POLISH INFORMATION AND FOREIGN INVESTMENT AGENCY

The R&D Sector in Poland

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I am among those who think
that science has great beauty

Maria Curie-Skłodowska
Podwójna laureatka Nagrody Nobla

Definition

The R&D sector is composed of institutions and people conducting activities aimed at the development of knowledge, as well as finding new applications for existing technologies. Various innovations have resulted – product, process, technological, and innovations essential for rapid economic development.

The Polish R&D sector comprises:

- The Polish Academy of Sciences;
- Research and development units;
- Higher education institutions conducting activities in the field of R&D;
- Units offering services for science;
- Development units, i.e. enterprises with their own research facilities.

Why choose Poland as the place for investment in the R&D sector?

- Stable economic growth and security of research;[1]
- High potential for employment – a large number of students on various majors;
- Competitive advantage in skills versus remuneration;
- A large number of existing R&D units;
- Science and technology parks facilitating the establishment and conducting of business and research activities;
- A large number of opportunities for obtaining technological support from various sources for investments in fixed assets, and training;
- Research centres not only in the largest cities, but also in smaller towns;
- Low barriers to entry, high support from local authorities;
- Scientific successes of scientists and students;
- A large internal market and opportunities to cooperate with local companies and universities;
- Examples of R&D centres of companies such as ABB, Google, Microsoft, Unilever,
- A comprehensive range of active recreation and relaxation after hard work.

[1] Poland was the only European country to enjoy economic growth in 2009.

Executive summary

The potential of the Polish research and development (R&D) sector is substantial, mainly due to highly-developed specialist personnel. It is expected than in several years there will be an increased interest in opening R&D centres, similar to the ones which happened in the BPO sector. BPO centres are currently responsible for over 40 000 jobs, and there are over 300 of them.[2]

It is hard not to mention the necessity for commercialising research results and the cooperation of the entire sector with entrepreneurs. The largest companies in the world have already started opening R&D centres in Poland, benefitting from the first mover advantage, taking advantage of the availability of the best personnel and cooperating with existing R&D units.

The capabilities of the Polish market are proven by the potential of its human resources – the current number of students is 1.9 million people, over 420 thousand graduates a year, and already 120 thousand people working in the R&D sector.[3] This potential is confirmed by the successes achieved by Polish students in such competitions as The Imagine Cup, Code Jam and the Central European Programming Contest. 717 enterprise and innovation centres have been identified in Poland, including 318 training, consulting and information centres.

Research and development activity is becoming increasingly financed by the private sector. Interest among global actors is also growing. The following companies have already invested in centres in Poland: ABB, Google, Siemens, GlaxoSmithkline, Telcordia, DeLaval, Whirlpool, Astra Zeneca Pharma Poland, Motorola, Delphi Automotive, Intel, General Electric, Roche, Capgemini, Nokia-Siemens, 3M, Intel, Motorola, Bombardier, Pratt&Whitney, Alcatel – Lucent, Irevna, and McKinsey.

At present, the relatively low number of research results confirmed by patents is still a problem for Polish science; however, the specification of clear goals and cooperation with entrepreneurs can change that.

In the last few years, there has been a boom in science and technology parks, in which a growing number of innovative companies are being established. The parks are a convenient place for cooperation with universities. Polish and foreign companies are more and more willing to use this opportunity. In years to come the rapid development of the research and development sector is likely to occur, in particular in the IT, electronic and information industry, on the condition that supporting activities are provided.

