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Analysis of Innovative Capacity of Polish Economy

Abstract

The subject of this essay is the problem of innovativeness of Polish economy with particular attention given to its innovative potential and innovative activity as well as to the circumstances of Poland's successful participation in the knowledge-based economy. The improvement of the level of innovativeness is indispensable in the process of integration with the EU and in facing the challenges resulting from the speeding up the globalisation process which is tightly linked to information revolution.

1. Innovative potential of Polish economy

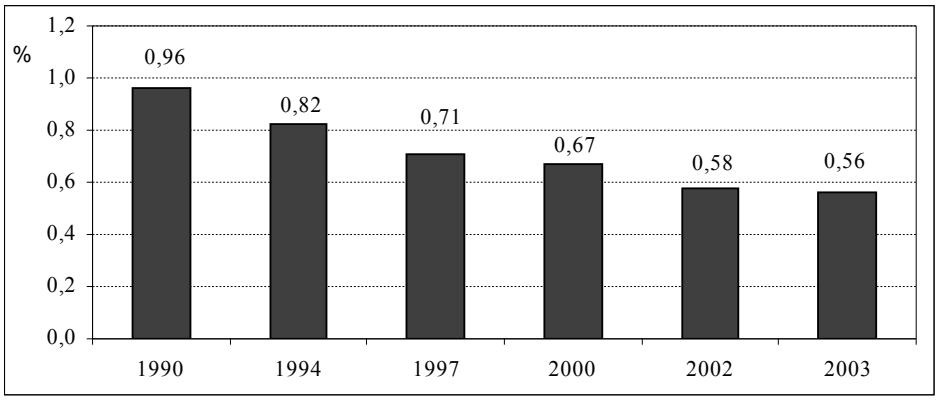
The level of innovativeness of the economy is to a considerable degree the function of the size and modernity of its innovative potential. The following indices comprise the measure of this potential: expenditures on research and development activity (from the state budget and economic entities) in relation to GDP and the structure of these expenditures according to the type of research, the number of scientific and research-development units as well as of the employees of R+D sector, the number of national inventions and investments in knowledge (expenditures on R+D activities as well as on public expenses and private higher education).

An important measure of the innovative potential of the economy is the level and structure of expenditure on R+D activity which, in modern world, comprises the main source of economic growth and of the improvement in competitiveness. The diagram 1 illustrates the shaping of the share of expenditures on R+D activity (from the state budget and economic entities, scientific units of the Polish Academy of Sciences, R+D units and international

organisations) in GDP in the years 1990–2003.

From the analysis of the presented statistical data it follows that in the period under discussion the expenditures on R+D activity in relation to GDP in Poland experienced a sudden slump. The index of the share of these expenditures in GDP decreased drastically from 0,96% in 1990 to 0,56% in 2003. It is worth bearing in mind that this index already at the beginning of 1990's was considered to be insufficient and was thought to carry a real threat not only for the science but primarily for the development of civilisation of the country. Furthermore, it has to be added that the decrease in the expenditures on R+D activity in the first years of the transformation of Polish economy (1990–1992) was bigger than the decline in GDP in the same period. In the following years the economy was characterised by upward tendencies and it seemed that in these circumstances the promises of the politicians, who forecasted an increase in expenditure on R+D sphere after the economy had left the stage of transformational recession, would be fulfilled. Meanwhile the index of the share of expenditures on R+D from the state budget in GDP was systematically decreasing.

Diagram 1. Share of expenditures on R+D activity in GDP in the years 1990–2003 (current prices)



Source: *Statistical Annual 2004*, CSO, Warsaw 2004, p. 421; *Science and technology in 2002*, CSO, Warsaw 2004, p. 29.

The analysis of Poland's position in the ranking of countries grouped according to the criterion of the share of expenditures on R+D activity in GDP points to the existence of a big technological gap which separates Poland from the group of countries which occupy the leading position in the world science and technology. The table presented below contains the specification of these indices for the chosen EU countries, Japan and USA (*Poland- European Union*; CSO,

Warsaw 2003).

