

**COMPETITIVENESS  
AS A SOURCE  
OF DEVELOPMENT**

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## **Abstract**

By analysing the competitive position of countries, we can create favourable economic policies and strategies for our country. After Slovenian integration into EU, the benchmarking process from the view of improving development base became more important. Some institutions like World Bank, OECD, IMF, IMD, WEF, Eurostat and American Council on Competitiveness have built different methods for measuring competitiveness and development process. Competitiveness concept became important in the middle of the 1980s. By growing share of high-tech in world export, the intangible assets like patents, bioengineered drugs, human capital, brands, strategic alliances, software and customer lists became more important from the view of development process. By reaching the higher level of development stage of the EU, some problems about Slovenian competitiveness changed. The educational level of labour force and micro-economic competitiveness became more important. Companies create the wealth. If state does not create a good business environment for companies, the country will not reach the higher level of development stage.

**Keywords:** national competitiveness, benchmarking, development strategy, educational level  
JEL classification: 011, 024, 038, 057  
UDC: 339,9

## 1. INTRODUCTION

The development stage of a country depends on competitiveness. If labour force, management, infrastructure, government or business environment are competitive, we can expect faster development process compared to other countries. In EU you have to maintain the competitive business environment if you want to have competitive firms at home. Labour force, capital or companies can move to countries, which have a more competitive business environment. Therefore we can't expect the favourable development process without improving the competitiveness position of a country. Building strong competitiveness consists of moving away from static sources of cost advantage, and competitiveness strategy does not consist of simply cutting wages to retain a market position in labour-intensive exports.

Moreover, the growth produced by competitive activities should be sustainable rather than short-lived. Sustainability entails, in turn, that countries move up by economic activities and also by providing a social and environmental safety. Comparing Sweden and Finland, I can see that Sweden has a higher stage of development. Sweden ranks higher by BDP per capita, by Human Development Index and by European Innovation Scoreboard. On the other hand, Finland ranks higher by WEF's competitiveness report and by IMD's competitiveness yearbook. How can I explain this difference? The Swedish economy has been very rich for a long time. On the other hand, the Finnish economy had real problems at the beginning of the 1990s (high unemployment rate). By observing the Finnish economy, I can see a more favourable dynamic process in the past ten years. This is the main reason why Finland ranks so high by IMD's or WEF's competitiveness scoreboard. If you are on the top for such a long time as Sweden has been, it is more difficult to have favourable social-economic trends.

The paper examines the relationship between competitiveness and development process. I will explain why some problems occur when we use different methodologies for measuring national competitiveness. Comparing the European countries, I recognised the main differences on micro level (labour market, entrepreneurship, knowledge creation). The micro-economic view is becoming more important for Slovenian economy after the EU enlargement. My thesis is that competitiveness problems of Slovenian economy changed in the past few years. By analysing the competitive position of countries, we can create the favourable economic policies and strategies for our country. After Slovenian integration into EU, the benchmarking process from the view of improving development base became more important. Some institutions like World Bank, OECD, IMF, IMD, WEF, Eurostat and American Council on Competitiveness have built different methods for measuring competitiveness and development process. The simplest method is analysing the structure of international trade. In international trade, there are no winners and no losers, as long as the traded goods are not produced in a partner's country. **First hypothesis** is that we need different methodologies for measuring national competitiveness, because each methodological way shows one side of development stage. If we have more methodologies, than we can evaluate the national competitiveness more precisely. The **second hypothesis** is that modern way of measuring national competitiveness by using questionnaires allows us to evaluate the dynamic evolution of one economy, the qualitative competitiveness and the expectations of the business managers. Managers often evaluate the quality of business environment in which they operate. They also try to forecast the economic situation of the country in the near future. So the combination of statistical and questionnaire indicators is the best way for measuring national competitiveness. The **third**

*hypothesis* is that ranking of countries by well known WEF or IMD yearbook don't tell everything. If Slovenia rank higher than Estonia by WEF report it is also possible that we will get different view by using other methodologies (IMD). Competitive position of one country depends on indicators that are selected by IMD or WEF team.

A lot of books written by *Michael Porter* or *Michael Best* put too much weight on clustering, that foster the competitiveness of domestic industry. One difference between development theory and competitiveness theory is that competitiveness theory brings us a new story about clustering and networking. Today we can see many articles about clustering and networking. One reason is that this is something new. All writers tend to write something new. Anyway we also have the oldest concept of industrial policy which is also useful today. Keynesians want the government to stand behind domestic firms wherever there seems to be a winner-takes-all competition for future monopoly profits. The new way of thinking is that we need strong regulation of competition and well developed business environment. So the government must do more for quality of business environment. If one country has a more developed business environment against others than the companies will be more competitive on the long term.

The main goal of national policies and strategies is to improve the wealth for citizens and for companies. We want to improve standard of living in Slovenia without putting companies in a more difficult situation in European internal market. So we must care about quality of business environment and about industry development at home. For this reason, the industrial policy, traditionally viewed quite narrowly and separately from the other policies targeted towards underpinning the economy structural adoption, forms too narrow a framework to economically support structural adaptation processes and growth in a country's competitiveness. Therefore their understanding of economic-political support for these processes is leading towards what is now referred to in both theory and practice as industry (competitiveness) policy. Industrial policy has a pivotal influence over the development of the European business environment by setting the framework within which other policies will seek to influence the performance of enterprise.

However, the traditional stance of industrial policy as a device to maximise the interest of nationally-owned corporations is out of date; a concept, which has disappeared as a result of the global economy and the increased interactions between states. International competitiveness is no longer simply an issue for indigenous firms, but for all enterprises located within an economy. An economy's successes within international markets depend on the competitiveness of all enterprises that source or locate themselves within it (Johnson, Turner, 2000). Therefore, this is the reason why policy makers express concern about national competitiveness. Such concern is not new; what seems new is its intensity and spread, a response to globalisation, rapid technological change, shrinking economic distance and sweeping liberalisation. Governments of rich countries seem to worry the most, if we can measure their concern by the volume of reports on enhancing competitiveness (Lall, 2001). Competitiveness of nations, as well as corporations, is determined by the efficiency of governmental economic policy. It is believed that the role of the government is to provide necessary conditions so that everyone can enter the market (Thurow 1992). The economists believe that the ultimate goal of a state or of its people is to maximise some social welfare function in which incomes, social conditions and environmental preservation are incorporated (Aiginger, 1998). The advocate of this statement is Thurow with his »head-to-head« argument. Hatzichronoglou, who states that no country can win new market shares without another country suffering a corresponding

loss, supports this option (Hatzichronoglou, 1996). Therefore short-term international trade can be seen as a zero-sum game. However, zero-sum game is not necessary consequence of international competition. The most efficient way to enhance competitiveness is to support innovation and diffusion of technology that may lead to higher growth and higher welfare all around (Fagerberg, 1996)

The article is organized as follows. Chapter 2 deal with the evolution of world manufactured exports. Chapter 3 shows the main methodological approaches to measuring competitiveness. The competitiveness and development of economic systems is shaped by the system's external and social relationships, the social and economic role of government, and the institutional framework. All these factors influence the nature of the national resource base, technological capabilities, organizational arrangements and product market characteristics. Chapter 4 shows the difference between calculated and WEF's index of technological development. Later I will focus on industrial competitiveness. Industrial competitiveness is important development base of each country. Productivity in industry is an indicator, which shows the competitiveness level of firms that are located in domestic country.