Key figures about the sector

- 1 157 entities conducting R&D activity;
- 456 higher-education institutions;
- 1,9 million students;
- 421 thousand graduates a year;
- 119 682 people employed in the research and development sector in Poland;
- 44 471 people working in the sector held a PhD degree;
- Over 300 shared services centres (BPO/SSC);
- 40 000 people working in the BPO/SSC sector;
- EUR 8,25 billion the Innovative Economy Operational Programme 2007-2013 ;
- PLN 7,7 billion allocated for R&D;
- 46 initiatives for science and technology parks, 23 already operating;
- 717 innovation and enterprise centres, including 318 training, consulting and information centres

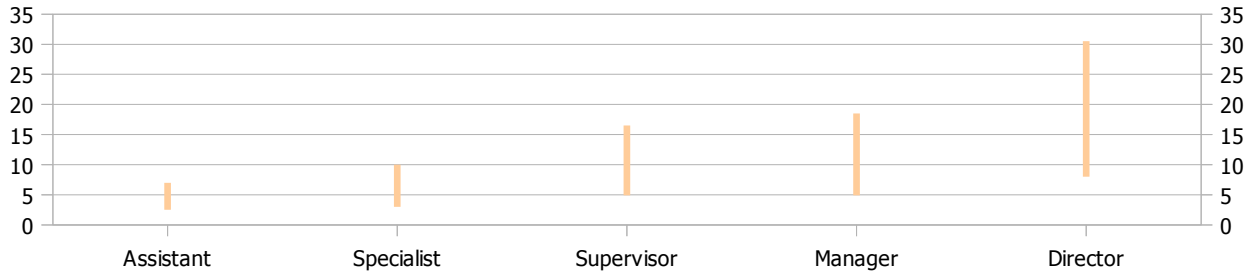
Source: *Own study of PAIiIZ.*

[2] The Association of Business Service Leaders (ABSL), www.absl.pl.

[3] The Central Statistical Office, Science and Technology in Poland in 2008, Warsaw 2010.

:: Figure 1. The average monthly remuneration in the R&D centre

Position	The first decile	The first quartile	Median	Avarage	The third quartile	The last decile
Director	9 019	12 000	12 686	15 271	18 000	21 520
Designer division supervisor	4770	5213	6188	7346	8405	11550
Manager	4 600	7 150	8 613	8 982	10 499	14 000
Specialist	2 712	2 996	4 017	4 569	5 516	7 000
Assistant	2 320	2 658	3 364	3 497	4 219	4 432



Source: TEST HR, General Industry Report on Remuneration, Spring 2010

Background

For years the research and development sector in Poland has consisted mainly of the institutions of the Polish Academy of Sciences (PAN), independent research centres and higher-education institutions conducting research activity.

Recently, interest in opening research institutions among managers of foreign companies in Poland has considerably increased.

According to data from the Central Statistical Office, in 2008 there were 1 157 entities conducting research and development activity in Poland, of which 697 were enterprises.[4]

In 2008 enterprises and other institutions conducting research activity allocated PLN 7.7 billion for research, of which PLN 2.3 billion was for basic research. 52.2% was intended for technical sciences, 22.1% for natural sciences, and only 8.6% for social sciences and humanities.

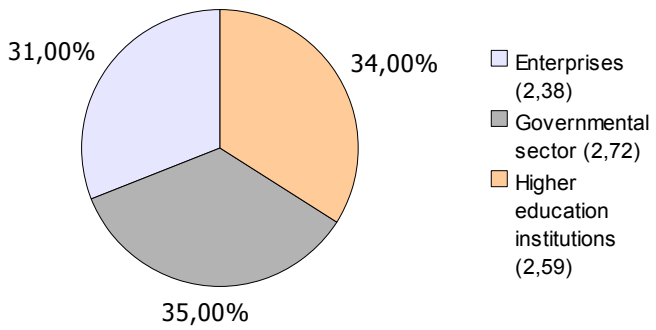
Research and development activities in Poland were being conducted by 119.7 thousand people as at the end of 2008, of which the employees of higher education institutions accounted for the largest group – 79.5 thousand people.

Microsoft Centrum Innowacji

The Microsoft Innovation Centre (MIC) is a joint project of Microsoft, the Poznań Supercomputing and Networking Centre and the Poznań University of Technology.

