CRiD 10 YEARS
Taxand

R&D&I MARKET IN POLAND

SUPPORT FOR RESEARCH AND DEVELOPMENT AND INNOVATION ACTIVITY OF ENTERPRISES

WARSAW, NOVEMBER 2015

Invest in Poland
POLISH INFORMATION AND FOREIGN INVESTMENT AGENCY

techBrainers

WE ARE EFFECTIVE

Our consultants have helped large companies obtain over PLN 2 billion

Over 200 completed projects, for which we have obtained over PLN 3.8 billion state aid

Our clients have received over PLN 204 million for pro-ecological investments

10 years

PLN 3.8 bn

FOR COMPANIES

We have obtained some of the biggest subsidies in Polish history for enterprises of over

PLN 150 million

PLN 130 million

and PLN 116 million

Our clients have received over PLN 700 million of tax exemptions within the SEZ

No. 1

ADVISOR IN OBTAINING GRANTS FOR COMPANIES

We have obtained over PLN 270 million for our clients for realisation of shared service centres and R&D centres

We have provided advisory services to large, medium, and small companies operating in areas such as

- automotive industry
- IT
- power engineering
- pharmaceuticals
- environment protection
- food processing industry

Forbes magazine has twice awarded us the title of the best advisor in obtaining grants for companies in the 2007-2013 EU programming period

The 2015 European Fund ranking recognised us 5 times as the most effective advisory firm (leader of R&D&I in Poland)

Crido Taxand European Consulting Team is composed of almost 40 experienced specialists, who provide support to large, medium, and small enterprises seeking funding

dotacjenainnowacje.taxand.pl – Learn more!

CRiD 10 YEARS Taxand

R&D&I MARKET IN POLAND

SUPPORT FOR RESEARCH AND DEVELOPMENT AND INNOVATION ACTIVITY OF ENTERPRISES

WARSAW, NOVEMBER 2015

Table of Contents

1 R&D&I SECTOR POTENTIAL 6

2 PATENT AND TAX ENVIRONMENT 26

3 SUPPORT FOR R&D&I – AVAILABLE PROGRAMMES 38

4 EFFECTIVE PREPARATION OF THE PROJECT 64

Appendix

1 Basic Definitions 72

2 Technology Readiness Levels (TRL) 80

3 National Smart Specialisations 81

Project Partners 84

The Authors 86

PREFACE

Financing the area of R&D&I is always a huge challenge. To some extent, the market offers attractive commercial support here, this being the element of all business activity which is considered the riskiest and most challenging. On the other hand, it is through R&D&I activities that companies build their market value and competitiveness. It is difficult to talk of a healthy economy if it is not generating an adequate quality and quantity of research projects that allow the development of competitive advantages at the level of knowledge and innovation. Poland has been given a tremendous opportunity to support the whole R&D&I sector with public funding, and above all from European subsidies. But there is still the art of effective transition from the research and science sector to business; while European funds do not have the formula for this, they can co-finance the process. And since public funds are also available to finance this process, all that remains is to try, to take that risk. Along with the co-authors of this Report, I would like to encourage entrepreneurs to take this step, and to show that it is worthwhile.

Michał Gwizda

PARTNER, CRIDO TAXAND

The index of expenses on research and development is growing, slowly but steadily, driven by the excellent Polish human resources. So is the number of enterprises engaged in research, development, and innovation. These trends are reflected in the portfolio of investment projects based on known-how business supported by PAIiIZ.

Sławomir Majman

PRESIDENT OF THE MANAGEMENT BOARD, POLISH INFORMATION AND FOREIGN INVESTMENT AGENCY

Today, companies need new technologies and product innovations as much as they need the Internet or telephone contact. Investors and entrepreneurs are searching for not just individual solutions and tools but rather for complete ecosystems allowing every cell of the company to professionally select, finance, and develop new solutions, which will forever change their respective fields.

The access to research infrastructure and an extensive range of innovation-funding instruments give Polish companies a unique opportunity for dynamic development to strengthen Poland's position on the economic map of Europe. The present report serves as both an encouragement and reference presenting the opportunities open before us, entrepreneurs, and the areas where we should turn professional.

Magdalena Jackowska-Rejman

PRESIDENT OF THE MANAGEMENT BOARD, TECHBRAINERS

1

R&D&I SECTOR POTENTIAL

INNOVATION OF POLISH ECONOMY

ACCORDING TO THE EUROPEAN COMMISSION REPORT – INNOVATION UNION SCOREBOARD 2015 – POLAND FALLS UNDER THE CATEGORY OF THE SO-CALLED MODERATE INNOVATORS.

Each year, the European Commission prepares the Innovation Union Scoreboard (IUS)[1] report, which includes evaluation of the innovation of member states and selected non-EU countries based on the value of SII (Summary Innovation Index). According to the 2015 report, Poland falls under the category of the so-called moderate innovators, just like the year before.

SII is based on partial parameters corresponding to factors called enablers, firm activities, and outputs. Poland's strong points include mainly the factors falling under the enablers category, which covers human resources, research systems, and R&D funding. Poland's top strong point is human resources – a high number of young scientists, high percentage of people aged between 30 and 34 with higher education, and percentage of people aged between 20 and 24 with at least a high school education. The number of people employed in the R&D&I sector is also rising. Over the last decade, this number rose on average by almost 14% and the greatest dynamics were recorded in the sector of enterprises (over 126%).

The improving conditions for R&D&I operations in Poland are confirmed by the results of the ranking based on the Global Competitiveness Index. One of the three groups of indices recognised in attempts to establish the value of this index is innovation and development, which reflects the quality of the business environment and the innovation level of the economy. For 2014–2015, Poland was ranked 43rd out of 144 countries, ahead of such European states as Slovakia, Croatia, Italy, Slovenia, or Hungary.[2]

Przemysław Hałub
SENIOR BUSINESS CONTACTS SPECIALIST, WROCŁAW RESEARCH CENTRE EIT +

There is plenty of discussion concerning the growth of position on the market through R&D&I activity, but it should be noted that this is a very difficult task, which requires great involvement in not just the technological aspect, but at the management level as well. When it comes to Poland's research and development expenditures, statistics show that the situation is improving, but there is also a lot of work ahead.