The divergent approaches to competitiveness have produced many different definitions of the concept. Some of the differences stem from the fact that some researchers focus on the input or resource side of competitiveness, others on the efficiency of organisational processes and the rest on the competitive performance (Buckley et al. 1990; Hatzichronoglou, 1996). The problem with focusing on just one part of the competitive process is that it will give a narrow and biased picture of competitiveness and may lead to sub-optimal policies. Many economists consider competitiveness to be the achievement of various macro-economic objectives. Competitiveness is seen as »general welfare«, all other interpretations, including trade issues, are seen as major factors of competitiveness (Kitzmantel, 1995). In terms of macro-economic competitiveness of a nation, it is described by welfare of the people and by the economic growth. According to Fagerberg, competitiveness reflects the ability of a nation to secure a high standard of living for its citizens in comparison with the citizens of other nations, now and in the future (Fagerberg 1996). Landau's approach emphasises the growth of the living standard of the population together with relatively equal distribution of wealth, providing jobs for everyone who is able and willing to work; and doing it without harming the living standard of the next generation (Landau, 1992). Growing standard of living and general welfare are considered to be final objectives of competitiveness.

Competitiveness implies elements of productivity, efficiency and profitability. But it is not an end in itself or a target. It is a powerful means to achieve rising living standards and increasing social welfare - a tool for achieving targets. Globally, by increasing productivity and efficiency in the context of international specialisation, competitiveness provides the basis for raising peoples' earnings in a non-inflationary way (Competitiveness Advisory Group, 1995). Concerning these socio-political criteria we must, however, be rather careful as they often depend on deliberate political decisions. Again, these factors do not reveal the causes of global competitiveness. As major factors of influence, we can mention state R&D expenditure or the skill level of the work force. European industrial (competitiveness) policy has ten primary elements.

**Figure 1: Instruments of European industrial competitiveness policy**

<b>POLICY INSTRUMENT</b>	<b>SAMPLE APPLICATIONS</b>
R&D initiatives (EU+national)	Framework Programmes, Eureka
Competition rules (EU+national)	Antitrust; monitor state aid and mergers and acquisitions
Trade policy (EU)	Antidumping, rules of origin, local content, voluntary export restraints
Export promotion (national)	Credit guarantees for export-led firms
Tax incentives (national)	Tax relief or exemptions for start-ups or for companies undertaking restructuring
Procurement (national)	Public sector contracts to firms
Transport and infrastructure (EU)	Development of air, road, rail, and sea transport and communication networks
Training and education (EU+national)	Promotion of human capital; employment initiatives
Inward investment incentives (national+sub-national)	Provision of low-cost green field sites; period of tax relief or immunity
Enterprise policy (EU)	Integrated programmes for SMEs; creation of the European Investment Fund

Source: Lawton, 1999

Social policy, regional policy, environmental policy, and quality standards are associated features of European industrial policy, but are not directly relevant to or specifically aimed at improving European corporate competitiveness. Instead, they serve to shape the context within which industrial policy is formulated and implemented. The primary purpose of these associated policies has often more to do with improving working conditions and health and safety standards for the individual, than with facilitating structural adjustment or promoting enterprise. Ten policy instruments constitute the most effective elements of public influence over the European private sector. When viewed collectively, they constitute an industrial competitiveness policy framework for the EU. They lack central policy co-ordination but combine to shape the structural determinants of European competitiveness (Lawton, 1999).

The concern with competitiveness has spawned a significant industry, with a large audience in policy-making and corporate circles. Its output is diverse, ranging from productivity and cost studies for specific activities, and institutional analyses to general strategy papers, development plans, cluster studies, etc. Its best-known product, however, is the competitiveness index, a composite indicator ranking countries against each other according to selected criteria and measures of national competitive prowess. In addition to two well-known published rankings each year, there are many unpublished ones prepared by governments, consultants and research institutions, all feeding an insatiable appetite for benchmarking competitive performance and providing guidelines for strategy (Lall, 2001).

## **2. DEVELOPMENT PROCESS AND THE EVOLUTION OF WORLD MANUFACTURED EXPORTS**

Globalisation process supports international integration and coordination of independent activities with the combination of governmental and entrepreneurial strategies that are the best in the world arena (governmental strategies as clusters, support of entrepreneurial activity). The world market is becoming more important. Because of the dynamism of trade we can evaluate the development stage of the country with the analysis of the export-import flows.

Trade performance of a country is a good indicator of development stage. International trade could support the growth of BDP. Usually we measure trade performance with some indicators like openness of a country or the growth of export. It is also generally recognized that openness to trade can play an important role in helping nations to achieve greater prosperity. In this regard, a number of studies have explored the relationship between free trade and economic growth (Sachs, Warner, 1995). Although it is indeed true that opening to trade does not always lead to higher growth, it also seems clear that the variation in national experiences stream in large part from differences in the internal conditions of the countries in question. Among these differing conditions are critical factors such as governance, the quality of institutions, levels of education and health, and law and order. In other words, trade can act as an important catalyst for growth, but countries must have the right institutions in place and an overall business environment that allows countries to benefit most from the expanded opportunities it provides, and to confront the foreign competition it ushers in (Blanke et al, 2003) I can say that it is hard to finance welfare state without high quality of export.

The success on international markets, which is measured by export shares, is an indicator of integration in global trade. The structure of an industrial export is the result of production capacity, the quality of management, innovation system, business culture and institutional environment. In the short term on the export success could influence the quality of macroeconomic management, especially exchange rate. From a dynamic perspective, the change in the country's sector-specific share in world exports is obviously significant. Similarly, the ability of exporters to increase their sectoral trade surplus or reduce their deficit sheds light on the evolution of competitive advantages. At a low level of development, the importance of the natural resources sector in relation to the total economy is greater than it is at a higher level of development. In most advanced countries today, over 60% of the economy is based on services. Economists refer to this evolution as the "dematerialisation" of the economy, which means that the amount of natural resources used by unit of GDP is decreasing with the increase of the level of development. Furthermore, the importance of natural resources endowment for a given country is eroded by trade liberalisation, which makes it easier to import raw material from other countries.

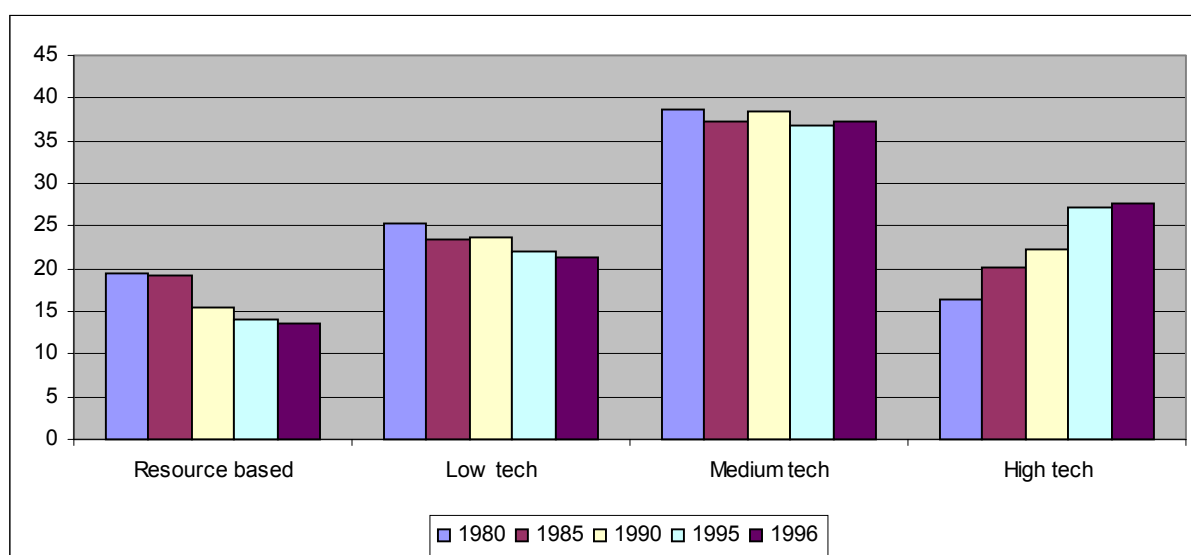
Development process plays crucial roles in any process affecting the exploration, utilisation and conservation of natural resources. Hence the need to harness this capacity to meet the projected higher needs for these resources, associated with future development and population growth, as well as their conservation for future generations. They do not only provide the cutting edge for exploiting known resources, but they also provide the basis for new knowledge of potentials. As new techniques will result in reduced costs per unit of output, they will also help ensure the sustainability of development and thereby contribute to averting the otherwise ominous prospects of depletion of/or serious



degradation of natural resources, which, if it occurs, would seriously impair future growth and development. While there are a number of ways that development process could contribute to the effective exploitation of natural resources, priority should be given to areas where efficiency, increased availability and sustainability could be ensured.