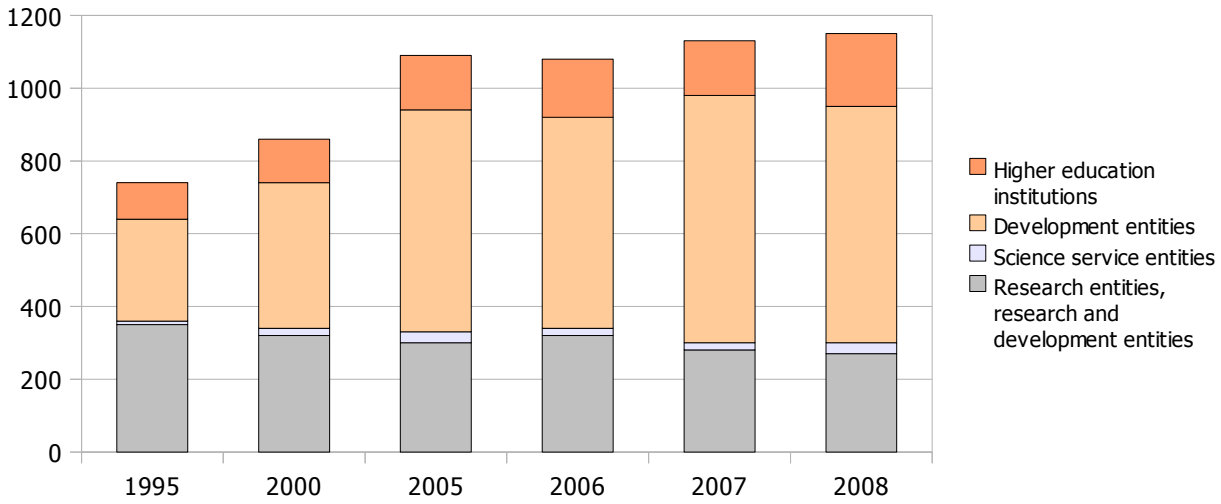
The main goal of the Centre is to support innovative solutions and technologies in the field of IT safety and outsourcing services.

MIC acts as a centre of cooperation in the areas of scientific research, technologies and IT solutions between Governmental, Local-Governmental institutions, universities and enterprises.



[4] Central Statistical Office, Science and Technology in Poland.

:: Figure 2. Entities conducting research and development (2008)



Source: The authors' own study based on data of the Central Statistical Office.

Educated stuff

A key factor determining the success of a research centre is obviously ambitious and well-educated staff. Recently in Poland the number of students has been gradually increasing and currently it numbers over 1.9 million people. Presently, only 120 thousand people work in the research development sector.

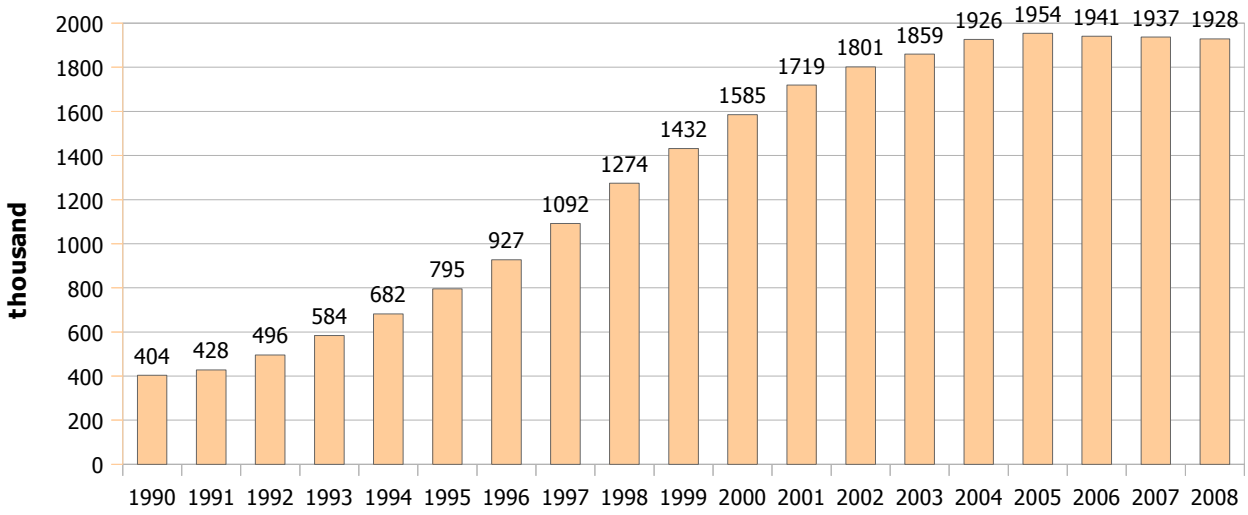
In terms of the number of students, majors in economics, social and pedagogical sciences are represented to the greatest extent. However, there still is considerable interest in the scientific majors – IT, engineering and mathematics.