Our day to day relations with industrial partners and clients show that more and more of them are seeing competitive advantage in new solutions. New products and their development often serve as the main axis of market competition. There are more and more inquiries and suggestions submitted to the Wrocław EIT+ Research Centre, which concern not just analytical services, but rather the work on e.g. new materials or their new application. It is clear that as entrepreneurs feel the breath of domestic and often international competition on their back, they know that they can stay and develop on the market only if they offer new types of services or a new product portfolio.

The most satisfying aspect is the growing cooperation in this scope with Polish companies. However, it should be noted that this is a long process and its important elements are not limited to a good research team and available infrastructure, but also include excellent protection of new solutions, sales structures, and the culture of the entire organisation. Therefore, only a few (the top few) are able to succeed on the market based on know-how and innovation.

[1] http://ec.europa.eu/enterprise/policies/innovation/policy/innovation-scoreboard/index_en.htm.
[2] The Global Competitiveness Report 2014–2015. World Economic Forum.

FIG. 1 Poland's strategic targets until 2020 – expenditure on R&D activities.

Cooperation between science and economy, national/regional smart specializations as well as the development and implementation of innovations will form the foundations of the research & development & innovation (R&D&I) sector in Poland until the year 2020. According to the data published by the Central Statistical Office (CSO[3]), R&D spending in 2014 reached PLN 16.168 billion, which exceeded the year 2013's expenditure by 12.5%. It should be noted that, in the long-term, the support for R&D&I is aimed to allow for accomplishment of the objectives specified in the strategic documents, including improvement of Poland's indices associated with R&D activity. 2014 saw growth of the index in scope of R&D expenditures in relation to GDP value to 0.94% from 0.87% in 2013. In the near future, further growth is expected to bring Poland closer to the expected target value, which will be determined by considerable support for such operations from EU funds.

[3] http://stat.gov.pl/obszary-tematyczne/nauka-i-technika-spoleczenstwo-informacyjne/nauka-i-technika/dzialalnosc-badawcza-i-rozwojowa-w-polsce-w-2014-r-,8,4.html (accessed on 19.10.2015).

R&D&I ACTIVITY OF ENTREPRENEURS

POLAND IS EXPERIENCING RISING R&D&I FUNDING BY ENTREPRENEURS.

It should be noted that in scope of the new EU financial perspective for the years 2014–2020, business entities will be the main beneficiaries of the support programmes and their role in the growth of Polish knowledge-based economy will continue to rise. Orientation of public aid is even more important because its amount and availability is among the most significant factors stimulating enterprises to launch R&D&I activity.

FIG. 2 Poland's strategic targets until 2020 – entrepreneurs' expenditure on R&D activity.

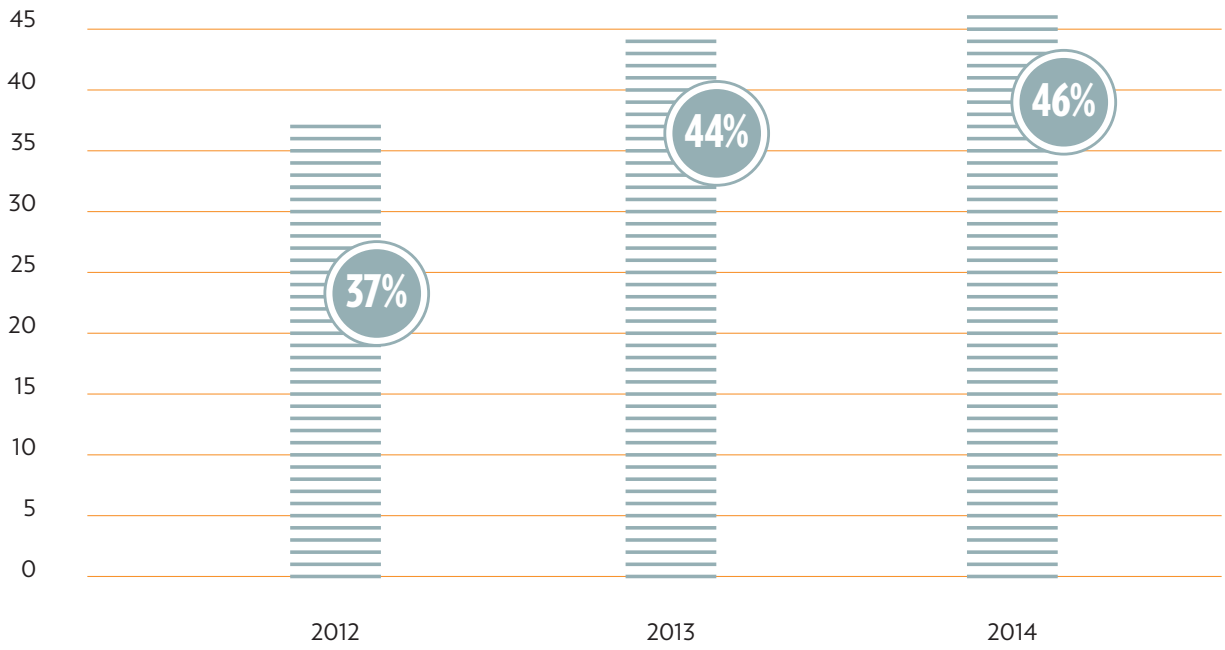


FIG. 3 Businesses' contribution to the financing of R&D&I in the years 2007–2014.

Poland is experiencing rising R&D&I funding by entrepreneurs. In 2014, 47% of all expenditures made in Poland for R&D activity by the public (government, higher education) and private (enterprises, private non-commercial institutions) sector were costs covered by entrepreneurs. In the previous years, they were at 44% (2013) and 37% (2012) (Image 1).[4]

In 2013 Poland was ranked as the 10th EU state in respect of the value of innovation-related contributions made by the private sector.[5] When we compare the average amount of R&D&I spending (according to Eurostat) with the number of innovative companies, it shows that the number of proactive R&D&I entities is relatively limited, yet they are sufficiently funded.[6]

Ryszard Dyrga
PRESIDENT OF THE MANAGEMENT BOARD INTEL TECHNOLOGY POLAND SP. Z O.O.