From the analysis of the statistical data presented in table 1 there emerges an unfavourable evaluation of the foundations of the innovative potential in Polish economy. The expenditures on R+D activity decide about the size of this potential in a considerable way. It has to be stressed that the EU countries, which present the level of economic development similar to Polish, have higher indices of the share of expenditures on R+D activity in GDP (e.g. the Czech Republic – 1,3%, Hungary – 1%, Portugal – 0,8%). The weakness of the Polish R+D sector is especially striking when we compare this index in Poland and in the fifteen countries of the so-called old Europe (the average index is 1,94%) as well as in Japan and the USA.

Table 1. Relation of expenditures on R+D activity to GDP in the EU countries, Japan and USA in 2001

Countries	Expenditures on R+D in % GDP
Japan	3,10
USA	2,80
UE-15	1,94
Sweden	3,78
Finland	3,37
Germany	2,48
France	2,13
Holland	2,02
Belgium	1,96
Great Britain	1,85
Czech Republic	1,30
Ireland	1,21
Italy	1,10
Hungary	1,00
Spain	1,00
Portugal	0,80
Greece	0,70
Poland	0,65

Source: S. Frank, *R and D Expenditure and Personnel in Europe 1999–2001*, Eurostart, 31st March 2003; *Main Science and Technology Indicators*, 2002/1, OECD, 2002; *Statistical Annual 2004*, Warsaw 2004, p. 774.

The level of expenditures on R+D activity is not the only important element in the evaluation of the innovative potential of economy. Equally important is the

structure of these expenditures by source of funds. In other words, R+D expenditures alone do not form a sufficient basis for the evaluation of the potential. The ratio of the level of funding of these expenditures from the state budget (government) to the ones from economic entities also plays an important role. Many analyses concerning the comparison of innovative systems characterised by different structure of these expenditures have been carried out. From these analyses it follows that in the countries where expenditures from economic entities dominate the level of the innovativeness of economies is higher than in the countries where the dominant funds are the funds from the state budget (Radło M.J. 2003). It is connected with the fact that enterprises finance in the first place research and development projects which enhance their innovative ability in a direct way. The data included in table 2 present the structure of expenditures on R+D activity by source of funds.

Table 2. Structure of gross domestic expenditures on research and development activity in the years 1995–2003 by source of funds % (current prices)

Specification	1995	1998	1999	2000	2003
Total:	100,0	100,0	100,0	100,0	100,0
of which funds from:					
The state budget	60,2	59,0	58,5	63,4	62,7
Economic entities	24,1	29,7	30,6	24,5	23,5
Scientific units of the Polish Academy of Sciences and branch research-development units	11,9	8,3	7,5	8,1	5,9
International organisations and foreign institutions	1,7	1,5	1,7	1,8	4,6
Other units	2,1	1,5	1,7	2,2	3,3

Source: *Statistical Annual 2004*, CSO, Warsaw 2004, p. 149; *Science and Technology in the year 2000*, CSO, Warsaw 2002, p. 28.