HAYS Recruiting experts worldwide

Our country is more and more often mentioned as one of the States with a chance to become a European leader in outsourcing of a higher generation, so called KPO (Knowledge Process Outsourcing) and a regional research and development centre. Investors see the potential of our highly-qualified staff and two million ambitious young Poles gaining higher education.
The wisdom of such investments is proven by the fact that international concerns which for years have been conducting their R&D activities in Poland, i.e. Google, IBM, Microsoft and Intel, have decided to develop their existing teams and extend research and development activities with new areas.
Rapid growth is possible owing to Poland's being a world class specialist whose labour costs are relatively low. Additionally, it is encouraging that the Polish Government has undertaken programmes aiming at the preparation and development of engineers. Various activities encourage young Poles to pursue scientific majors, which is supported by an obligatory exam in mathematics introduced again in secondary school final examinations. We have also observed that cooperation between the sectors of science and business is improving. The above-mentioned activities have resulted in an increase in the potential of human resources for investments in the KPO and R&D sectors.

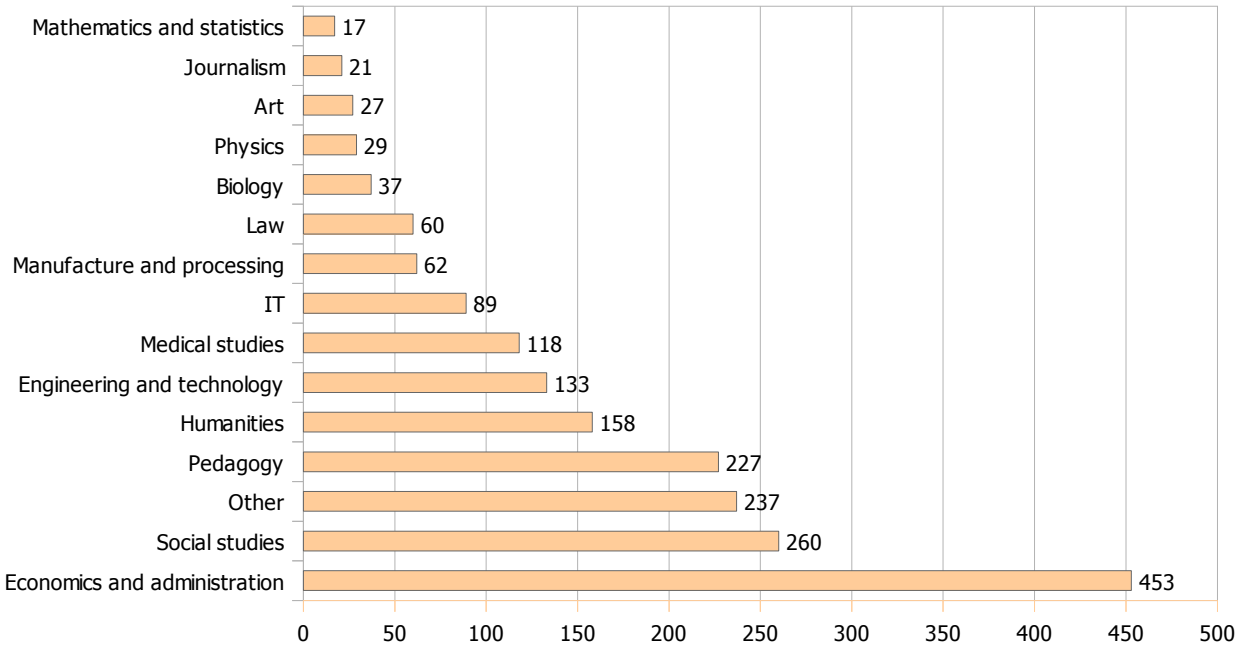
Jakub Poddany, IT Specialisation Director, HAYS Poland