We are very satisfied to see that the expansion of the research and development (R&D) sector in Poland is so well perceived and has taken its due spot. This is not just due to the understanding of the business sector that research and development effectively lead to the commercialisation of scientific research, production, and implementation of new, often unique products and services, and, consequently, to competitive advantage, but also thanks to the leading roles of the institutions operating in the business environment and government agencies, including Polish Information and Foreign Investment Agency (PlaFIA), National Centre for Research and Development (NCRD), Pomerania Development Agency, or Invest in Pomerania.

To us, one of the biggest research and development centres in Poland, the operations of PlaFIA and NCRD are very important and they also contribute plenty to the general change of approach to R&D in our country. We are very glad to see what we have seen over the past few years – work to adapt legal regulations to the transforming market and macroeconomic conditions, stimulation of cooperation among research and development entities, business sector, academies, and business environment, active support for commercialisation and transfer of the results into the economy, as well as work on the development of young scientists. We also appreciate the growing potential for research and development funding.

I am convinced that all of the aforementioned activities will entail considerable growth of expenditures for research and development, which will raise knowledge, skill, and entail employment of many new people at highly demanding jobs and inflow of investors to let Poland take a high place among the most innovative countries in Europe and the world.

[4] http://stat.gov.pl/obszary-tematyczne/nauka-i-technika-spoleczenstwo-informacyjne/nauka-i-technika/dzialalnosc-badawcza-i-rozwojowa-w-polsce-w-2014-r-,8,4.html (accessed 19.10.2015).
[5] Eurostat Statistics Database.
[6] Nieć M., Działalność innowacyjna przedsiębiorstw w Polsce na tle krajów Europy (Innovative Operations of Polish Businesses in Comparison to European Countries). From: Świt innowacyjnego społeczeństwa. Trendy na najbliższe lata (The Dawn of an Innovative Society. Trends for the Upcoming Years). PAED, 2013.

More and more enterprises are creating their own R&D departments and innovative service centres with diverse operating profiles. They include shared service centres (SSC), business process outsourcing centres (BPO), IT outsourcing centres (ITO) and research and development centres (RDC). In less than three years, the innovative business sector in Poland grew by 50%. At this time, there are 532 centres with foreign capital, 62 of which were established last year.[7] There are also several dozen centres established by Polish investors.

SECTOR	SELECTED R&D CENTRES
AEROSPACE	Bielsko-Biała (Avio), Rzeszów (Pratt & Whitney, Hamilton Sundstrand), Warsaw (General Electric EDC)
AUTOMOTIVE	Częstochowa (TRW Automotive), Gliwice (Tenneco), Grójec (Faurecia), Cracow (Delphi), Poznań (Volkswagen), Rzeszów (BorgWarner), Skawina (Valeo), Tczew (Eaton), Wrocław (WABCO, Remy Automotive)
BUSINESS SERVICES	Białystok (QBurst), Gdańsk (Intel), Katowice (Bombardier, Rockwell Autom.), Cracow (Google, ABB, Delphi, IBM, Motorola), Łódź (Bosch - Siemens, Ericpol), Poznań (GlaxoSmithKline, McKinsey&Co, Microsoft, Roche), Szczecin (Tieto), Warsaw (Google, Oracle, Samsung, JDA, Symantec), Wrocław (Siemens, Alstom, Volvo, Qiagen, McKinsey&Co, Irevna)
OTHER SECTORS, including: electronics, machine industry, nanotechnology, pharmaceuticals, biotechnology	Białystok (Platige Image), Gdańsk (Humax), Katowice (Mentor Graphics), Cracow (ABB,CH2m Hill, Air Liquide Global E&C Solutions Poland S.A., Pliva), Łódź (Mabion), Pabianice (Adamed), Poznań (GlaxoSmithKline, Unilever), Radzymin (Cederroth) Starogard Gdański (Polpharma), Warsaw (General Electric, Top GaN, Adamed), Wrocław (3M)
IT AND TELECOMMUNICATIONS	Białystok (Transition Technologies), Gdańsk (Compuware), Gdynia (Thomson Reuters), Katowice (Ontrack), Cracow (Luxoft, Apriso, Sabre, Ericpol), Łódź (TomTom, Samsung, AMG.net, Ericpol, Microsoft), Opole (Future Processing), Poznań (Microsoft, Telcordia) Warsaw (SAS Institute, Opera Software), Wrocław (Dolby, Tieto, Capgemini, Opera Software), Zielona Góra (Advanced Digital Broadcast)

Source: http://www.paiz.gov.pl/sektory/ (accessed 19.10.2015)

TABLE 1 Selected R&D centres established by companies operating in specific sectors in Poland.

In addition to the relatively high availability of capital, another strength of the Polish R&D&I sector is the cooperation between the various types of entities in supporting innovation. The cooperation between Polish companies and other institutions is close to the average European level; the cooperation is most-frequently effected with suppliers (of equipment, materials, components) – 23%, or clients and consumers – 14%.[8]

Arkadiusz Lupierz

MANAGER OF THE PNEUMATIC SYSTEM DEVELOPMENT DEPARTMENT
FAURECIA GRÓJEC R&D CENTER S.A.

In scope of functionality, material consumption, and miniaturisation, innovation is becoming the main criterion of choice of an automotive provider, especially in the premium class. Various financial instruments available in Poland and qualified engineering staff are interesting enough to big international corporations, so that they decide to move such key competences as development of innovative projects to their Polish departments.

Such corporate policy is an excellent opportunity for Polish engineers, who not only contribute to the creation of innovation, but also develop their competences and become key and valued specialists in their professions.

It is important that this trend and opportunity be recognised by the institutions providing the support, as said institutions can strengthen or weaken this process with their catalogue of criteria evaluating individual tools.

