your country	8,25	8,06		6,81	6,45		6,78	6,63		6,88	6,13	
10 – social responsibility of business leaders is high towards society	4,95	4,48	3,63	3,83	4,08	5,20	6,76	6,23	5,13	4,56	4,11	3,97

Source: IMD Lousanne, IER-EF Ljubljana

In the first period (2001) Slovenia ranks better than the EU in social responsibility of management (10) and by sense of management for entrepreneurship (8). Backwardness of Slovenia to the EU is the highest in availability of management on labour market, and lowest in opening new companies (9). If we compare Slovenia with Central European countries we receive a good picture. If we benchmark the Slovenian position with Austria or with more developed EU countries than we can see the real weaknesses of Slovenian management. It is not just a slow growth of productivity, but also other problems can be found connected with economic literacy, training for middle management, incentives for management, international connections. In the second period (2006) the gap in comparison with the EU-15 is smaller.



Source: IMD, own calculation

Picture 4: Backwardness of Slovenia in comparison to the EU on the field of management

3.5. INFRASTRUCTURE

Quantity and quality of infrastructure have an influence on the competitiveness of each country. Bad infrastructure increases the costs of transport for products and citizens. Adaptiveness of supply is important, because it decreases the needs for products and labour force. Bad infrastructure decreses the quality of life, because the flexibility of labour force is blocked. Citizens do not like to migrate to locations with bad infrastructure, so the GDP cannot reach the normal level (National Competitiveness Council, 2001). Infrastructure is measured with selected elements. Basic infrastructure (roads, railways, ports, air transport, and canals) allows the movement of citizens inside the country and outside the country. Availability of resources and energy is included. Urbanization processes determine the development level. Social infrastructures include health, education, environment and safety. The national infrastructure policy as basic, technological, social is under state control. State has always the influence on infrastrucure development, over the regulation mechanisms.

After the European enlargement process the basic infrastructure is less important. All European countries have well developed basic infrastructure. So the differences can be seen in other fields.

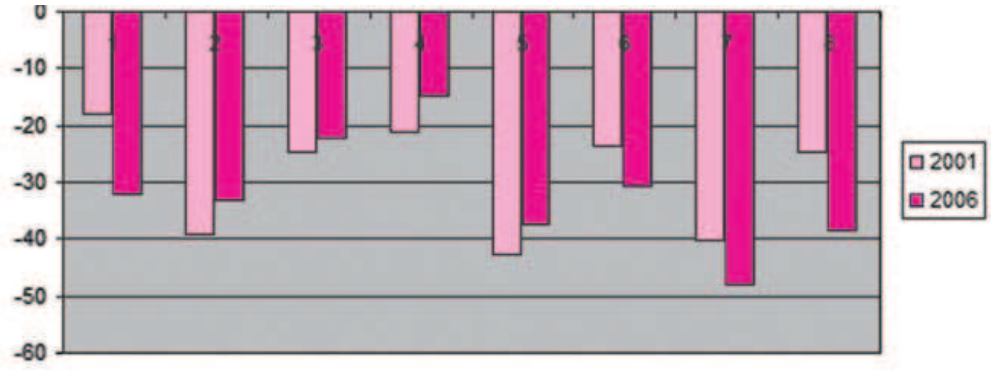
Table 6: Evaluation of infrastrucure by questionnaire indicators

Scale 1-10	Hungary			Czech R			Slovenia			Poland		
	2000	2001	2006	2000	2001	2006	2000	2001	2006	2000	2001	2006
1 – maintenance and development of infrastrucure are adequately planned and financed	4,50	4,48	4,24	3,62	4,08	4,97	3,89	4,17	4,50	4,00	3,00	2,48
2 – urbanization of cities does not drain economic resources	5,00	4,55	5,06	5,42	5,51	6,11	4,63	5,00	5,15	4,68	4,27	4,85
3 – communicatio technology meets business requirements	4,90	3,58		3,36	4,57		6,00	5,43		4,40	3,53	
4 – distribution infrastrucure of goods and services is generally efficient	5,10	4,48	6,24	5,45	4,08	7,14	4,99	4,17	6,40	3,24	3,00	5,17
5 – water transportation meets business requirements	5,35	4,52	5,35	4,58	4,98	5,45	6,42	6,00	6,07	3,88	2,98	3,81
6 – new information technology meets the needs of business	6,75	6,73	8,12	6,23	6,72	8,12	6,08	6,00	6,89	6,08	5,09	5,07
7 – information technology skills are readily available	8,10	7,45	8,00	5,85	6,23	7,71	4,84	5,49	6,68	6,80	6,36	5,17
8 - health infrastructure meets the needs of society	3,05	2,12	3,43	5,27	5,92	6,88	5,27	5,20	4,66	3,52	2,07	2,00
9 – sustainable development is a high priority	7,25	5,94	4,86	4,78	5,02	5,52	4,49	4,26	5,73	6,40	5,80	6,24
10 – environmental legislation does not hinder the competitiveness of business	7,40	6,79	6,69	6,15	6,30	6,00	6,03	5,11	5,19	5,80	5,60	4,89