:: Figure 3. The number of students in the period 1990-2008



Source: Central Statistical Office.

:: Figure 4. The number of students of specific majors (data in thousand)



Source: Central Statistical Office.

Activity conducted – active staff

As at the end of 2008, 119 682 persons were employed in the research and development sector in Poland, of which 37% held a PhD degree, and 32% held a degree below PhD. 9 726 people had Professor status.

The largest academic centre in Poland is Warsaw, with the biggest university – the University of Warsaw – gathering 56.0 thousand students. In addition to Warsaw, the biggest academic centres include: Kraków, Wrocław, Poznań, Łódź, and Lublin as well as Gdańsk and Katowice. However, even in medium-sized towns there are higher-education institutions. Moreover, an additional supply of research workers makes it possible to gather staff even in smaller towns.

Corporate Research Centre ABB in Kraków

In 1996 the ABB Executive Board decided to establish a Corporate Research Centre in Poland, the first of its kind in Central and Eastern Europe.

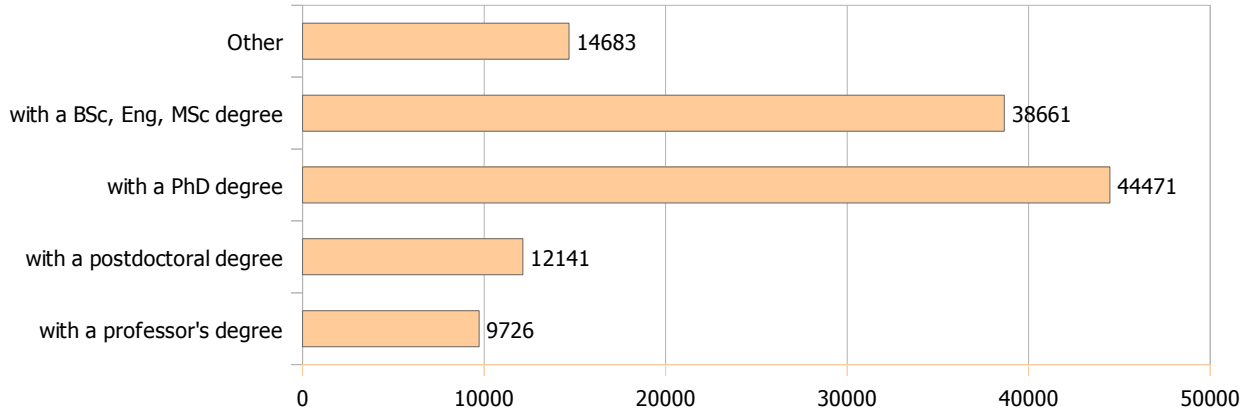
The ABB Corporate Research Centre in Kraków employs many experienced graduates of leading Polish and foreign universities and higher education institutions representing a high level of expertise.

The activity's range includes electrical engineering, numerical simulations, nanotechnology and advanced manufacturing.

Kraków, a historic academic city, gathering a large number of students studying there, was chosen for the headquarters of the Research Centre.

Efforts put into research work are confirmed by the fact that ABB came first in the ranking of innovative companies, thanks to the largest number of patents in Poland granted in the years 2004-2008.