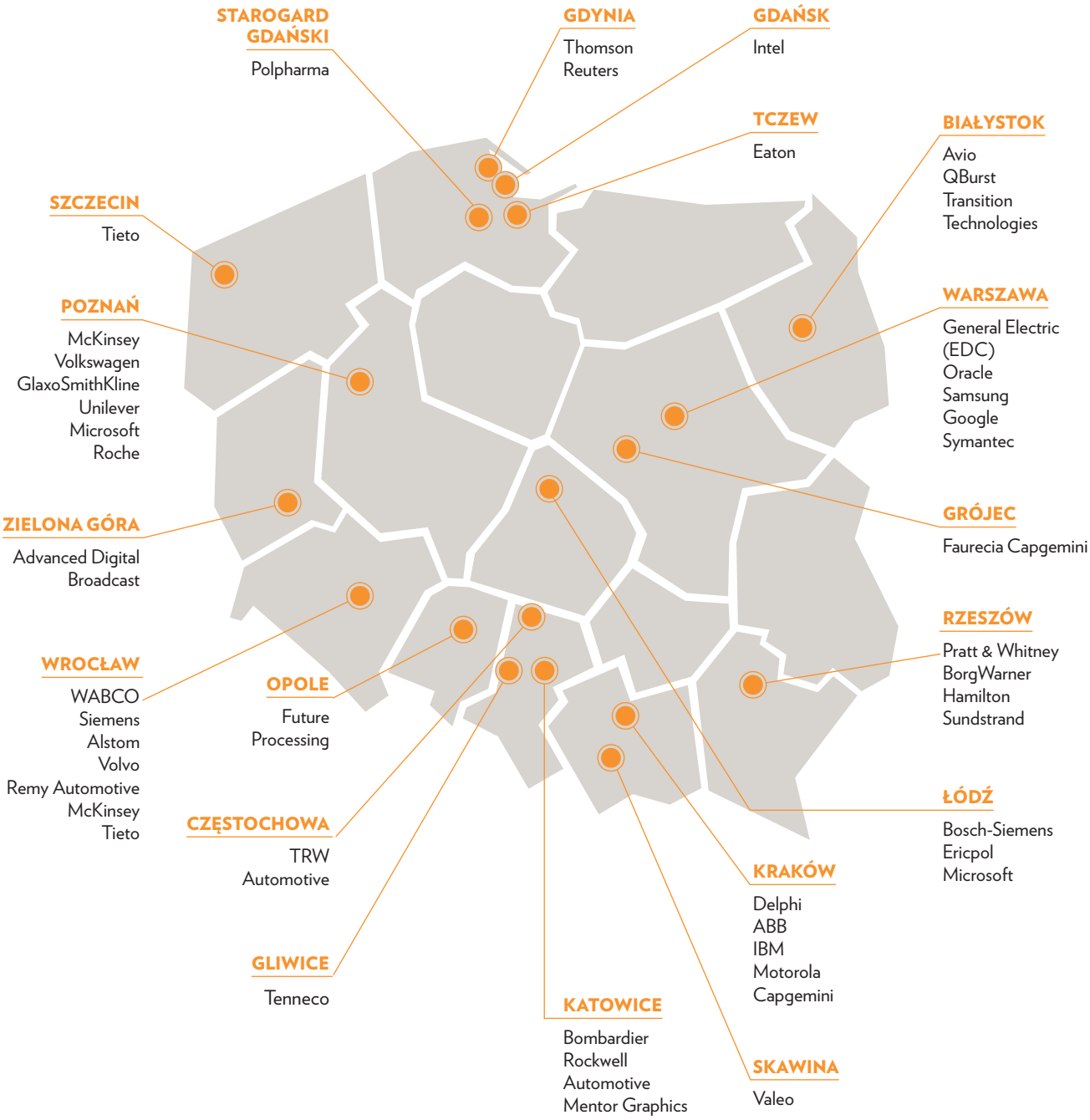
[7] Association of Business Service Leaders (ABSL), Sector of innovative business in Poland, 2015.
[8] The Down of Innovative Society. Trends for the coming years. PAED, 2013.

Konrad Dróżka
DIRECTOR FOR POLISH MARKET AFFAIRS
TRANSITION TECHNOLOGIES S.A.

For many years, Transition Technologies S.A. has been focusing on R&D cooperation with science environments and industrial partners. The company also holds the status of a Research and Development Centre granted by the Ministry of Economy in 1997.

In an age of changes under the collective banner of Industry 4.0, we believe that we can transform Polish economy together and collectively succeed not only locally, but also on the international arena. This is why the current R&D activity of Transition Technologies focused on intelligent products in new, transformed, intelligent factories. We believe that this will be the source of the greatest and most interesting technology-based changes, specifically in scope of the realisation of the Internet of Things concept.

FIG. 4 Selected R&D centres.



SOURCE: PREPARED ON THE BASIS OF: HTTP://WWW.PAIZ.GOV.PL/SEKTORY/BADAWCZO_ROZWOJOWY (ACCESSED 19.10.2015).

INFLUENCE OF PUBLIC SUPPORT ON R&D&I ACTIVITY OF ENTREPRENEURS

SIGNIFICANT INFLUENCE OF PROJECTS IMPLEMENTED UNDER IE OP IS RECOGNIZED ALSO IN THE R&D ACTIVITY OD ENTERPRISES.

The Innovative Economy Operational Programme (IE OP) for the years 2007–2013 has had considerable influence on the growth of innovative operations of business entities in Poland. As shown in the surveys performed by the Polish Agency for Enterprise Development[9], most companies invest in process innovations and the number of implemented product innovations has risen. In scope of innovative products, the share of implemented products resulting from supported projects in the total number of implemented innovative products was between 55% (in the first year after receiving funding) and 71% (in the second year after receiving funding). There is also a clear influence of projects realised in scope of the IE OP in the R&D activity of enterprises. Compared to the pre-funding period, the number of beneficiaries performing internal R&D activity rose by 21 pp.[10]

Ireneusz Łuczak

PRESIDENT OF THE MANAGEMENT BOARD EC ENGINEERING SP. Z O.O.

Since the start of its operations, EC Engineering has been involved in research and development projects, which was recognised by the Ministry of Economy in 2009 as it granted our company the status of a Research and Development Centre. We see support from EU funds as important, especially due to the process of introducing our engineering work into serial production. The upcoming new Union perspective will definitely provide a significant development factor for our company and the entire public transport sector.

TABLE 2 Summary of support provided in scope of measure 4.5 IE OP as of late June 2015.

IE OP	MEASURE 4.5.
Number of concluded agreements	147 (including 137 projects directly associated with R&D activity)
Investment expenditures (in PLN billion)	14.8
Including eligible costs (in PLN billion)	11.2
Declared employment	18 193
Amount of offered support (in PLN billion)	3.4

Source: Ministry of Economy, June 2015.