Human capital contributes to economic development by raising the productivity of workers and facilitating the adoption and use of new technologies. Support for this view is found in research on human capital and productivity, technology and innovation, and endogenous growth. In theory, both education and training are thought to be important. Emerging technologies call for more skills, higher levels of skill, and different kinds of skill. The widespread application of information technologies also has to focus on the complex of education and training needed to handle such technologies. Most successful economies are raising the skill content of their labour force. However, skills should not be equated with formal education. Formal education has to be enhanced by learning, the specific experience of handling particular technologies, solving problems and adapting them to different conditions (Lall 1999).

**Table 1: Evolution of World manufactured Exports by Technological Categories-Shares (%)**

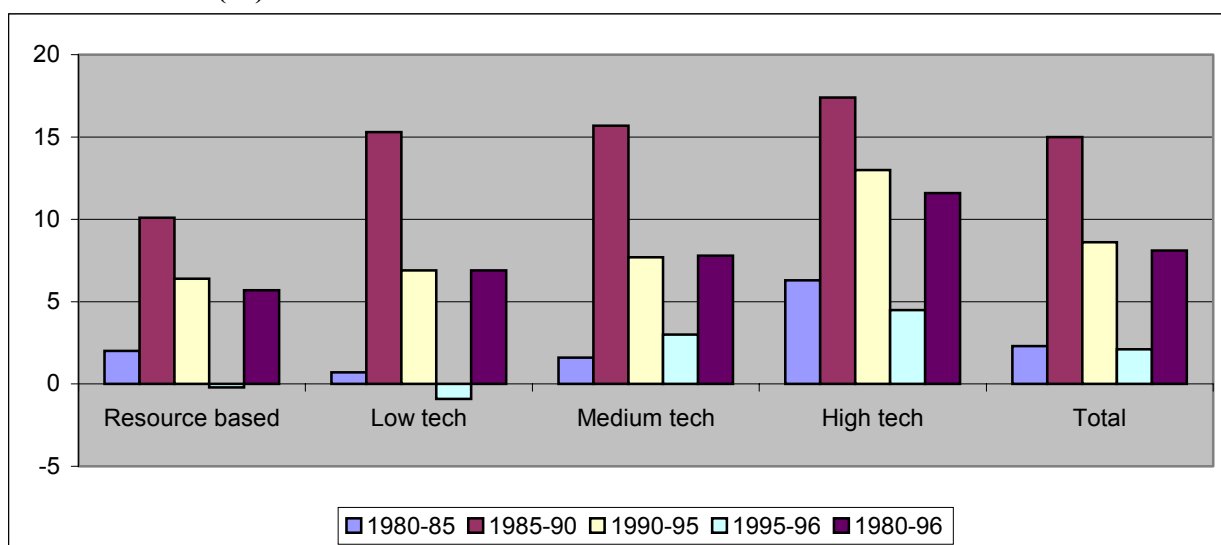


Source: World Bank 2002

The best way to illustrate the changing nature of global competition and the role of technology is through trends in world-manufactured exports. I separate manufactures from primary products and divide the former into technological categories: resource-based, low technology, medium technology and high technology. As the names indicate, technology-intensity rises along these categories. Differences in technology are thus at the centre of explanations of specific patterns in international trade, but in contrast to the »new« theories, the static Ricardian model takes technology as exogenous and characterised by constant returns to scale. Technology differences between countries are given and their evolution not further explained. To put it with the words of Grossman-Helpman (1995) until quite recently, the formal trade theory has focused almost exclusively on the effects of technological disparities without delving much into their causes (Wolfmayr-Schnitzer 1998).

Sustainable growth is made feasible by the assumption of some kind of technological externality; that is, the creation of knowledge through private R&D yields positive external effects so that the social return on investment in R&D exceeds the private return. The new knowledge thus adds to the public stock of technological knowledge and is accessible to all firms doing R&D themselves. Without the assumption of technological externalities innovators would be in a position to establish permanent monopolies without any further R&D effort. Ongoing innovation requires sustained increases in research productivity. If opportunities for learning are bounded or the learning process runs into diminishing returns, then the engine of technological progress must eventually grind to a halt (Grossman-Helpman, 1995).

**Table 2: Evolution of World manufactured Exports by Technological Categories-Rates of Growth (%)**



Source: World Bank 2002

Technological differences are thus one of the main sources of national competitive advantages. The more unique and sophisticated a firm's technology and products are, the greater and easier to defend will be the firm's monopoly power and the higher will be the mark-ups on costs. Countries at the other end of the »quality ladder« will have to specialise at the lower end of the quality spectrum and compensate their relative technological backwardness by lower wages or higher usage of energy or environmental resources, where competitiveness mainly builds on favourable manufacturing cost conditions and low price strategies (Wolfmayr-Schnitzer, 1998). The table shows that advanced technologies are the engine of trade growth. Exports of primary products grew at below 2 per cent per annum during 1980-96, compared to over 8 per cent per annum for manufactures. Within manufactures, growth rates for the categories rise with technology intensity. The highest rate is for high technology (fine chemicals, electronics, aircraft and precision instruments), followed by medium technology products (machinery, chemicals, simple electronics and transport equipment). Low technology products (textiles, clothing, toys, simple metal and plastic products, footwear), the main comparative advantage of developing countries, grow slower. Resource-based products grow the slowest. Medium technology products still constitute the largest single category in the world trade, but, at the present growth rates, a small number of high-tech products are set to exceed them soon. From both tables, I can

recognise why competitiveness concept became so important in the middle of the 1980s. By growing share of high-tech in world export, the intangible assets like patents, bio-engineered drugs, human capital, brands, strategic alliances, software and customer lists became more important from the view of wealth creation. Strategies and policies became more important for development process compared to basic components (land, labour and capital). If we want to foster a development of high-tech industry, we must do more for quality of business environment, for educational system, for sustainable development, and for information society.