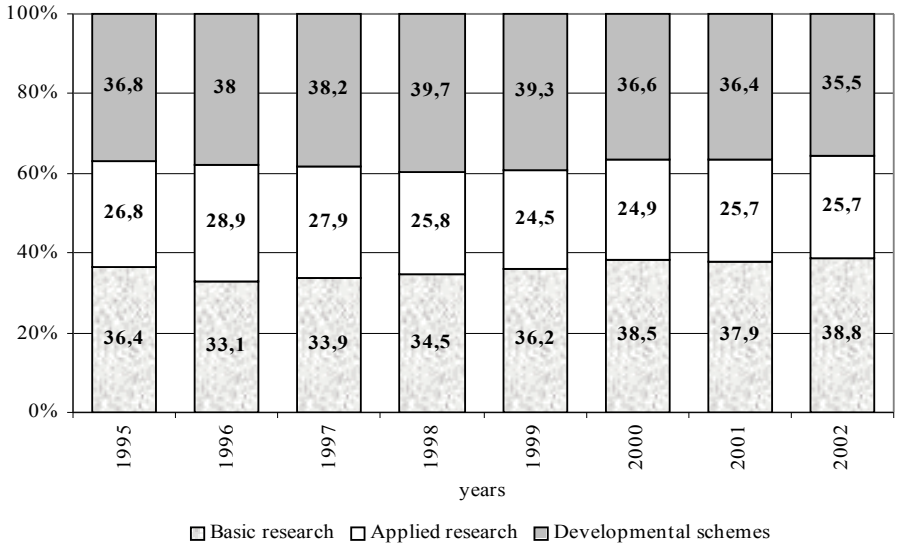
From the analysis of the structure of the expenditures on R+D activity by source of funds it can be concluded that the share of the funds coming from the state budget (in total expenditure) is above 60% (in 2003 it was 62,7 %), whereas the share of the funds from economic entities (companies) is between 23,5%–24,5%.

It is worth emphasising that in highly developed countries funds from economic entities are the main source of financing the R+D activity (Science and Technology in 2002, op. cit., p.31). In 2001 they comprised (in the case of the European Union) about 56% and in OECD countries 63% of the total expenditure on R+D activity. The predominant participation of the budgetary funds is a

characteristic feature of the countries which display an average level of economic development. Among the countries belonging to the OECD the structure of expenditures on R+D activity which is similar to Polish can be found in Mexico, Turkey, Portugal and Hungary.

Relatively low participation of business enterprises in financing R+D activity exerts influence on its structure. This structure is analysed according to the type of research (basic research, applied research and developmental schemes). In 2002 38,8% of the total expenditure on R+D activity in that year was allocated to the basic research. 25,7% was allocated to applied research and 35,5% to developmental schemes. Since mid 1990's in Poland there has been a slow growth of the share of funds on basic research and a moderate decline of the share of funds on applied research and developmental schemes. This phenomenon is illustrated by diagram 2.

Diagram 2. Expenditures in research and development activity by type of research in the years 1995 – 2002



Source: *Science and technology in 2002*, op. cit., p. 32.

In comparison with other EU countries Poland has an unfavourable structure of expenditures on R+D activity, which manifests itself in the excessively high percentage of expenditure on basic research and too low expenditure on developmental schemes. In economic literature devoted to the issue of innovativeness the share of developmental schemes in expenditures on

R+D is treated as an index of this activity to the so-called closeness to market (Science and Technology in 2002, op. cit., p. 32). In the structure typical for highly developed economies the share of expenditure on developmental schemes is dominant whereas the share of expenditure on basic research remains at the level of about 20%. For example, in Spain (which is very often compared with Poland) in 2000 the index of closeness to market was 42,9% and in Norway 47% (*Main Science and Technology Indicators* 2003/2, OECD, Paris 2003, p. 31–33).

The ability of an economy to create innovations is to a large extent dependent on the staff potential of R+D sphere and on the effectiveness of its utilisation. In the initial stage of system transformation employment in R+D units was significantly reduced. In the years 1990–1994 the number of workers employed in those units declined from 100,5 thousand to 71,7 thousand (in full-time equivalents), i.e. by about 30% (*Report about the state...*, op. cit., p. 52–53). In the following years a gradual growth of employment in this sector could be observed; in 2003 the number of the employed reached 77,04 thousand, where about 75,5% were the researchers (Statistical Annual 2004, CSO, Warsaw 2004, p. 421). Among the EU countries only Germany, France, Great Britain and Italy have a bigger number of employees of this group.

International comparisons concerning the staff potential of the R+D sector use the index of the number of researchers to 1000 professionally active people. In 2003 an average value of this index in Poland was 3,4 and was similar to its value in Spain (3,3) and in Italy (3,2) (Science and technology in 2002, p.188).