:: Figure 5. Employment in the research and development sector in 2008



Source: The authors' own study on the basis of data of the Central Statistical Office

The international research and development centres

Multinational enterprises increasingly perceive Poland as a convenient place to make investments requiring advanced resources of human capital in addition to the existing shared services centres (BPO/SSC), the profile and number of which have considerably increased.[5]

Their number compared with BPO centres is still low; however companies are increasingly expanding their manufacturing activity by research departments crucial to further operations. Knowledge-based investments appear more and more in the outsourcing sector (KPO – Knowledge Process Outsourcing), which is exemplified by the investment of McKinsey and Irevna in Wrocław.

The research activity conducted by international concerns proves the growing attractiveness of Poland. Still, these are figures definitely below its abilities. It is related to the ease of finding the appropriate number of well-educated research staff.

Companies are most willing to open research centres operating in the fields of IT, telecommunications and electronics. There are huge development opportunities in the areas of medicine and biotechnology.

McKinsey&Company

Knowledge Center in Wrocławiu

The Knowledge Centre in Wrocław is the fourth centre of its kind in the McKinsey global knowledge network. The centre will provide services to consultants and experts mainly in Europe, but also on other continents.

The centre is an ideal work place for highly-qualified analysts, the best graduates of universities (not only those in Wrocław), and also experts experienced in specific industries.

This entity will join the group of institutions operating in China, India and both Americas and it will be strongly integrated with research centres in these countries.

[5] The Association of Business Service Leaders, ABSL.

:: Table 1. Selected research and development centres of international concerns in Poland

Company	Activity	Place
ABB	Centre for designing and power engineering machines and equipment, software development	Kraków, Łódź
Alcatel Lucent	Centre for telecommunications software development	Bydgoszcz
Avon	Regional research and development Laboratory	Garwolin
Bosh Siemens	IT Services Centre, & Research and Development Centre	Łódź
Capgemini	Software and IT Services Centre	Kraków
Delphi Automotive	Technology solutions and system technologies	Kraków
General Electric	Engineering centre	Warsaw
GlaxoSmithKline	Product development centre	Poznań
Google	Innovative Centre Wrocław	Wrocław
IBM	Innovation Centre	Kraków, Łódź, Warsaw, Bielsko-Biała
Lufthansa Systems Poland	IT Centre, software production	Gdańsk
McKinsey	Knowledge Centre	Wrocław
Microsoft	Innovation Centre MIC Poznań	Poznań
Motorola	The development of software for mobile telephony	Kraków
Oracle	Centre for Oracle mobile and cordless software production	Warsaw
Roche	Software development and testing	Warsaw
Samsung Electronics Poland	Research and Development Centre	Warsaw
Siemens	Software Centre, software engineering services and comprehensive IT projects	Wrocław
Symantec	Research laboratory	Warsaw
Telcordia Technologies	Technological research centre	Poznań
Thomson Reuters	Economic data management centre	Gdynia
TPSA	Research and Development Centre	Warsaw, Lublin, Gdańsk
Unilever	Global development centre	Poznań
Whirlpool	Research and Development Centre	Wrocław
Wikia Polska	Research and Development Centre	Poznań
YDP (Young Digital Planet)	Training systems software	Gdańsk

Source: Own study of PAIiIZ.

Science and Technology Parks

Science and technology parks are places in which thanks to companies representing one industry and the research and development institutions supporting them gathered in one place it is possible to commonly apply pro-development solutions in our country. Facilities offered by parks are addressed both to Polish and foreign entrepreneurs.

Companies can start their activities in one of many science and technology parks, where they can be supported in organisational, legal and subject-related terms. The Poznań Science and Technology Park should be deemed the first Polish technology park, established in May 1995, as part of the statutory and economic activity of the Adam Mickiewicz University Foundation.

In the middle of 2009 there were 46 park initiatives in total in Poland.

The Unilever global research centre in Poznań

The Centre of Excellence in Liquid Foods is the first global research and development centre dealing with food located in the region of East-Central Europe.

The Research and Development Centre is responsible for the development of formulae, manufacturing processes and packaging for soups, sauces, and ketchups for such brands as Knorr, Hellmann's, Bertolli, Unox and Tortex. The centre employs 65 specialists from 13 countries.