[9] Zadura-Lichota P., Innowacyjna przedsiębiorczość w Polsce, odkryty i ukryty potencjał polskiej innowacyjności (Innovative business in Poland, discovered and hidden potential of Polish innovation), PAED, 2015.
[10] As above.

COMPANY	PROJECT NAME	LOCATION	ELIGIBLE COSTS (IN PLN MILLION)	AMOUNT OF SUPPORT (IN PLN MILLION)
Dolby Poland Sp. z o.o.	Creation of a Dolby sound system research and development centre	Wrocław	16.9	6.7
General Electric Company Polska Sp. z o.o.	Research and development centre for new technologies reducing exhaust emission and exhaust optimisation	Warsaw	33.1	9.9
Faurecia Grójec R&D Center S.A.	Creation of a car seat component research and development centre	Grójec	15.3	6.1
Grupa Kęty S.A.	Creation of a Research and Development Centre at Grupa Kęty S.A.	Kęty	12.9	6.4
INGLOT Sp. z o.o.	Creation of a Research and Development Centre at INGLOT Sp. z o.o.	Przemyśl	2.6	1.3

Source: Ministry of Economy, June 2015.

TABLE 3 Examples of companies which received support for R&D activity under IE OP 4.5.

An important instrument of support realised by the Ministry of Economy in scope of the IE OP was measure 4.5. *"Support for investment of considerable importance to the economy"*, which was aimed to improve the competitive position of the economy by increasing the number of investments with high innovation potential in the following sectors:

- production – with high added value or generating a considerable number of new jobs,
- innovative services – with special consideration of investments associated with launch of R&D activity in the company.

The programme was very popular among the investors. In scope of the entire measure 4.5 of the IE OP, grant agreements were signed with 142 companies, which declared total investment expenditures of PLN 14.2 billion and eventual establishment of over 18 thousand new jobs. 96% of all applications concerned projects associated with investment in companies directly associated with R&D&I (innovative technologies, establishment of enterprises by academies, existing R&D centres and enterprises, etc.).

It should be noted that the beneficiaries of the support in scope of this measure include both foreign companies and enterprises with Polish capital.

There is no doubt that the support in scope of IE OP stimulated development and encouraged entrepreneurs to prepare and implement innovations. The Union funds allowed for development of projects carrying a higher risk, which would not have been possible without the support because they would have been too risky, especially for micro and small enterprises. In scope of the new financial perspective 2014-2020, there is even more funds oriented towards R&D&I activity, which is the source of the greater competitiveness of the enterprises domestically, but most of all internationally.

BEST PRACTISE

Łukasz Bratek

MEMBER OF THE MANAGEMENT BOARD, DIRECTOR OF BROADCAST TECHNOLOGY DOLBY POLAND SP. Z O.O.

Dolby, the company I represent, decided to open a Research and Development Centre in Wrocław in 2012. Like usually in the case concerning such investments, the key determinants of the location were availability of qualified personnel (in this case programmers and testers) and costs of research and development operations. Several cities in central and eastern Europe were taken under consideration and the differences among them were minimal. In such situations, the advantage often falls to a given state or city because of financial support.

Looking from the perspective of three years from the centre's establishment, we can say that it is a great success, which has exceeded the initial plans and expectations. The company is currently employing 80 people and has plans for further development. The engineers play key roles in both product development and research activity. We hold several patents, which would not have been possible without the contributions of our engineers.

Cooperation with the world of science turned out to be a challenge. First of all, it was very hard to find reasonable associates with scientific degrees on the job market for various reasons. Second, cooperation with academies involves considerable administrative charge.

Investments in scope of R&D activity are also attracted by public support in scope of Special Economic Zones (SEZ). Over the past nine years, SEZ hosted 13 projects investing in research and development activity with total investment expenditures surpassing PLN 167 million and 450 declared new jobs. The most interest in such support was demonstrated by companies with Polish capital (8 out of the 13 investments).

Up to this point, the Wałbrzych SEZ obtained the most projects – 4 investments with investment expenditures of PLN 111 million and planned eventual 205 new jobs. The Łódź, Pomeranian, and Cracow zones obtained 2 R&D projects each.