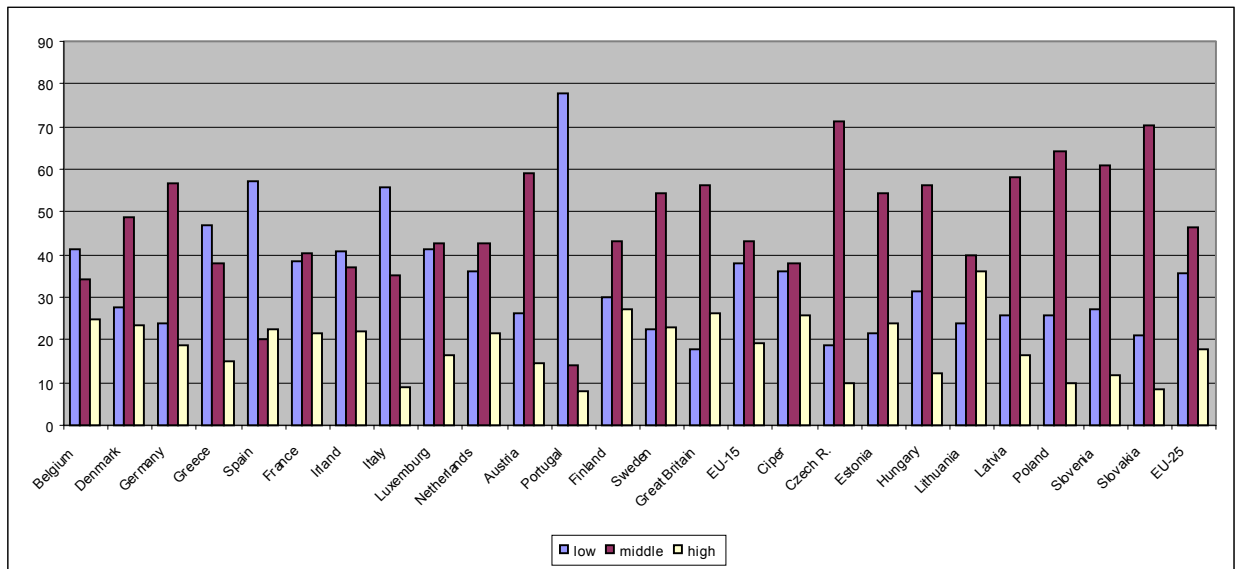
Countries compete with each other for markets, technology, development leadership, capital, resources, and for human capital. But the way of competing is different compared to firms. Product markets determine the survival and competitiveness of firms. Hence product market characteristics play a key role in shaping the resource creation, technology development, organisational renewal and internationalisation processes of firms. Both demand- and supply-side characteristics of markets are important for international competitiveness. For example, technological innovations tend to respond to the existing or potential demand in the market place (Lundvall, 1985). On the other hand, supply-side factors, such as demanding institutional regulations and intensive competitive rivalry have been identified as significant determinants of technological innovation. From the competitiveness perspective, the most important markets tend to be domestic because firms begin and build their operations first in the domestic markets, and later in the international markets (Porter, 1990). The business environment provides firms with a specific set of productive resources and their associated availability, quality and price characteristics. Since these environments differ a great deal among nations and particular locations, the location specific advantages of firms are an important determinant of systematic competitiveness. An economic system combines productive resources into finished products with particular technologies and organisational arrangements. The specific characteristics of these technologies and arrangements (quality, flexibility, efficiency, speed, etc.) are important determinants of the system's overall productivity and competitiveness.

Competitive advantage is defined as the relative export strength of the firms of one country compared to the firms of other countries selling in the same sector of international markets. The industrial policy can distort this balance and can in fact artificially create advantage over time (Zysman, Tyson, 1983). It is the nation's ability to stay ahead, technologically and commercially, in those goods and services likely to constitute a larger share of value-added in the future. The first Competitiveness Advisory Group appointed by the European Commission argued that competitiveness implies elements of productivity, efficiency and profitability, and is a powerful means of achieving rising standards of living and increasing social welfare (CEC, 1996). It is a measure of a nation's economic capability and potential in the world economy. Nations that are competitive are in a position to fully capture the benefits of a liberal international order. They are also in a position to fashion it and to meet domestic social and economic goals as well. Nations that used to be internationally competitive but then lost that position, face wrenching economic, political, and social adjustments (Jones, Teece, 1988).

### 3. BENCHMARKING THE COMPETITIVENESS OF THE COUNTRIES AND THE IMPORTANCE OF THE EDUCATIONAL LEVEL OF THE LABOUR FORCE

Many governments and international organisations (OECD, WB, World Economic Forum, European Union) have recently begun to »benchmark« their counterparts in other countries in order to reveal the relative strengths and weaknesses of their organisations and economies, and to suggest means of improving their (or their member countries') competitiveness and development base. The benchmarking method compares individual determinants of competitiveness across firms or countries with the assumption that there is a single »worldwide best practice« for each determinant (Hamalainen, 2003). Improving competitiveness is not about driving down living standards; it is about creating high skills, high productivity, and therefore high wage economy, where enterprise can flourish, and where we can find opportunities rather than threats in changes we cannot avoid. Competitiveness can be seen as a relative ability to employ all existing resources in the best possible way. Such approach generates a question whether a country could be more successful if it had more favourable production conditions, although another country's performance is more efficient. Greater efficiency of one country might not always make up for the objective advantage the other country has. Existing resources form a good starting position for attractiveness. Their optimal usage and development improve country's competitiveness (Hauser, Segmuller, 1997).

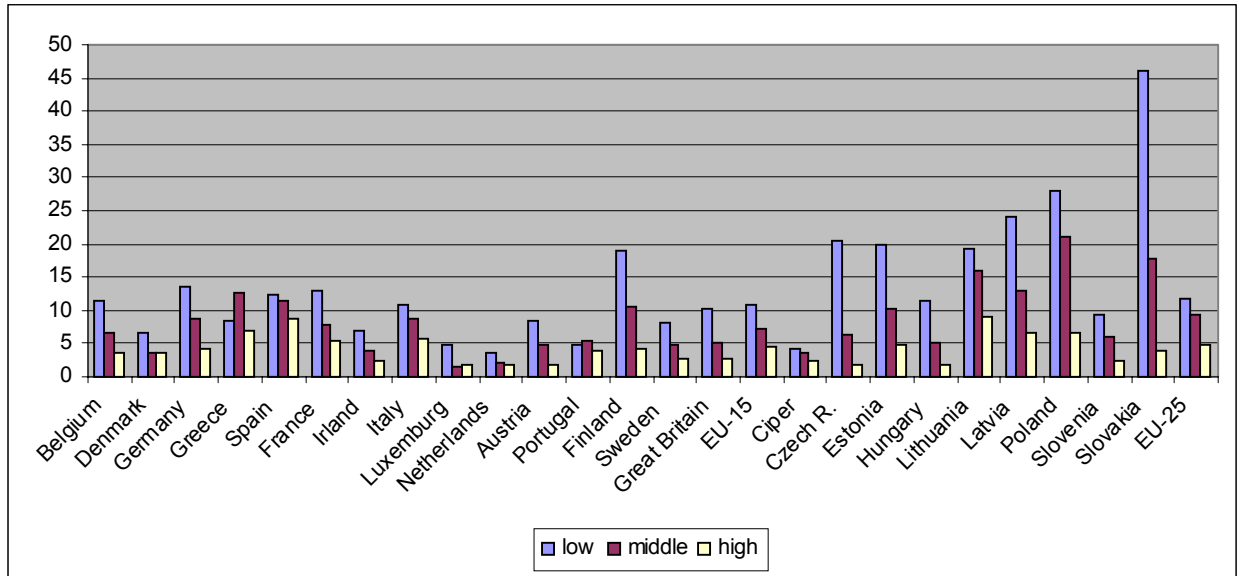
**Picture 1: Structure of the labour force in EU by educational level 2002 (%)**



Source: European Commission 2003, Employment in Europe 2003

Educational level of the population shows the development stage of the country. By reaching the higher level of development stage, we need more educated people because the process of producing goods has become more complicated. Products from the richer countries usually contain the larger share of intangible assets. We can see the high level of population with university degree in Lithuania, Finland, Great Britain, Cyprus, Belgium, Denmark and Estonia. The share of the population with low level of education is in Great Britain, the Czech Republic, Slovakia, Estonia and in Germany. Slovenia lags from the view of educational level against the EU (15) average.

**Picture 2: Structure of the unemployed person in the EU by educational level 2002 (in %)**



Source: European Commission 2003, Employment in Europe 2003

It is also important to benchmark the educational level of unemployed persons. The low educational level of unemployed persons makes a lot of problems to entrepreneurship activity. If managers cannot find enough educated people on labour market, they will have problems opening new companies. Slovenia lags in the educational level by unemployed persons behind the EU (15) average and behind some of the new EU countries (Estonia, Lithuania, Latvia and Slovakia).