In the analysed period there emerged a structure of qualified employees of the R+D sector. It is manifested by the systematic growth of the number of the scientific degrees (such as doctor or post-doctoral degree) and of the scientific titles (such as professor) which are awarded each year. This tendency is illustrated by the statistical data included in table 3.

Table 3. Scientific degrees and titles awarded in Poland in the years 1995–2002

Specification	1995	2000	2001	2002
Scientific titles of professor	367	470	680	789
Scientific degrees of:				
post-doctoral academic	628	829	755	923
doctor	2300	4400	4400	5450

Source: *Science and technology in 2000*, op. cit., p. 188.

As can be seen from the table 3 in 2002 the number of granted doctor's degrees was 5450 and was bigger by as much as 23,8% from the number of doctorate students in the preceding year. It should be added that this number is three times greater than the number of doctor's degrees awarded in 1992 (Kleiber 2002). This so-far unobserved increase results from the growing popularity of doctorate studies, which is, in turn, connected with academic aspirations of the young generation of Poles and with the characteristic drive for knowledge. The scientific value of these doctorates still remains an open question, i.e. quantity-quality dilemma.

Also in the case of the scientific post-doctoral degree or of the scientific title of a professor considerable progress could be observed in the analysed period; the number of people with post-doctoral degree was in 2002 bigger than in 1995 by about 47%, whereas the number of the 'professor' scientific titles was adequately bigger by 137%.

The positive effect of the high rate of growth of the new population of doctors, post-doctoral academics and titular professors was the improvement in the level of education of those employed in the R+D sector. For example, in 1998 the percentage of the employees with the professor title in the overall number of the employed in this sector was about 6,1%, of the employees with the post-doctoral degree about 7% and with the doctor degree about 23,6%. In 2002 this percentage was respectively as follows: 7,2%, 8% and 28,9% (*The Report on the state..*, op. cit. p. 57; Science and technology in 2002, op. cit., p. 49).

The indices presented above show that Poland has at its disposal a significant personnel potential in the R+D sector, which is an important indicator for the development of the knowledge-based economy. Nevertheless, the effectiveness of this potential's utilisation is not satisfactory, which can be read from the data concerning inventiveness in Poland (included in table 4).

Table 4. National inventions and Polish inventions patented abroad (1990–2003)

Specification	1990	1991	1994	1998	2000	2003
National inventions:						
registered	4105	3389	2676	2407	2404	2268
granted patents	2504	3241	1825	1174	939	613
Polish inventions patented abroad	149	150	119	110	123	-

Source: *Small Statistical Annual 1997*, CSO, Warsaw 1997, p. 222; *Statistical Annual 2000*, CSO, Warsaw 2000, p. 310; *Statistical Annual 2004*, CSO, Warsaw 2004, p. 429.

As is shown by the data presented above, since the beginning of the 1990's there has been a systematic decline in the number of inventions in Poland. The number of the inventions registered annually in the patent coverage (protection) by national inventors (residents) decreased in Poland in 2003 to about 56% of the number of these inventions in 1990. The value of the so-called inventiveness indices, i.e. the number of inventions reported to the patent coverage by residents falling to 10 thousand inhabitants has been in Poland for recent years about 0,7 and is close to the value of this index in the Czech Republic, Spain, Belgium and Hungary. The number is bigger than that in Greece, Portugal and Turkey (*Report on the state...,* op. cit., p. 31).

On the basis of the analysis of table 4 it can also be said that the number of Polish inventions patented abroad has shown 'waving tendency' and (despite a moderate increase in the years 1998–2000) their number is still lower than at the beginning of 1990's.

The decrease in the activity of Polish economy in the domain of inventiveness is a sign of the declining interest and patenting potential of enterprises. The causes of this state of the art are the reflection of the negative tendencies which can be observed both: in R+D sector and in industry. They are also the reflection of the specific circumstances of the Polish transformation in the 1990's. Among the most important of these are:

- the increasing influx of modern technologies from abroad, which has, at the same time, been made much easier,
- the liquidation of full-time (permanent) positions of patent representatives in most companies,
- high costs of the services offered by patent representatives, which can not be covered by majority of small and medium companies,
- the commonly applied practice of liquidation or reduction of the research and development base in the companies which underwent privatisation.