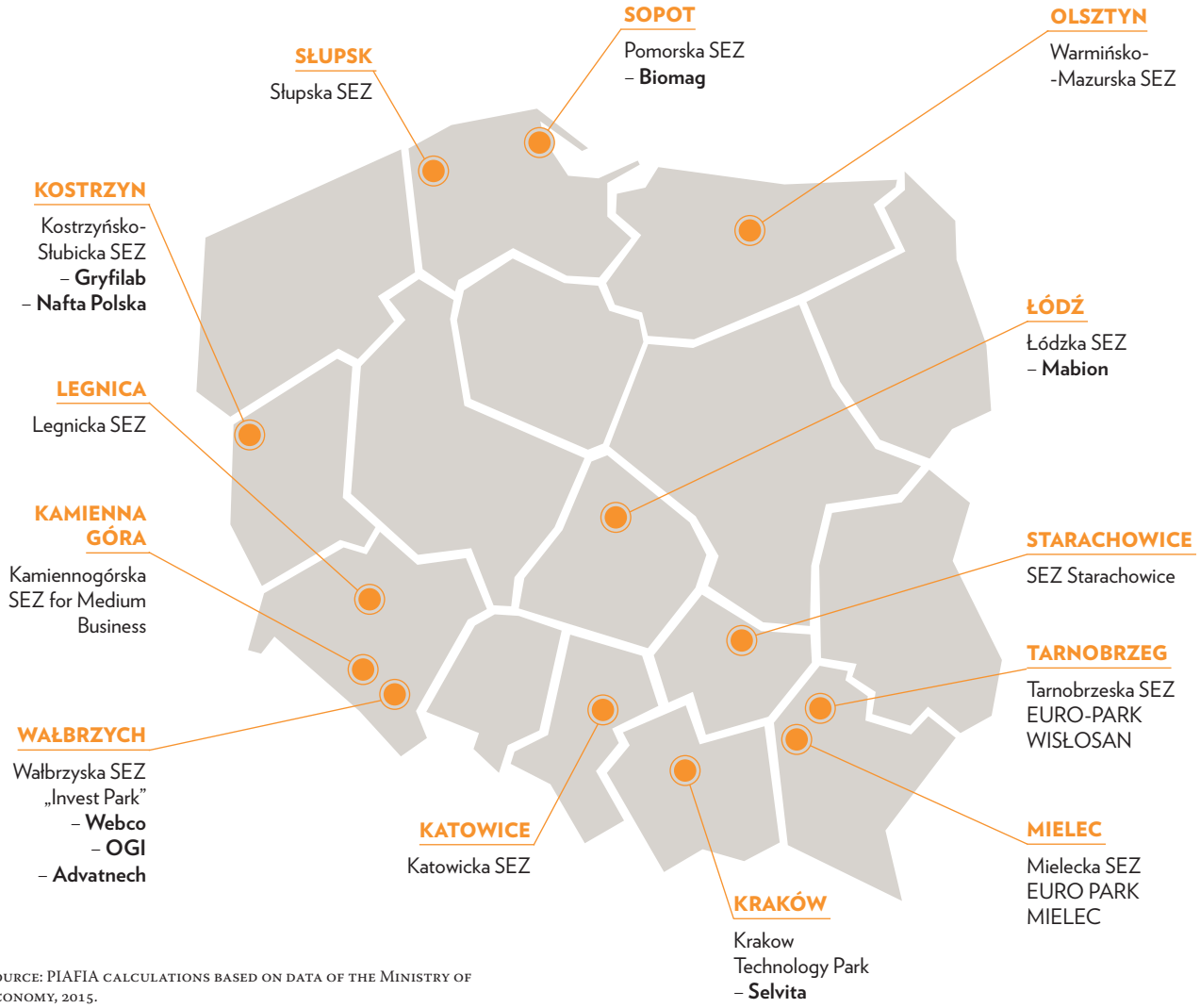
Over the years 2011–2015, and in scope of the government support programme, financial grant proposals were offered to 19 R&D activity growth projects with total declared expenditures of PLN 161.4 million and 1909 new jobs, almost all for people with higher education. These projects received support of PLN 34.4 million.

Considering the numbers of project locations, Wrocław turned out to be the most attractive one for companies considering R&D projects. The capital of Lower Silesia hosted 6 projects applying for government grants for R&D projects with 460 target new jobs and expenditures exceeding PLN 66.8 million. Cracow was second, followed by Łódź and Warsaw.

American companies are the most eager ones to take advantage of support in scope of the programme, as 8 of the 19 companies or almost 42% of all applicants in scope of R&D activity were American. The American entrepreneurs declared that they would collectively create almost 700 new jobs, which constitutes over 30% of the new jobs declared in scope of the 19 supported research and development projects. The second biggest group is composed of Polish companies, which are planning to realise 5 projects and create over 235 new jobs.

When it comes to the sector profiles of the parent companies realising R&D potential expansion in Poland, the biggest group is composed by companies of the IT sector with 12 (including kCura, F5, SolarWinds) businesses which will create 1050 new jobs for people with higher education. The next biggest group of applicants was composed of companies operating in production: chemical (e.g. Ciech), electronics (Samsung Electronics), automotive (e.g. TRW), or food (Mondelez).

FIG. 5 Examples of investors operating in scope of selected SEZ.



Source: PIAFIA calculations based on data of the Ministry of Economy, 2015.

BEST PRACTISE

The first company to obtain support for realisation of a R&D project in scope of the government support programme

The first company to obtain support in scope of the government programme for the R&D project based on the expansion of the existing Centre of Technology in Wrocław was Nokia Siemens Networks (currently Nokia). The project assumed expansion of operations through development of innovative solutions in scope of the following:

– modernisation of the software for the base station based on the FlexiBTS platform,
– solutions for the new generation operating support system required for full control of mobile networks.

In association with the project, the centre's employment, which covered 1975 jobs in the year of application (2011), was planned to grow by 200 more jobs. At present time, the company is employing 3000 people in Wrocław alone.

Bartosz Ciepluch

MEMBER OF THE MANAGEMENT BOARD
DIRECTOR OF THE NOKIA NETWORKS EUROPEAN PROGRAMMING AND ENGINEERING CENTRE IN WROCŁAW
NOKIA SOLUTIONS AND NETWORKS SP. Z O.O.

Nokia Solutions and Networks Sp. z o.o. is the leader of the market of providers of services, equipment and software used to create and maintain telecommunications networks by mobile operators. Every other mobile connection in the world is made with our technical solutions. For the past 15 years, the company has been performing research and development (R&D) in Poland at its own R&D centres (Wrocław and Cracow). It holds the status of a research and development centre and its IT laboratories in Wrocław are the biggest and most modern such facilities in Europe. The Wrocław-Cracow centre, which currently employs approximately 3300 people, is the biggest IT R&D centre in Poland and hosts work on the newest technologies (5G, LTE, SRAN). The revenue from R&D activity reached PLN 500 million in 2014.

Positive external conditions

Enterprises operating in R&D can receive great support from EU structural funds in scope of the Intelligent Development Operational Programme. There are programmes for establishment or expansion of R&D centres and for realisation and implementation of R&D. There are also programmes for R&D in scope of demonstration and pilot installations and establishment of scientific and industrial consortia (for R&D operations).

The Polish government is offering support for foreign investments in R&D in form of grants at 35 new jobs and investment expenditures over PLN 1 million. Even though the level of support does not exceed 10% of the investment, advantages include simplified administration procedures of both grant applications and result reporting. Support from the Polish Information and Foreign Investment Agency (PIaFIA) is also important as it assists entrepreneurs at every investment stage.

The list of positive conditions includes extensive cooperation with Polish academies, which work with the company to provide education and obtain information. Nokia's employees host technical lectures and organise periodical training courses. Academies respond with well-prepared graduates who can start work right after graduation.

Negative external conditions

We believe that the tax relief associated with deductions to the innovation fund for enterprises holding status of a Research and Development Centre is negative. Current interpretation of the regulations fails to recognise the expenses of this fund as tax-deductible. Only contributions to this fund can be recognised as such. Therefore, the tax preference is low, because it only allows for earlier cost settlement. Simultaneously, the entrepreneur is subject to annually file reports to the Ministry of Economy and keep separate records covering the innovation fund.