Tony Natt, the Director of The Centre of Excellence Liquid Foods, said during the opening: "It is wonderful to see how fast we manage to build a new team and a new research and development facility here in Poznań. We have gathered the best experts in the field of research and development. They will create formulae for food products of home-made quality, manufactured from natural ingredients on a large scale. Now we have all we need to create top quality products for our consumers all over the world."

Government and EU investment support

Companies planning to launch scientific and research activities in Poland may apply for investment support from various sources. The most popular programmes include:

- Innovative Economy Operational Programme (IE OP);
- Human Capital Operational Programme (HC OP);
- Regional Operational Programmes (ROP);
- Multi-year Governmental Support Programmes;
- The Seventh EU Framework Programme;
- Governmental support for innovation centres.

OP IE, ROP and selected forms of Governmental aid included in the above-mentioned programmes will be further presented.

Innovative investment may be implemented within the following programmes

- investments below PLN 8 million – 16 Regional Operational Programmes
- investments over PLN 8 million - Innovative Economy Operational Programme (Measure 4.4 "New investments of high innovative potential")
- investments over PLN 160 million – Innovative Economy Operational Programme, measure 4.5.1 "Support for investments in the manufacturing sector")

:: Table 2. Support within IE OP and ROP

Type of project	Measure name	The value of eligible expenditure	The total value of the project
Innovative investments	4.4 "New investments of high innovative potential" IE OP	Minimum PLN 8 million max PLN 160 million	
	4.5.1 "Support for investments in the production sector" IE OP	Minimum PLN 160 million	
Industrial design and manufacture	4.2 "Stimulating the R&B activity of enterprises and support within the scope of industrial design" IE OP		Minimum PLN 400 thousand
Research and development	1.4 "Support for goal-oriented projects" (stage I), PO IG		Maximum EUR 50 million
	4.1 "Support for the implementation of the results of R&D work" (stage II) IE OP		Minimum PLN 400 thousand
	4.2 "Stimulating the R&D activity of enterprises and support within the field of industrial design" IE OP	PLN 2 million	Maximum EUR 50 million
	4.5.2 "Support for investments in the sector of modern services" IE OP	Minimum PLN 2 million	

Source: The entrepreneur's map

EU aid

The Seventh Framework Programme for research and technological development is the chief instrument for funding and development research at the European level. It is a seven-year programme (2007-2013) with a budget of almost EUR 54 billion.

Governmental aid

The sectors most supported are the automotive sector, the aviation sector, the IT and electronic sectors, and the BPO and R&D sectors. The aid is received on the basis of the minimum number of newly-created jobs or the value of incurred investment outlays.

Supported sector	Minimum number of jobs	and	Minimum value of investment	Maximum value of aid
Support for creating new jobs				
Automotive, aviation, biotechnological, IT and electronics	250		40 million PLN	From PLN 3 200 to PLN 18 700 per one job
BPO	250		-	
R&D	35		3 million PLN	
Other	500		1 billion PLN	

Supported sector	Minimum number of jobs	and	Minimum value of investment	Maximum value of aid
Support for investment in fixed assets				
Automotive, aviation, biotechnological, IT and electronics	50		160 million PLN	1-10% of the investment's value
Other	500		1 billion PLN	

Exemptions from CIT (19% rate)

Available in Special Economic Zones, i.e. in selected regions of Poland where business activity is run under special conditions. Exemptions from income tax amount to 30%-50% of investment outlays or the two-year cost of employing workers, whichever is higher.

Exemptions from property tax

Exemption depends on the number of newly-created jobs and whether Local Government applies a policy of tax exemptions. The rates of the property tax are set locally, and maximum annual rates amount to PLN 20.51/m^2 for buildings, PLN 0.77/m^2 for land and 2% of the value of constructions.