Source: IMD Lousanne, IER-EF Ljubljana

The benchmarking with questionnaire indicators shows that infrastrucure is well maintained and financed in Hungary (4,50–2000, 4,48–2001, 4,24–2006). Good trend of increase can be seen in Slovenia (3,89–2000, 4,17–2001, 4,50–2006) and in

the Czech Republic (3,62–2000, 4,08–2001, 4,97–2006). Economic concentration in the cities can be a problem from the view of balanced development. The Czech Republic has a good score with this indicator (5,42–2000, 5,51–2001, 6,11–2006).



Source: IMD, own calculation

Picture 5: Backwardness of Slovenia to EU on the field of infrastrucure

The bigger differences between Slovenia and EU in the first period (2001) can be seen in fostering sustainable development (9) and in maintaining and finance planning of infrastructure (1). The smallest differences can be recognized in the availability of IT experts in labour market (7) and in electronic commerce development (3). In the second period (2006) Slovenia has eliminated the diffence in sustainable development as priority.

3.6. SCIENCE AND TECHNOLOGY

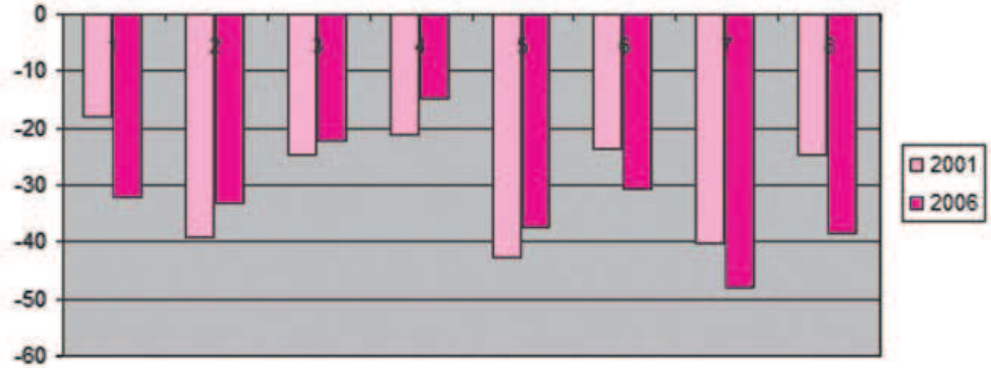
The money that government invest in the research sector, research centres, universities and in enterprises has a strong influence on business development. While Slovenia has a well developed technological infrastructure, there are some problems in the application of new knowledge into business. Scientific and technological advance, based on research and development activity (R&D), is an important determinant of economic growth. Seen from the point of view of the individual firm, R&D activity can enhance competitiveness through generating new or differentiated products and improved productivity. Seen from the macro economic point of view, productivity growth is the only non considered basis for long term growth in per capita incomes. Because R&D outputs have some of the characteristics of a public good, private firms will tend to under-invest, suggesting a role for government in stimulating R&D. Moreover, the innovation process itself has become more complex, and government support is also needed for research and skills development in the key underlying sciences for modern industries. Under the heading Science and Technology are two sets of indicators, covering (i) R&D activity and inputs; and (ii) innovation outputs (National Competitiveness Council, 2001). Competitiveness of R&D is usually measured with expenditures for R&D, R&D personnel, technological management, scientific environment and with the protection of intellectual property rights.