In conclusion, the tools of support should constitute additional advantage for the entities performing research and development to reduce the actual costs of said R&D. EU structural funds and government grants are excellent forms of public assistance for R&D operations. Meanwhile, the fiscal support instruments must be redefined. Entrepreneurs performing R&D should receive support as they drive the innovation producing economic and social benefits.

SURVEY OF THE ACTIVITY OF POLISH R&D DEPARTMENTS

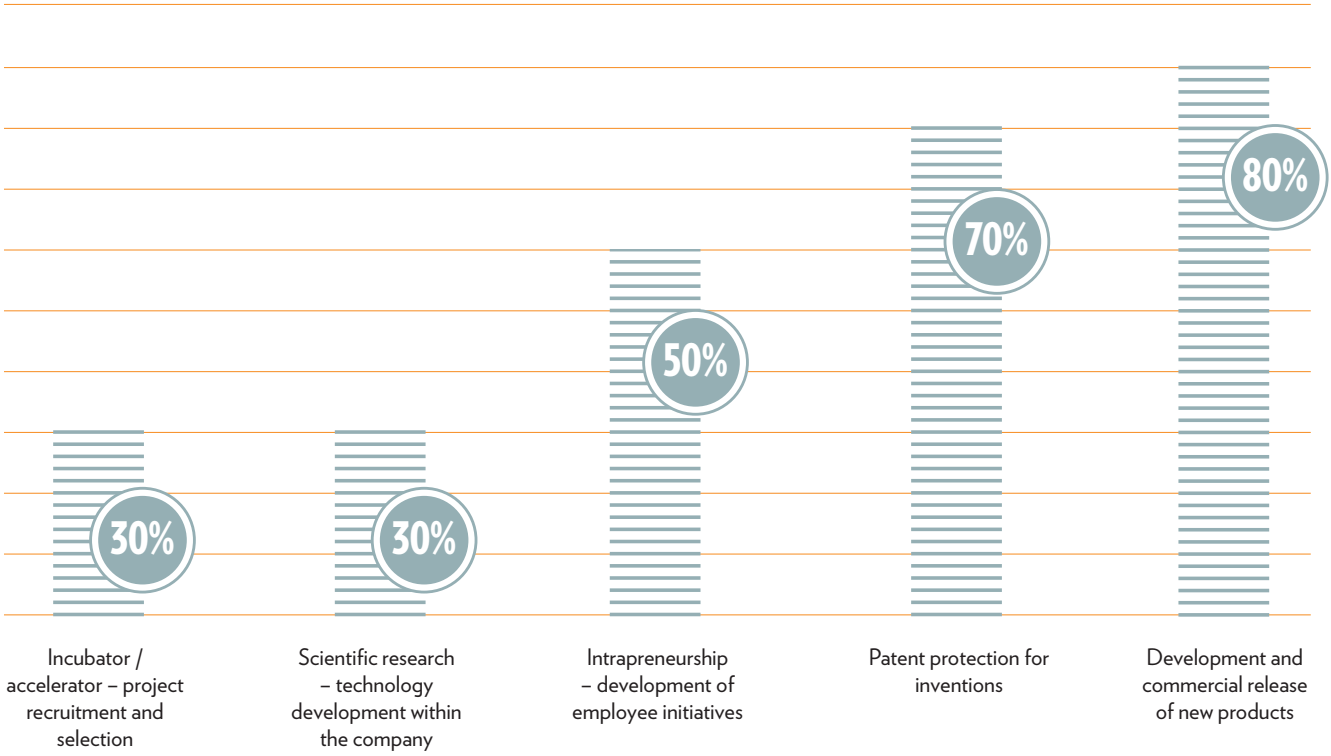
THE MAIN R&D OPERATIONS PERFORMED IN POLISH COMPANIES INCLUDE DEVELOPMENT AND COMMERCIAL RELEASE OF NEW PRODUCTS (INDICATED BY OF THE SURVEYED ENTITIES), PATENT PROTECTION FOR INVENTIONS, AND DEVELOPMENT OF EMPLOYEE INITIATIVES.

The path to innovative success requires a company to continuously seek new solutions with various tools. A survey of Polish R&D departments was performed in August of 2015 to learn the needs of and challenges faced by the B&R departments of small, medium, and big companies.[11]

The survey covered over 60 individual interviews with top-level managers of innovative companies operating in Poland with structures responsible for research, development, and implementation of new products. The obtained results were compared with the data concerning the situation in Europe obtained from analyses of available reports and interviews with experts.

The survey was used to prepare a report covering the organisation of research and development operations in Polish companies, its comparison to other European countries, and the mechanisms and tools which the managers of the R&D departments would like to see in their companies.

FIG. 6 Scope of undertaken R&D activities.