In spite of the decrease in the expenditures on R+D activity and in the activity of R+D sector in the domain of inventiveness, a positive sign is the fact that over the past years there has been an increase in the share of Polish publications in world scientific volume. According to the findings of the Institute of Scientific Information in Philadelphia this share was at the beginning of the 1990's about 0,95% and grew in 2000 to 1,15%. As far as the share of Polish publications in world volume in the domain of nano-technology is concerned this index was 1,2% in 1999, which gives Poland 18 place in the world ranking. In the years 1995–1999 the number of Polish publications within this scope grew by 193% with the parallel increase of those publications in the world by 93% (Kleiber, M. op. cit., p. 39; *Third European Report on S+T Indicators,* European

Commission, Brussels 2003, p. 205). This increase in efficiency of Polish scientists means that the Polish scientific society, despite all the obstacles, has been trying to actively fulfil their mission.

2. Evaluation of the innovative activity of companies

The ability of companies to put the new technologies into practice (implement) and commercialise them is the key factor in the determination the level of innovativeness of an economy. On the basis of the indices analysed earlier an approximate evaluation of innovativeness of an economy can be put forward. Indices which reflect the level of innovativeness more precisely concern the innovative activity of the companies. This activity constitutes a factor deciding about the economy's competitiveness.

The general information concerning the innovative activity of industrial companies in the years 1999–2002 is included in table 5.

Table 5. General information concerning innovative activity of industrial companies in the years 1999–2002

Specification	1999	2000	2001	2002
The total number of companies	9271	9123	8664	8488
Share of companies which conducted innovative activity [a] (%)	25,1	32,1	36,4	36,7
Sector: public	34,9	41,7	44,8	45,6
private	22,9	30,2	34,9	35,2
Expenditures for 1 company in 1000 zł (current prices)	1644,9	1341,1	1327,5	1631,5
Sector: public	3104,2	2608,8	1638,6	2061,9
private	1314,2	1083,4	1269,2	1558,6
Where for 1 company conducting innovative activity	6542,3	4177,1	3643,2	4442,8
Sector: public	8892,1	6261,8	3656,9	4517,1
private	5731,5	3591,9	3639,8	4426,5

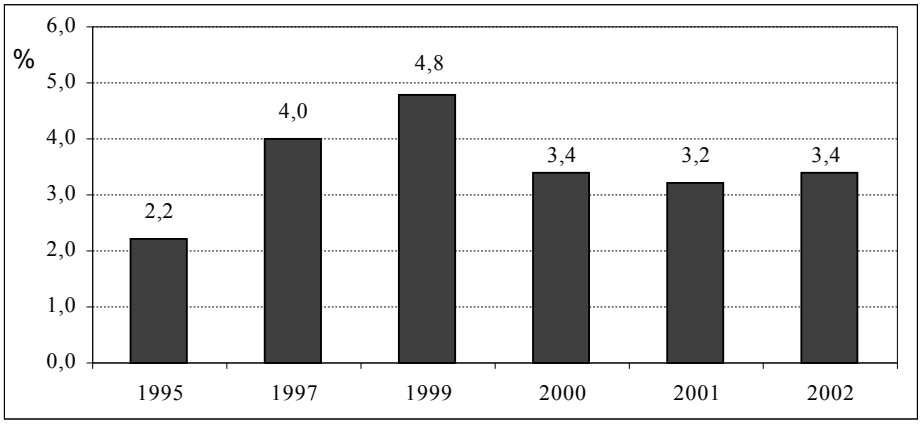
[a] I.e. had in this year expenses for this activity.

Source: *Science and technology in 2002*, op. cit., p. 106.