The IMD and WEF methodologies allow to measuring the systematic competitiveness. The competitiveness and development of economic systems is shaped by the system's external and social relationships, the social and economic role of government, and the institutional framework. All these factors influence the nature of the national resource base, technological capabilities, organisational arrangements and product market characteristics. The system's external relationships also tend to have an effect on government policies and, through them, on the institutional framework. On the other hand, the national policy and institutional environment also shape the economy's external business activities (Hamalainen, 2003). Politicians use the term of competitiveness in order to determine a country's position in the system of international relations. The system views competitiveness' position as an ability to gain main goals of a country: security, welfare and sovereignty (Rapkin, Strand, 1995). Dollar and Wolff interpret competitiveness as following: the competitive country is successful in international trade with high technology and quality and at the same time maintains high incomes and high wages. This way, a

country can compete internationally with both high wages and high profitability (Dollar et al, 1993). Competitiveness is a concept which connects macro-economic and micro-economic views of social economic development. On the microeconomic level, success is guaranteed by a company's ability to break through, which can be supported by governmental structural policy. Macro-economic level refers to a country's attractiveness as a business location (Straubhaar, 1994). The same idea is expressed by Gough. He differentiates between performing competitiveness (refers to a company's ability to sell in international markets) and underlying of structural competitiveness (a country's ability to secure high and rising incomes for its people, while its companies are being exposed to foreign competition) (Gough, 1995).

**Table 3: Competitiveness of countries by IMD and WEF methodology**

	IMD index	IMD rank	WEF rank
USA	100,00	1	2
Luxemburg	87,69	2	21
Finland	86,68	3	1
Singapore	86,09	4	6
Denmark	80,85	5	4
Canada	80,66	6	16
Australia	80,62	7	10
Iceland	80,15	8	8
Switzerland	79,43	9	7
Hong Kong	79,24	10	24
Ireland	78,03	11	30
Sweden	77,40	12	3
Netherlands	76,61	13	12
Austria	75,55	14	17
Norway	74,89	15	9
New Zealand	72,67	16	14
Taiwan	71,07	17	5
Belgium	70,40	18	27
Great Britain	70,32	19	15
Germany	69,81	20	13
Malaysia	68,34	21	29
Estonia	66,58	22	22
France	65,77	23	26
Ile-de-France	65,56	24	
Japan	63,19	25	11
Chille	62,13	26	28
Spain	61,78	27	23
Catalonia	61,31	28	
China	60,92	29	44
Thailand	60,84	30	32
Bavaria	60,28	31	
Rhone-alps	60,01	32	
Israel	55,91	33	20
Hungary	55,79	34	33
Czech Republic	55,29	35	39
Lombardia	55,22	36	
Korea	54,15	37	18
Zhejiang	53,81	38	
Portugal	52,97	39	25
Slovenia	51,82	40	31

Source: IMD, WEF 2003

Many governments seriously peruse national competitiveness ranking produced by bodies like the World Economic forum (WEF) and the International Institute for Management Development (IMD). The study of competitiveness strategy is now a flourishing (and remunerative) industry. Many countries now have high-level official committees to deal with competitiveness, reaching across ministerial divisions to devise international, national or regional policy (Lall, 2001).

By comparing IMD and WEF ranking of countries, I recognised the difference between both methodologies. WEF methodology is long-term oriented. Therefore, by including a large set of social and environmental indicators, we get a very sustainable view on position of the selected countries. Scandinavian countries often rank on the top from the view of sustainable development. WEF ranks Finland, Sweden, Denmark, Iceland and Norway in the top ten. On the other hand, IMD is short-term oriented. The Scandinavian countries rank lower by the IMD competitiveness index. IMD ranks the quality of business environment for foreign and domestic competitors. EU countries, which have well-developed social models, usually rank lower by the IMD index. On the other hand, Singapore and Hong Kong always rank higher by the IMD index of competitiveness. Singapore and Hong Kong have good location attractiveness for foreign investors. Both countries (cities) are the capital markets for South-East Asia.

Public and media interest in competitiveness has increased in Slovenia since its statistical inclusion in international competitiveness yearbooks, such as the World Competitiveness Yearbook published by the Institute for Management Development, and The Global Competitiveness Report published by the World Economic Forum. The World Economic Forum (WEF) computes the Global Competitiveness Index of about 102 countries of the world and publishes that in their yearly Global Competitiveness Report (GCR). Their index is a combination of data obtained from secondary sources (quantitative weight) and through primary survey (survey weight) on various macro-economic and micro-economic dimensions of the economy of a country. Slovenia ranks are very stable in the WEF yearbook (31st-2001, 28th-2002, 31st-2003 and 33rd-2004). WEF tried to describe which counties have a good development position for the next five years. Like World Economic Forum (WEF), the International Institute of Management Development (IMD) also rates the competitiveness of about 60 economies and publishes that in World Competitiveness Yearbook (WCY). In the WCY study, the scoring or ranking of the countries is done with the help of standardised normal scores of 323 criteria grouped into four competitiveness input factors. These are economic performance, government efficiency, business efficiency and infrastructure. The WCY also uses both primary and secondary sources to measure the competitiveness score of the countries. IMD tried to describe which counties have a good business environment for domestic and foreign investors. Because it measures a short-term competitiveness, the ranks of the countries are changing more often by years compared by WEF. Slovenia's position in IMD yearbook is more floating (39th-2001, 38th-2002, 40th-2003, 45th-2004). One reason why Slovenia ranks lower by the IMD index is because our quality of business environment is not satisfactory, especially if I observe location attractiveness for foreign investors. The next reason is that IMD team added some regions (Bavaria, Catalonia, Ile-de-France, Lombardy, Maharashtra, Rhone-Alps, State of Sao Paulo, Scotland and Zhejiang) to World Competitiveness Yearbook in the last years. These regions are richer than Slovenian economy.

#### 4. TECHNOLOGICAL DEVELOPMENT AND THE DIFFERENCE BETWEEN CALCULATED AND WEF'S INDEX

Technological progress still has the main weight from the view of economic development. How important is the own innovativeness against technological transfer from other countries, depends on development stage. The World economic forum ranks the USA for the most innovative country, followed by Canada and Finland.

**Table 4: Technological core economies**

1.USA	6.Šveden	11. Denmark	16. Singapore	21. Ireland
2.Canada	7. Norway	12. Belgium	17. Iceland	22. Italy
3.Finland	8. Korea	13. Netherlands	18. Japan	23Hong Kong
4.Taivan	9. Great Britain	14. Germany	19. Šwitzerland	
5. Australia	10.New Zealand	15. Austria	20. Israel	

Source: WEF, 2001

The states, which are not part of the most innovative countries ofently, reach economic development by absorption of new technologies from others. Foreign direct investments bring new technology, capital, markets and organisational know-how. Estonia, the Czech Republic and Hungary rank higher than Slovenia from the view of technological transfer. Innovations are the results of many determinants such as: human capital, research initiatives, and collaboration between academic and business sphere. In the past few years, the digital readiness also represents one part of the WEF's technological index. WEF's technological index is aggregated from three parts: innovativeness, transfer of technology and information technology.

**Table 5: WEF'S technological index and the components**

	Technology		Innovation		Information technology		Technological transfer	
	Index	Rank	Index	Rank	Index	Rank	Index	Rank
Estonia	5,68	8	3,94	26	5,88	20	5,98	4
Czech Republic	5,39	20	3,24	38	5,45	29	6,03	3
Hungary	5,39	21	3,30	35	5,30	30	6,19	2
Portugal	5,27	25	3,58	31	5,68	25	5,28	13
Slovenia	5,18	30	3,80	27	5,47	28	5,24	14
Poland	4,75	35	2,98	43	4,90	37	5,15	15
Greece	4,62	38	3,95	25	5,14	35	4,15	31

\*Transfer of technology is ranked in the group of 51 countries, which are not the main innovators

Source: WEF Geneva, IER, EF Ljubljana

Compared with the other new EU countries, Slovenia ranks very well by innovativeness (27) and by information technology (28). Only Estonia ranks higher in the group of the new EU countries. Czech Republic and Hungary rank higher than Slovenia by technological index, because they have received higher technological transfer in the past few years. Estonia, Czech Republic and Hungary have reconstructed their economies by foreign direct investments, which forced the technological progress in these countries.