Table 7: Evaluation of science and technology by questionnaire indicators

Scale 1-10	Hungary			Czech R			Slovenia			Poland		
	2000	2001	2006	2000	2001	2006	2000	2001	2006	2000	2001	2006
1 – technological cooperation is developed between companies	5,25	4,67	5,67	3,62	4,04	5,82	4,00	4,29	4,29	4,88	3,60	4,51
2 – basic research does enhance long term economic development	4,75	4,61	4,82	4,35	3,85	4,76	4,00	3,57	3,92	4,88	4,74	4,27
3 – science in schools is sufficiently emphasized	7,70	7,27	5,80	6,43	5,85	5,53	3,92	4,09	3,66	5,12	4,02	4,19
4 – youth interest in science is strong	7,28	7,27	5,63	5,51	6,11	4,88	4,27	4,83	3,89	6,72	6,60	5,20
5 – intellectual property rights are adequately enforced	7,00	6,24	6,53	5,13	6,19	6,24	4,76	4,60	4,37	5,72	5,96	3,16
6 – development and application of technology are supported by the legal framework	5,95	6,18	6,86	5,22	4,98	6,42	5,32	4,94	4,77	5,36	4,18	3,60
7 – funding for technological development is generally sufficient	2,85	3,21	4,98	1,79	2,26	4,69	2,87	3,17	3,13	2,78	1,66	2,67
8 – engineers are available on labour market	8,60	8,55	7,27	6,29	7,40	6,47	4,96	4,81	4,06	6,68	7,12	4,69

Source: IMD Lousanne, IER-EF Ljubljana

Surveyed managers are critical of Slovenian science and technology. Some critics focus on the financing of technological development (2,87–2000, 3,17–2001, 4,06–2006) and on weak basic research for technological development (4,00–2000, 3,57–2001, 3,92–2006). Hungary ranks higher because of the availability of qualified researchers in labour markets (8,60–2000, 8,55–2001, 7,27–2006), and because of the learning of science and technology in schools (7,70–2000, 7,27–2001, 5,80–2006) and because of the interest of youth for science and technology (7,28–2000, 7,27–2001, 5,63–2006).



Source: IMD, own calculation

Picture 6: Backwardness of Slovenia to EU on the field of science and technology

In the period 2001–2006 we can see some differences in the field of science and technology. In the first period the biggest differences were in intellectual property rights (5), and in financing the technological development (7) and in supporting technological development of basis research (2). The smallest gap can be seen in the interest of youth for science and technology (4). The weak collaborations among

companies and universities can be seen on different ways. One problem is that Slovenia do not have so many multinationals as Poland or Hungary. In the 2006 we can see the smaller gap in interest of youth people for science and technology.

3.7. HUMAN CAPITAL

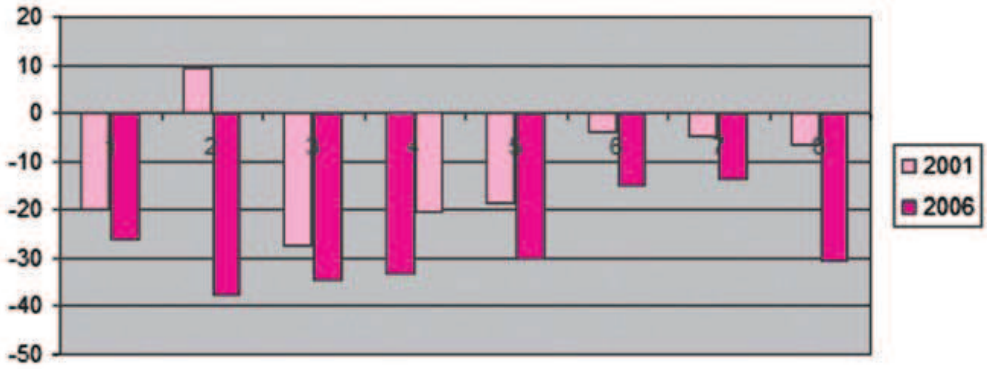
In the future the enterprises will be more similar to universities. Enterprises will need to create the environment, where human capital will with creativity change the other products on the market. The goal of the human development is not just a maximisation of national wealth but also the quality of human life, where we take into account also the determinants of quality of life. We have to develop the human capital for information society challenge. Just increasing the number of PCs and internet hosts are not enough for information society development. Competitiveness of human capital can be measured by characteriscits of population, by characteristics of labour force, by education level, and by quality of life indicators.