Two indices are especially useful in the evaluation of the innovative activity of industrial companies. The first one is the index of innovativeness intensity which represents the ratio of expenditures on innovative activity to the sales value. The second index is called the level of the renewal of production and it expresses the share of the sold production of new and modernised products (technical innovations) introduced into the market in the last three years in the total value of production sold in that year.

From the analysis of the diagram 3 it follows that the index of innovativeness' intensity (despite its decline recorded in the years 2000–2001) has remained relatively high. In 2000 in the EU countries this index for industrial companies was 3,7% (Science and technology in 2002, p. 99).

Diagram 3. Index of innovativeness intensity in industrial companies in the years 1995–2002



Source: *Science and technology in 2002*, op. cit., p. 99.

The shaping of the second index is included in the table 6.

The analysis of the data included in table 6 encourages the formulation of certain conclusions:

- after the index of the share of new and modernised products in the sold production of industry fell in 2000, it has shown moderate growth; in the section of industrial processing this index is slightly higher than the average index for the whole industry;
- it has to be noted that the level of this index in modern industries (producing such goods as computers, office machines, medical apparatus, telecommunication equipment, mechanical vehicles etc.) is much higher than average;

– a positive tendency is visible growth of the share of sold production of new and modernised products in export; in 1999–2003 this index increased from 2,3% to 6,4%.

Table 6. Share of the sold production of new and modernised products of industry in total sold production of industry in the years 1999–2003 (current prices)

Specification	1999	2000	2002	2003
	products (in %) whose production was launched in the years			
	1997–1999	1998–2000	2000–2002	2001–2003
Total	21,3	16,4	16,7	17,2
where for export	2,3	4,1	6,1	6,4
in which the industrial processing				
– computers and office machines	24,7	18,5	19,1	19,4
– equipment and radio, television telecommunication devices	96,3	48,3	6,6	33,5
	37,3	10,9	42,0	60,1
– medical instruments, precise and optical, watches	71,6	75,0	47,4	62,7
– mechanical vehicles and trailers	50,1	34,9	43,8	49,2

Source: *Statistical Annual 2004*, CSO, Warsaw 2004, p. 428; *Science and technology in 2002*, op. cit., p. 113.

A very important element in the evaluation of the level of innovativeness and competitiveness of Polish companies is the share of high-tech goods in the sold production of industry as well as the share of these products in export[1]. These indices mirror the companies' ability to absorb new scientific-technological knowledge and to transform it into actual economic effects as well as to utilise these effects on the global market. The industries producing those products are the source of high added value and new (usually well-paid) workplaces.

In Poland since the beginning of the 1990's the share of high-tech products in the sold production of industrial companies is at the level of barely 3,3–5,6%; in 2002 it was 4,1%. Similar tendency can be observed in the domain of the share of high-tech products in export which is between 2,3–3,2%; in 2002 it was 2,3%. In Spain this index remains at the level of 7,3%, in the Czech Republic 9,2%, in Hungary 20,7% and in Ireland 37,2% (Science and technology in 2002, op. cit., p. 162–167).

[1] High-tech industries include the branches where the expenditures on R+D activity compromise over 4% of sol production. The air, electro-technical, pharmaceutical industry and the industry of medical instruments all belong here.