**Table 6: Calculation of technological index on statistical indicators of technological development**

	Expenditure on R&D per capita USD 2000	Business Expenditure on R&D per capita USD 2000	R&D Personnel in Business Enterprise FTE per 1000 people 2000	Patents in force per 100.000 people 1998	Utility patents US per millions people 2000	Tertiary school enrolment 1997	Internet user per 10.000 people 2000
Sweden	991,7	742,21	4,958	1101,0	177,2	50,3	4558,3
Finland	774,2	536,32	4,856	393,7	119,4	74,1	3723,0
Germany	619,8	425,40	3,512	432,7	123,6	47,2	2920,6
Denmark	650,6	412,30	3,983	555,3	82,3	48,2	3658,5
France	538,4	333,86	2,799	554,7	64,4	51,0	1445,6
Netherlands	485,6	263,05	2,793	747,6	78,1	47,3	2381,5
Austria	462,8			168,6	62,1	48,3	2557,5
Belgium	440,6	326,17	2,278	871,2	67,8	56,3	1968,3
Great Britain	434,7	307,36	2,528		61,6	52,3	2576,7
Ireland	302,2	220,87	2,227	855,3	32,4	41,0	2101,9
Italy	213,1	114,59	1,068		29,7	46,9	1047,2
Spain	136,5	70,35	0,931	503,1	6,8	51,4	1327,0
Portugal	66,4	14,91	0,199	143,2	1,1	38,8	5950,1
Greece	58,5	14,95	0,313	49,4	1,7	46,8	939,4
Czech R.	66,4	41,74	1,194	68,0	2,2	23,5	976,2
Poland	29,9	12,37	0,526	35,1	0,3	24,7	722,3
Slovenia	150,8	69,12	2,060	146,7	8,0	36,1	1257,0
Hungary	32,7	13,16	0,586	107,8	3,6	23,6	699,1
Estonia	21,1	4,35	0,303	14,6	2,9	41,8	2547,3

Source: US Patent and Trademark Office; World Bank Development Indicators; International Telecommunications Union; The Global Competitiveness Report, WEF Geneva; The World Competitiveness Yearbook, IMD Lausanne

Technological index is calculated by standard method of deviation. It measures the relative difference between the economies' performances; therefore, each country's relative position in the final rankings is more accurately assessed. Firstly, for each criterion, I compute the average value for each population group. Then the standard deviation is calculated using the following formula:

$$S = \sqrt{\frac{\sum (x - \bar{x})^2}{N}}$$

Subtracting the average value of each population group from the economy's original value and then dividing the result by the standard deviation calculate the STD. The STD value for the criteria I calculated is as follows:

$$(STD \text{ value})_i = \frac{x - \bar{x}}{S}$$

Where:

$x$  = original value

$\bar{x}$  = average value of population group

$N$  = number of economies

$S$  = Standard Deviation

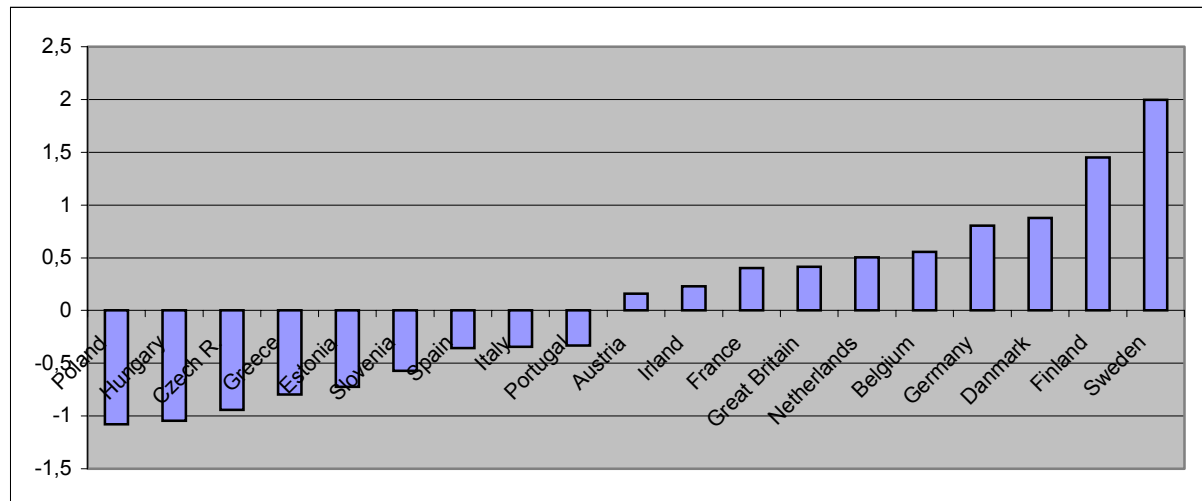
**Table 7: The value of indicators calculated by standard method of deviation**

	Expenditure on R&D per capita USD 2000	Business Expenditure on R&D per capita USD 2000	R&D Personnel in Business Enterprise FTE per 1000 people 2000	Patents in force per 100.000 people 1998	Utility patents US per million people 2000	Tertiary school enrolment 1997	Users of internet per 10.000 people 2000	Technological index	Rang
Sweden	2,3618	2,5609	1,9955	2,1698	2,6342	0,5366	1,7099	1,9956	1
Finland	1,5912	1,5752	1,9265	0,0489	1,4723	2,4387	1,0972	1,4500	2
Germany	1,1533	1,0442	1,0171	0,1658	1,5567	0,2889	0,5086	0,8037	4
Denmark	1,0442	0,9815	1,3358	0,5334	0,7265	0,6882	1,0502	0,8785	3
France	0,7558	0,6059	0,5347	0,5316	0,3667	0,5926	-0,5739	0,4019	8
Netherlands	0,5688	0,2669	0,5306	1,1101	0,6421	0,2969	0,1130	0,5041	6
Austria	0,4880			-0,6261	0,3204	0,3768	0,2421	0,1603	10
Belgium	0,4094	0,5691	0,1822	1,4807	0,4350	1,0161	-0,1908	0,5574	5
Great Britain	0,3885	0,4791	0,3513		0,3104	0,6965	0,2561	0,4136	7
Ireland	-0,0809	0,0649	0,1476	1,4330	-0,3309	-0,2066	-0,0925	0,2281	9
Italy	-0,3966	-0,4438	-0,6366		-0,3309	0,2649	-0,8668	-0,3442	12
Spain	-0,6679	-0,6556	-0,7292	0,3769	-0,7912	0,6246	-0,6613	-0,3577	13
Portugal	-0,9163	-0,9211	-1,2245	-0,7023	-0,9058	-0,3824	2,7316	-0,3315	11
Greece	-0,9443	-0,9209	-1,1474	-0,9835	-0,8938	0,2569	-0,9461	-0,7970	16
Czech Republic	-0,9163	-0,7926	-0,5513	-0,9278	-0,8837	-1,6051	-0,9189	-0,9422	17
Poland	-1,0456	-0,9332	-1,0033	-1,0264	-0,9219	-1,5092	-1,1053	-1,0778	19
Slovenia	-0,6173	-0,9180	0,0346	-0,6918	-0,7671	-0,5982	-0,7127	-0,5734	14
Hungary	-1,0357	-0,9294	-0,9627	-0,8084	-0,8556	-1,5971	-1,1222	-1,0444	18
Estonia	-1,0768	-0,9716	-1,1542	-1,0879	-0,8696	-0,1427	0,2341	-0,7241	15

Source: own calculation

Technological index, which is calculated from statistical indicators, shows that Sweden has the leading position on the technology field. By technological index (WEF), Finland ranks on the first place. Because the WEF technological index also includes survey indicators, the difference is logical. Survey indicators show the other side of the story, especially diffusion of new technology to business. Industrial clusters represent the organisational advantage, which allows faster diffusion of new knowledge between companies. We can measure the organisational advantages with survey indicators only. Sweden is the leading country of producing new technologies, but Finland is better from the view of diffusion of the new technologies and new knowledge to business.