Table 8: Evaluation of human capital by questionnaire indicators

Scale 1-10	Hungary			Czech R			Slovenia			Poland		
	2000	2001	2006	2000	2001	2006	2000	2001	2006	2000	2001	2006
1 – skilled labour is readily available	7,70	7,58	6,12	5,94	6,53	6,57	5,27	4,71	4,55	5,56	5,51	4,29
2 – brain drain does not hinder competitiveness in your economy	5,45	5,52	5,31	6,23	6,60	6,46	6,38	5,89	3,95	5,36	4,62	3,92
3 – educational system meets the neeeds of a competitive economy	6,67	6,55	4,83	5,13	5,36	6,12	4,16	4,43	3,60	4,44	3,98	3,47
4 – quality of life is high	3,85	4,00	5,46	5,54	5,70	7,06	5,59	5,26	6,50	3,76	3,31	3,12
5 – flexibility and adaptability of people are high when faced with new challenges	7,00	7,21	5,67	5,07	5,70	6,51	5,19	5,49	4,37	4,69	5,37	5,17
6 – values of society support competitiveness	6,65	6,12	5,27	4,81	5,47	5,71	6,22	5,69	4,87	5,80	4,67	4,08
7 – experts for information technology are available on labour market	8,10	7,45	8,00	5,85	6,23	7,71	4,83	5,49	6,68	6,80	6,36	5,17
8 – economic literacy among population si high	5,05	5,39	4,73	4,44	4,53	5,65	4,14	5,17	3,74	4,32	4,13	3,57

Source: IMD Lousanne, IER-EF Ljubljana

The questionniare indicators evaluate the strengths and weaknesses of human capital. In the first period Slovenia can be seen as a good position for brain drain (6,38–2000, 5,89–2001, 3,95–2006). In the second period the brain drain was even higher. By quality of life the Czech Republic (5,54–2000, 5,70–2001, 7,06–2006) ranks higher than Slovenia (5,59–2000, 5,26–2001, 6,50–2006). Compared to analysed countries Slovenia ranks low in availability of educated labour force in labour markets and because of the fact that the university system does not satisfy the needs of business sector (4,16–2000, 4,43–2001, 3,60–2006).



Source: IMD, own calculation

Picture 7: Backwardness of Slovenia on the field of human capital

Compared to the EU in the first period (2001) there can be seen huge differences in the quality of life (4) and in educational system from the view of the needs of the business sector. Slovenia ranks better than EU by brain drain (2). The smallest gap can be seen in the value system (6). The influence of the new technologies can be seen also in the human capital. Information technology gives a chance for collaborations around the world, for solving the complex problems, by employee training, and by widening the organizational knowledge. In the second period (2006) Slovenia ranks lower in brain drain. If some experts move to Bruxelles that is brain drain. Also the higher amount of multinationals fosters this process.

4. CONCLUSIONS

When measuring the competitiveness it is important that we do not measure only the results of competitiveness, like GDP per capita, labor productivity, specialization of foreign trade, and structure of industry. It is interesting to see that European internal market influences the mechanisms of competitiveness. Macroeconomic stability, intensity of competition, labour market, institutional and business environment, human capital, physical capital, science and technology, classical and modern infrastrucure are the engines of competitiveness. Changes in these fields have a multiple affect on other determinants of competitiveness. In some countries it is easier to create a dynamic process, which can be measured with technological commercialization, with transfer of technology, with new ideas, and with entrepreneurship. What brings an own system of indicators. If I compare a Slovenian position with Hungary, the Czech Republic and Poland than the competitiveness picture is relatively good. On the other hand a comparison with EU-15 shows a major obstacle towards European convergence. System indicators are created in seven groups: domestic economy and internationalization, government, financial markets, managment, infrastrucure, science and technology and human capital. In each group we have calculated the competitiveness gap to the EU-15. The system of indicators is not just created to evaluate the competitiveness position. We want to see how the existing levels can improved.

In the time of EU enlargement we can see the convergence by some determinants of competitiveness. By domestic economy can be seen the decrease of gap in quality of local suppliers and in regulation framework for enterprises. By government we can see the decrease of gap in management of public finance, by consent of government about economic policy, and by red tape. By financial market can be seen the decrease of the gap in policy of the central bank, which has a positive influence on business competitiveness. Availability of financial experts on labour market are better, while the stock exchange finance the enterprises better. By infrastructure can be seen that after EU enlargement is the sustainable development high priority. Infrastructure for distribution products and services id better, while the environmental legislation markes less problems to business actions. On the field of science and technology and of human capital can be seen the slow decreise of gap to EU. Science and technology interest the youth persons. On the field of human capital can be seen the decrease of gap to EU, while the quality of life is still high. European internal market has a positive influence on engines of competitiveness in Slovenia.

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