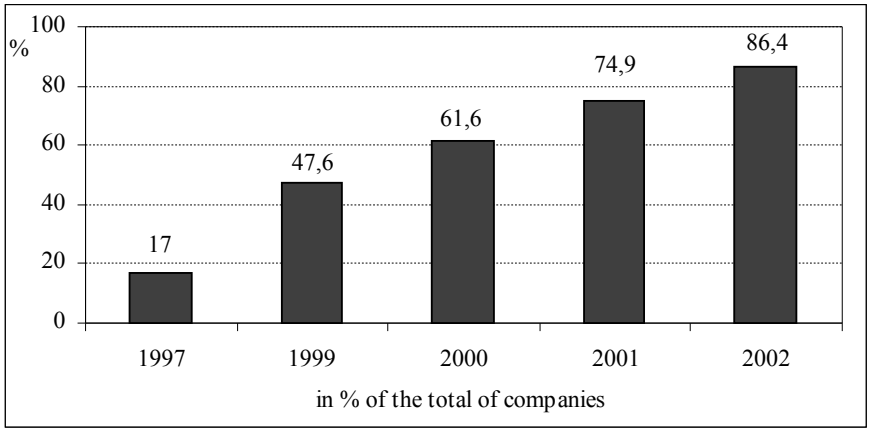
The index which characterises innovativeness of economy is the level of technological infrastructure, because the development of the scientific research and innovative activity is, to a large extent, conditioned by the general technological level of national infrastructure. For example, one of such indices is the percentage of industrial companies which make use of the Internet in order to search for information, monitor the market, conduct marketing, render information accessible, buy goods and sell their own goods.

Diagram 4 illustrates the dynamic growth of the share of industrial companies which make use of the Internet in the total number of industrial companies.

The analysis of the diagram highlights the radical upsurge in the number of companies making use of the Internet; in 1997 the share of those companies comprised 17% of the total number of industrial companies, whereas in 2002 this share reached the level of 86.4%.

In the years 1997–2003 there was a systematic growth in the number of computers used in industrial companies to control and regulate technological processes; this number has grown by over 80% (Ibidem, p.123). This is definitely a positive phenomenon which facilitates the increase in the technological level of an economy.

Diagram 4. Industrial companies[a] using the Internet in the years 1997–2002



[a] The data concern the companies in which the number of the employed is above 49 people.

Source: *Science and technology in 2000*, op. cit., p. 133.

3. How to raise the level of innovativeness of an economy?

The starting point of this part of the essay is the hypothesis about the need to adjust Polish economy to the challenges and chances resulting from the current stage of technological revolution and progressing globalisation. It is in accordance with the crucial interest of Polish economy, which can be classified as the one trying to improve the international competitiveness of companies. This aim definitely calls for many changes in the whole present innovative system, first of all in the system of financing the R+D sphere and in the shaping of national priorities as well as in the domain of the co-operation between research institutions and companies.

We should ask ourselves the question whether Poland, which has problems with maintaining the proper macroeconomic proportions, whose infrastructure is under-financed and which faces considerable social needs, can create favourable conditions facilitating the raising of the level of innovativeness? The analysis of the current problems of the Polish economy and of the character of economic policy implemented by successive government justifies the sceptical opinion. A question then arises whether the traditional circumstances of economic development (mainly macroeconomic) should be followed and whether we should wait till the knowledge-based economy will develop by itself as the effect of the impact of the market forces? It seems that the adoption of such an attitude may result in the development of an economy which would never be able to face the challenges of modern economy.
This opinion is supported first of all by the anxiety about the marginalisation of economies which (since they do not have at their disposal various assets that are esteemed in the globalised economy) are made to play secondary, inferior roles to the world centres which make use of the latest scientific and technological achievements. Fulfilling these roles is on the one hand equivalent to achieving small added value. On the other, it results in an increased competition based on low wage costs.

The countries such as Singapore, Ireland, Finland and South Korea, which, to a large extent, can attribute their development to high innovativeness, have in the recent decades radically bridged the gap separating them from the world's leaders. The example of such countries confirms the validity and effectiveness of the policy which (in accordance with the suggestions of M. Porter) draws on the improvement in the quality of the available processing parameters and on the creation of the specialised kinds of these parameters. No less instructive are the examples of companies which function in the countries characterised by an average level of development, but are, nevertheless, perfectly capable of achieving competitive superiority on the global markets. This superiority is based on the utilisation and implementation of the current scientific and technological innovations. Such companies include: Hindu and Pakistan

software companies or the Brazilian producer of aeroplanes.