**Picture 3: Calculated technological index for selected countries**



Source: Own calculation

Slovenia ranks higher than the other new EU countries by calculated technological index, but it ranks behind Estonia, the Czech Republic and Hungary from the view of the WEF's technological index. All new EU countries have some problems with commercialisation of R&R activities. On the other hand, governments of these countries are more socially than development-oriented.

Technological collaboration between companies in Slovenia is not satisfactory, but still better than in Portugal, Greece and Spain. Successful innovation within the industrial cluster is highly dependent on close and persistent user-producer contracts. The producer gains from "learning-by-doing", whereas the user gains from "learning-by-using". Thus, the success of a given innovation is highly determined by the extent of "learning-by-interacting" between parties connected together by flows of knowledge, skills, and services. Government can play an integral role in facilitating the "learning-by-interacting" processes. Each industrial segment in the industrial cluster represents a source of capital, technology, and market demand for a variety of other industrial segments (Drnovsek, Kovacic, 2003).

In past few years, I can recognise the growing importance of the enterprise policy in the EU. The need for enterprise policy within the European business environment is underlined by the fact that over 99.8 percent of all enterprises within the EU are classified as SMEs. Traditionally, policy makers have treated SMEs as young marginal firms that need protection in the face of open competition. This attitude is changing as many policy makers increasingly recognise that SMEs are among the most dynamic enterprises in the EU and are central in sustaining the EU's competitive position. Importantly, SMEs are becoming ever more significant in job generation within the European economy accounting for 66 percent of all employment. An increasingly central goal for policy makers is to push the success of the European SMEs by encouraging them to exploit the trend towards the internationalisation of markets. This represents an important change in strategy as SMEs have traditionally focused upon local/regional markets. Such a narrow market base is inadequate if SMEs are to aid the competitiveness of the European economy (Johnson, Turner, 2000).

After the EU enlargement, the macro-economic framework became more similar between the EU countries. For this reason, the entrepreneur activity became more important.

Governments of the EU countries now focus more on quality of business environment. The firm-level competitive action is at the core of business strategy, and competitive positioning is well accepted. Indeed, the dynamic strategy research stream focuses on the relationship between competitive action and competitive advantage. The more recent hyper competition concept builds on the dynamic view of strategy to address market environments characterised by extremely vigorous competitive action, in which sustainability of competitive advantage depends on the speed of action and the extent of competitive rivalry (D'Aveni, 1994).

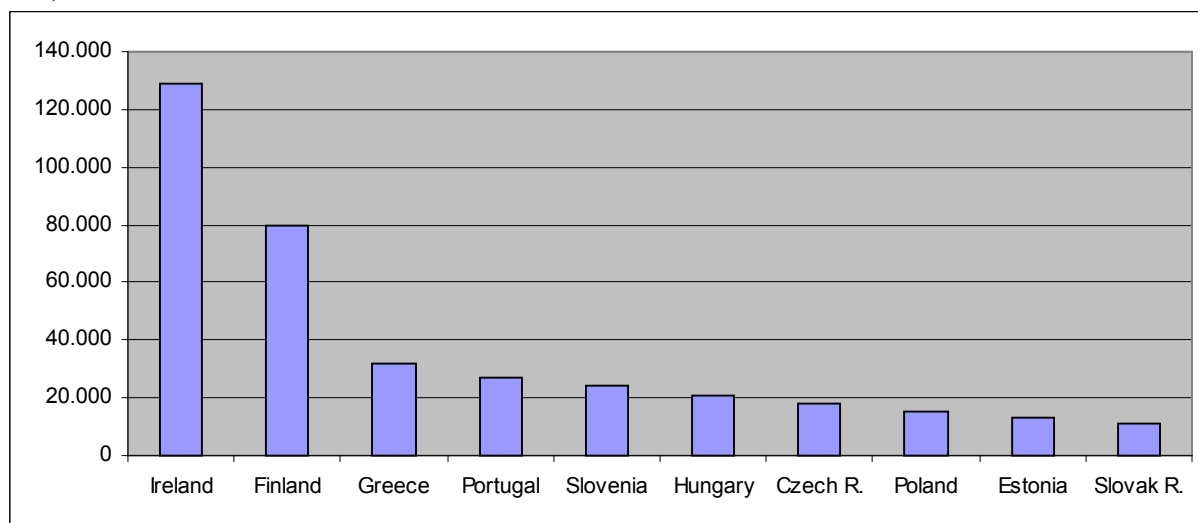
Dynamic firm-level competitive action in competitive environments has three important characteristics. Firstly, competitive advantage is short-lived because frequent aggressive firm-level action disrupts causal linkages between competitive conduct and performance outcomes established in the market status quo. Secondly, firms must undertake series of actions to continuously recreate competitive advantage. Finally, in a competitive marketplace, firms with more competitive activity will theoretically have superior performance over time in relation to rivals with less activity. The key role of firm-level action in the competitive market is consistent with the emphasis on market processes described by the Austrian school of economics (Jacobson 1992, Kirzner, 1992). According to Austrian economics, organisational action:

- (1) Constitutes the critical market process
- (2) Can disrupt linkages between competitive conduct and performance found in the status quo of the marketplace
- (3) Can convert otherwise neglected opportunity to the advantage of the acting organisation, and by diffusion to the larger marketplace.

Firm-level competitive activity is defined as the total number of competitive actions a firm takes in a given year. The level of competitive activity in the industry is the aggregation of firm-level competitive activity minus the competitive activity of the focal firm. When the number of competitive actions between all firms in the industry is high, rivalry will be intense. For example, the role of cooperative mechanisms in fast-paced and complex high-tech industries may be different from that in more stable and simpler low-tech industries. Furthermore, Smith and Grimm (1987) found a significant relationship between types of strategy and performance outcomes after (but not before) deregulation in the railroad industry, suggesting that firm action influences performance more when regulatory constraints are removed. The relationship between firm activity and performance outcomes may also be linked to the number of markets in which firms face each other in competition. For example, software firms may compete in more than one market as the software industry becomes more segmented by customer group and computer platform. Multi-market competition makes the cooperative and competitive interconnections between firms more complex, and competitive activity may be less attractive if rivals have multiple loci for retaliation (Gimeno, Woo, 1996).

If I want to know how competitive the companies in one country are, I must measure the productivity in industry. Productivity in industry is an indicator, which shows the competitiveness level of firms that are located in domestic country.

**Picture 4: Productivity in industry 2003 (Related GDP per person employed in industry. US\$)**



Source: IMD 2003

From the view of productivity in industry, Slovenia ranks higher than Hungary, the Czech Republic, Poland, Estonia and the Slovak Republic. With 24.367 USD per person employed in industry Slovenia still lags behind Portugal and Greece. Industrial competitiveness is still important development base of each country. Fostering clustering between companies often connects modern industrial policy in the EU or in Slovenia. The presence in the nation of related and supporting industries is one of the major determinants of a nation's competitiveness.

Measures elaborated in the Strategy for Strengthening the Competitiveness of Slovenian Industry and in the Small Business Development Strategy focus on four categories of priorities:

- (1) Modernisation of enterprises, emphasising the need for greater specialisation of enterprises,
- (2) Promotion of research and development and technological upgrading
- (3) Promotion of investments
- (4) Promotion of small and medium sized enterprises' development

The main source of economic growth is the increased efficiency and competitiveness of the enterprise sector by intensifying its capacity to respond to rapid changes in technology and the market and by promoting modernisation and the introduction of new programmes in enterprises. In terms of the objectives and purposes promoted, as well as in terms of horizontal allocation of resources, the Strategy and the Development Programme for Strengthening the Competitiveness of Slovenian Industry represent a suitable foundation for future Slovenian policy to bolster the enterprise sector's competitiveness. In the future, the state will expand such foundations in terms of substance by introducing new measures, and harmonise them with the EU's regulations concerning industrial (competitiveness) policy as defined in the EU documents relating to industrial competitiveness (The strategy for the economic development of Slovenia 2001-2006, IMAD 2001).