The sector's problems

A key problem faced by science in Poland is the low level of financial outlays, in particular on the side of the private sector. Companies do not use opportunities for cooperation with universities and other research entities; in turn those do not present a clear proposition for businesses. It translates into a small number of patents and commercialisation of solutions in comparison with other European countries.

Poor practical result-oriented approach – a low number of publications in reputable magazines and a limited number of patents.

Although more and more Poles studies abroad, the number of foreign students coming to Poland to take part in student exchange programmes is still small.

The sector's prospects

Taking into consideration the pace of the development and integration of the shares services sector (BPO/SSC) and the potential provided by the large number of students, academic centres and research institutes, it is possible to quickly develop research and development activity in Poland. An improvement in the situation has started to be observed. So far companies satisfied with successes achieved by their plants in Poland, have often opened more advanced departments in these facilities. Currently, R&D centres are being established independently from manufacturing plants.

ASSOCIATION of BUSINESS SERVICE LEADERS IN POLAND

Poland is one of the most attractive locations in the world for research and development centres. It results, *inter alia,* from the large supply of highly-qualified staff, including graduates in economics and technology. Polish employees are efficient, committed and speak foreign languages. Investments in the research and innovation sector mean not only new jobs for specialist engineers and analysts, but also an opportunity to develop a knowledge-based economy.

However, for the R&D centres to further develop in the future, it is necessary to use EU funds to this end, and most of all to introduce extensive changes in the education system. It is crucial to educate experts combining specialist theoretical expertise with the knowledge of advanced tools and skills for functioning in the business reality. Public support is of equal importance.

Currently, Poland comes as one of the last countries in the European Union in terms of expenditures on the innovation sector. Without the reform of education and an increase in expenditures on research centres, Poland may not seize its opportunity for the rapid development of the R&D sector and the whole economy.

Krystian Bestry, Vice-president of ABSL
Infosys BPO Europe

How to find information

Investment support

National Contact Point for Research Programmes of the European Union
http://www.kpk.gov.pl/centra_doskonalosci/polskie_cd.html
Information on EU funds
http://www.funduszeeuropejskie.gov.pl/
The Polish Agency for Enterprise Development
www.parp.pl
The Ministry of Regional Development
www.mrr.gov.pl
The Ministry of Science and Higher Education
www.nauka.gov.pl

Industry organizations

The Association of Business Service Leaders
www.absl.pl
Polish Innovation Portal
http://www.pi.gov.pl/parp/chapter_86000.asp
Polish Business and Innovation Centres Association
http://www.sooipp.org.pl/
Innovation and Business Centres in Poland. Report 2009
http://www.sooipp.org.pl/pliki/raport_2009.pdf
Polish Technology Platforms
http://www.kpk.gov.pl/ppt/index.html

Sectoral publications

The ranking of the most innovative companies in Poland
http://www.innowacyjnefirmy.pl/
Central Statistical Office, Science and Technology in Poland in 2008
http://www.stat.gov.pl/cps/rde/xbcr/gus/PUBL_nts_Nauka_i_technika_2008.pdf
Centres of Excellence
http://www.kpk.gov.pl/centra_doskonalosci/index.html
Science & Scholarship in Poland
www.naukawpolsce.pap.pl
Polish Science
www.nauka-polska.pl
Technology parks as an instrument of the policy of supporting innovation and knowledge diffusion
www.paiz.gov.pl/files/?id_plik=11661
Brochures about Poland
http://pdf.polska.travel/?lang=en

Polish Information and Foreign Investment Agency (PAIiIZ)

The main task of the Agency is to win foreign investors and to support them in launching activities on the Polish market. PAIiIZ guides investors through all necessary administrative procedures occurring during the project's implementation, also supporting companies that are already operating in Poland.

The Agency provides quick access to comprehensive information on the economic and legal environment of investments, and assistance in finding the appropriate partners and suppliers. It provides content-related help involving, *inter alia,* consulting as regards location, and negotiating public aid packages.

It keeps databases of investment areas of the greenfield and brownfield types that are developed in close cooperation with Regional and Local Governments and Special Economic Zones (SSE).