It is difficult to formulate a straightforward and univocal evaluation of the chances to improve the innovativeness of the Polish economy. On the one hand, a more optimistic prognosis is definitely supported by the size and dynamics of the Polish market of such goods as computer systems, computer equipment, Internet services, medicine, medical equipment etc. Such a market is attractive for the companies which base their competitive superiority on knowledge. In addition, a considerable research and intellectual potential is still available on the Polish market. On the other hand, it has to be pointed out that the home market of modern goods is, to a large extent, operated by foreign companies which relatively seldom locate in Poland the elements of the value chain connected with the research and developmental schemes as well as with designing. Out of 27 big international corporations which have invested in Polish industry only 13 have located in Poland their research and development centres. These companies most often co-operate with Polish businesses as subcontractors and suppliers of intermediate products. The example of Ireland shows that thanks to the proper policy of the government towards foreign capital it is possible to attract investments which not only facilitate export growth but are based on the latest technologies and rely on the abilities of national experts as well as on domestic research institutions.

A wealth of experience of the countries which have been successful in creating an effective innovative system forms the basis for the formulation of a few suggestions about the indispensable actions and changes facilitating the innovativeness of the Polish economy can be formulated. The effect of this undertaking will naturally depend on the joined and ordered actions based on a rational strategy of economic development.

A crucial issue is giving a clear priority in economic policy to the expenditures on R+D activity which will be financed both: from the state budget and from the companies' resources. It is widely assumed that the national expenditures on R+D activity in relation to GDP which remain at the level below 1% can in the long run result in weakening the driving forces of economic development. In order to avoid this danger there is a necessity to develop a political will to make fundamental changes in the attitude of the politicians and the opinion-forming elites to the role of science and technology in Polish economy. Poland needs to develop a deep awareness that the future welfare is to a considerable extent dependent on an increase in the innovativeness of the economy and that the organisational, legal and financial undertakings of the government should be aimed at this direction.

An increase in the level of innovativeness of the Polish economy requires working out and conducting a unified and active innovative policy on the part of

the state. This policy will, in its nature, be a horizontal one and will interrelate a scientific-technological policy with an industrial policy. In view of this fact there is an obvious need to co-ordinate the actions of the ministries (the Ministry of Economy, Ministry of Science and Informatics and the Ministry of Education and Sport) which should co-operate to create the strategy of the development of science and technology compatible with the directions of restructuring and modernisation of the economy. The current level of the co-operation of these ministries is insufficient and does not facilitate the development of an effective innovative policy.

It is hard to think of a successful realisation of even the most justified and lofty macroeconomic programmes without the implementation of given mechanisms on the micro scale. In connection with this it seems indispensable to work out a policy of an actual support for intellectual enterprise whose aim will be to create favourable conditions of development for companies conducting research and developmental schemes and manufacturing high-tech products. This support can be based on such instruments as: tax relief for companies which incur expenditures on scientific research and which create research-developmental centres; technological credits given by commercial banks to companies which work out new technologies and which incur investment expenses to implement them; credit guarantees in the case of export of high-tech products; help given by government institutions in applying for funds from the EU etc. Two bills were prepared by the government in 2004: about financing of scientific research and supporting innovative activity.
These bills aimed at the creation of the system of strong incentives for research centres and companies which implement innovative projects that demand carrying out intensive research and high investments expenditures.

The above-mentioned solutions can contribute to the elimination of a capital gap which limits private investments into technological companies which have been recently set up, i.e. companies which make use of the latest technologies. For the established companies the capital market (especially venture capital funds) comprises the open source for raising financial means. Nevertheless, newly set up technological companies find it difficult to gain access to this group of investors. Venture capital funds engage themselves readily in financing well-established (experienced) technological firms and, at the same time, they are reluctant to finance new companies, even though these companies display big growth potential. On the Polish capital market, there are few venture capital funds which would be interested in investments in companies which are still at initial stage of their development. The chance to bridge this gap is the project of setting up the National Capital Fund and the regional seed capital within the sector operational programme – an increase in competitiveness of companies.

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