**Table 8: Ranking on micro-economic competitiveness component sub indexes**

	Micro index	Company operations and strategy ranking	Quality of the national business environment ranking
Finland	2	4	2
Ireland	20	15	22
Slovenia	27	26	27
Hungary	28	29	29
Estonia	30	36	28
Czech Republic	34	34	34
Portugal	36	41	32

Source: The Global Competitiveness Report 2002-2003, WEF Geneve

By reaching the higher level of development stage, the micro-economic competitiveness is becoming more important. Companies create the wealth. If state does not create a good business environment for companies, the country will not reach the higher level of development stage. WEF's micro-economic index shows that Slovenia ranks higher than Hungary, Estonia, the Czech Republic and Portugal. The micro-economic foundations of productivity rest on two inter-related areas: the sophistication with which companies compete, and the quality of the micro-economic business environment. Companies, ultimately, set the level of the national productivity, and their ability to upgrade is inextricably intertwined with the quality of the national business environment. More sophisticated strategies by companies require improved infrastructure, more advanced institutions, higher-skilled people, and better incentives.

There were several attempts to stimulate restructuring of Slovene enterprises in order to gain international competitiveness. Two such projects were based on the principles of new competition. In reality, it meant the introduction of total quality management in the enterprises as well as cooperation among enterprises in the form of strategic group. In the wood-processing industry, we found that the main cause for low international competitiveness was low operational efficiency. For the introduction of the new management system, we chose a well-tested system of »20 keys«, a system developed by Iwao Kobayashi. The case of the 20 Keys Approach is just one of several successful systems of implementation of the new approach to management through quality and inter-firm relations. In Slovenia today, the introduction of such systems in companies is being implemented through the network of external and in-company consultants - mainly within the framework of the Slovene Quality Association, supported by the Chamber of Commerce and through the implementation of computer based business re-engineering projects (Petrin, Vahčič, 2000).

Slovenian enterprises neglect certain non-price factors of competitiveness that constitute a key element in modern competition. Exports by Slovenian enterprises are thus still concentrated on non-differentiated products and services with lower value added but with an adequate level of quality. The share of exports based on natural resources is too high, and the smokestack industries contribute one fifth of value added in manufacturing. Besides the corporate governance problem, the main barrier to the efficiency and improved competitiveness of enterprises is the lack of managerial skills that has a negative impact on the investment capacities of enterprises. In the future, the competitiveness of Slovenian enterprises will be increasingly based on knowledge and adaptability of enterprises, and the economy as a whole (The strategy for the economic development of Slovenia 2001-2006, IMAD 2001).

## 5. CONCLUSIONS

By analysing the competitive position of countries, we can create the favourable economic policies and strategies for our country. After Slovenian integration into the EU, benchmarking process from the view of improving development base became more important. Some institutions like World Bank, OECD, IMF, IMD, WEF, Eurostat and American Council on Competitiveness have built different methods for measuring competitiveness and development process. The main goal of national policies and strategies is improving the wealth for citizens and for companies. We want to improve standard of living in Slovenia without putting companies in a more difficult situation in European internal market. Therefore, we must care about quality of business environment and about industry development at home. For this reason, the industrial policy, traditionally viewed quite narrowly and separately from the other policies targeted toward underpinning the economy structural adoption, forms too narrow a framework to economically support structural-adaptation processes and growth in the country's competitiveness. Therefore their understanding of economic-political support for these processes is leading towards what is now referred to in both theory and practice as industry (competitiveness) policy. Industrial policy has a pivotal influence over the development of the European business environment by setting the framework within which other policies will seek to influence the performance of enterprises.

Educational level of the population shows the development stage of a country. By reaching the higher level of development stage, we need more educated people because the process of producing goods is becoming more complicated. Products from the richer countries usually contain the larger share of intangible assets. Lithuania, Finland, Great Britain, Cyprus, Belgium, Denmark and Estonia have a high level of population with university degree. The share of the population with low level of education is in Great Britain, the Czech Republic, Slovakia, Estonia, and in Germany. Slovenia lags from the view of educational level against the EU (15) average. The low educational level of unemployed persons makes a lot of problems to entrepreneurship activity. If managers cannot find enough educated people on labour market, they will have a problem opening new companies. Slovenia lags in educational level of unemployed persons behind the EU (15) average and behind some new EU countries (Estonia, Lithuania, Latvia and Slovakia).

Public and media interests in competitiveness have increased in Slovenia since its statistical inclusion in international competitiveness yearbooks such as the World Competitiveness Yearbook published by the Institute for Management Development, and The Global Competitiveness Report published by the World Economic Forum. The World Economic Forum (WEF) computes the Global Competitiveness Index of about 102 countries of the world and publishes that in their yearly Global Competitiveness Report (GCR). Their index is a combination of data obtained from secondary sources (quantitative weight) and through primary survey (survey weight) on various macro-economic and micro-economic dimensions of the economy of a country. Slovenia ranks are very stable in WEF yearbook (31st-2001, 28th-2002, 31st-2003 and 33rd-2004). WEF tried to describe which counties have a good development position for the next five years. Like World Economic Forum (WEF), the International Institute of Management Development (IMD) also rates the competitiveness of about 60 economies and publishes that in World Competitiveness Yearbook (WCY). In the WCY study, the scoring or ranking of the

countries is done with the help of standardised normal scores of 323 criteria grouped into four competitiveness input factors. These are economic performance, government efficiency, business efficiency and infrastructure. The WCY also uses both primary and secondary sources to measure the competitiveness score of the countries. IMD tried to describe which countries have a good business environment for domestic and foreign investors. Because it measures a short-term competitiveness, the ranks of the countries are changing more often by years compared by WEF. Slovenia's position in IMD yearbook is more floating (39th-2001, 38th-2002, 40th-2003, 45th-2004). One reason why Slovenia ranks lower by IMD index is because our quality of business environment is not satisfactory, especially if I observe location attractiveness for foreign investors.

The states, which are not part of the most innovative countries, often reach economic development by absorption of new technologies from others. Foreign direct investments bring new technology, capital, markets and organisational know-how. Estonia, the Czech Republic and Hungary rank higher than Slovenia from the view of technological transfer. Compared to other new EU countries, Slovenia ranks very well by innovativeness (27) and by information technology (28). Only Estonia ranks higher in the group of the new EU countries. The Czech Republic and Hungary rank higher by technological index than Slovenia, because they have received higher technological transfer in the past few years. Estonia, the Czech Republic and Hungary have reconstructed their economies by foreign direct investments, which forced the technological progress in these countries.

Technological index, which is calculated from statistical indicators, shows that Sweden has the leading position on the technology field. By technological index (WEF), Finland ranks on the first place. Because WEF technological index also includes survey indicators, the difference is logical. Survey indicators show the other side of the story, especially diffusion of new technology to business. Industrial clusters represent the organisational advantage, which allows faster diffusion of new knowledge between companies. We can measure the organisational advantages only with survey indicators. Sweden is the first country by producing new technologies, but Finland is better from the view of diffusion of new technologies and new knowledge to business. Slovenia ranks higher than the other new EU countries by calculated technological index, but it ranks behind Estonia, the Czech Republic and Hungary from the view of WEF's technological index. All new EU countries have some problems with commercialisation of R&R activities. On the other hand, the governments of these countries are more social than development-oriented.

By reaching the higher level of development stage in the EU, some problems about Slovenian competitiveness changed. The educational level of labour force and micro-economic competitiveness became more important. Companies create the wealth. If state does not create a good business environment for companies, the country will not reach the higher level of development stage. WEF's micro-economic index shows that Slovenia ranks higher than Hungary, Estonia, the Czech Republic and Portugal. The micro-economic foundations of productivity rest on two inter-related areas: the sophistication with which companies compete, and the quality of the micro-economic business environment. Companies, ultimately, set the level of the national productivity, and their ability to upgrade is inextricably intertwined with the quality of the national business environment. More sophisticated strategies by companies require improved infrastructure, more advanced institutions, higher-skilled people, and better incentives.



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