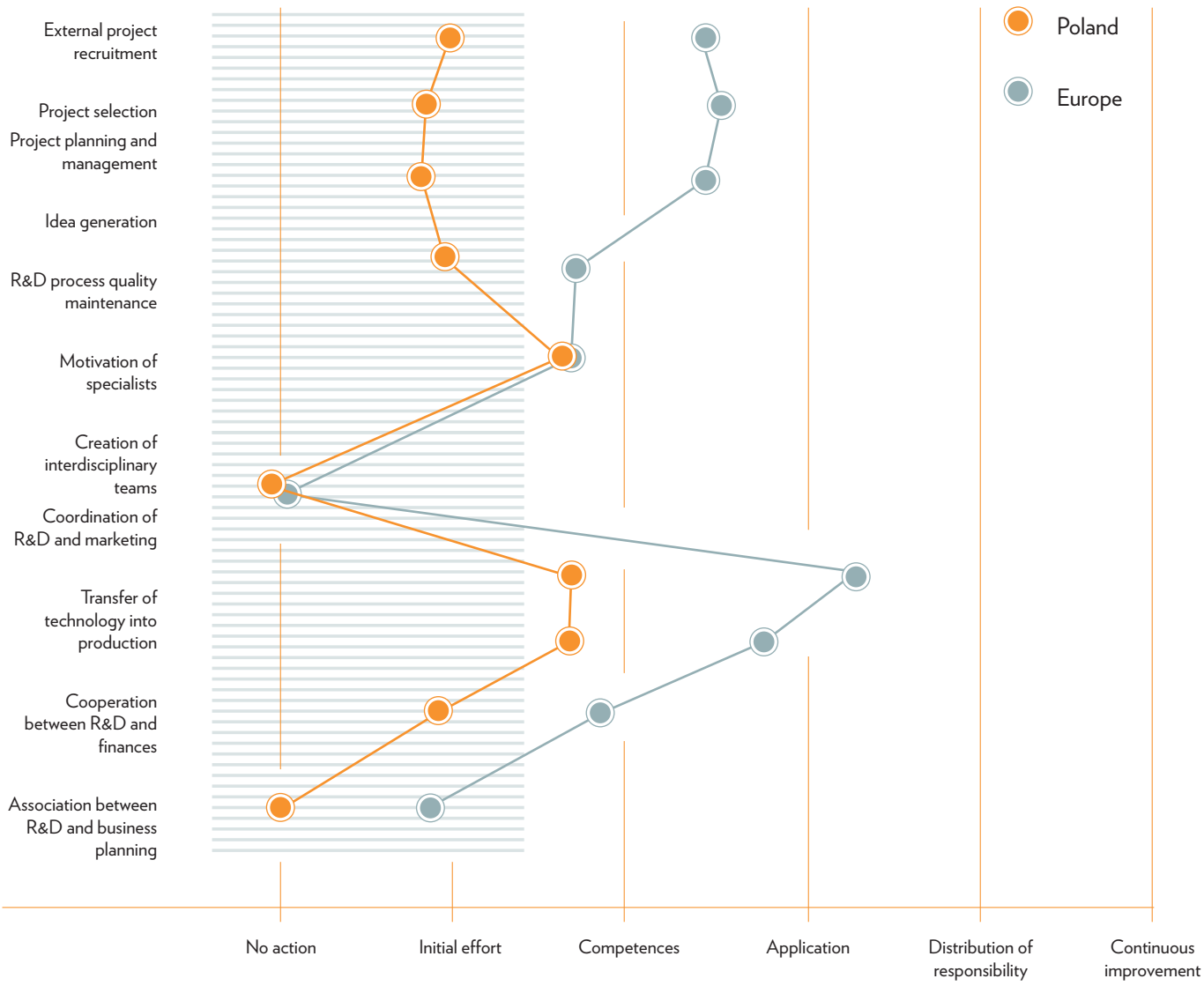
[11] Own research: Techbrainers, 2015.

The main **R&D operations performed in Polish companies** include development and commercial release of new products (indicated by 80% of the surveyed entities), patent protection for inventions (70%), and development of employee initiatives (50%). 30% indicated scientific research and technology development within the company and project acceleration and incubation. A **complete lack of indications concerning technology scouting is noteworthy.**

Most respondents have a **negative opinion concerning the effects of their structures**. In their opinion, the most difficult challenges and problems include project selection, external project recruitment, creation of interdisciplinary teams, and establishment of relations between R&D and business planning.

The report also notes the **lack of effect control:** the only effectiveness measure used by the respondents concerning the performed operations is the use of the granted budget; **55% failed to indicate any KPI** (key performance indicators). However, 30% noted that there are plans to introduce measures such as share in revenue from released products and average time for commercial release from concept creation.

FIG. 7 Evaluation of current operations.



At present time, R&D business entities have no specific role in the realisation of the company's strategy – this problem was noted by 70% of the respondents. Nevertheless, **90% noted that the management of their companies sees R&D as an opportunity to generate new income and conquer new markets**. Therefore, R&D operations are perceived as the business motor required for further development. Furthermore, the managers are aware that innovation-based development requires **cooperation with external institutions**. A clear majority believes that the key partners are startups (70%), companies operating in complementary sectors (65%), and Polish academies (60%).

FIG. 8 Importance of the ecosystem in r&d operations.

INNOVATION ECOSYSTEM

CLUSTERS AND NETWORKS OF COOPERATION HAVE THE POTENTIAL TO BECOME INNOVATIVE INSTRUMENTS IN THE GROWTH OF R&D IN POLAND.
CLUSTERS GENERATE SOLUTIONS FOR NUMEROUS SOCIAL AND ECONOMIC PROBLEMS AND CHALLENGES.

The scientific potential of the Polish R&D&I sector is composed of **963 scientific entities** (as of 2014).[12] In scope of the parametrical evaluation performed in 2014, 42 of them were graded A+[13], which means that they held the top potential for scientific and creative accomplishments. In scope of research infrastructures, the direction of changes is determined by the Polish Roadmap of Research Infrastructure (PRRI) prepared by the Ministry of Science and Higher Education[14], which received 53 projects in 2014, 20 more than in 2011 (before the update). More projects means higher potential of scientific entities to perform research, including that in cooperation with enterprises.

There is a big group connecting science and research entities with enterprises composed of **business-related institutions** (BRI). BRI support operations undertaken by entrepreneurs in scope of research and development and implementation of innovative solutions. Business-related institutions include technological parks, technological incubators, business incubators, technology transfer centres, business angle networks, local and regional credit funds. In 2012, the network of such centres covered over 800 entities.[15]

Clusters and networks of cooperation have the potential to become innovative instruments in the growth of R&D in Poland. By concentrating a group of competing and cooperating companies operating in similar industries, academic centres, BRI, and public administration entities in small space, clusters generate solutions for numerous social and economic problems and challenges.

As the catalyser of cluster organisations, the public sector receives a very effective tool for implementation of economic programmes and a partner for the realisation of development policies. Knowledge comes from universities, academic environments, and research institutions, which provide innovation and, in return, receive a perspective of the technological needs of business. Money comes from business, which is always the foundation and motor of cluster organisations. This is obviously an oversimplification, but the operating mechanism of clusters is indeed locked in this triangle of mutual relations.

The essence of clusters is also depicted well by the term "coopetition", a combination of cooperation and competition. This word describes a rather unique condition, which sees the natural competition of business entities combined with their cooperation, which is obviously limited to selected areas. The companies associated within the cluster continue to compete with each other, but they can all simultaneously seek space for benefits from trust and cooperation. Examples include collective purchasing, development of logistic infrastructure, and building staff by developing vocational education adapted for the needs of the companies associated in the clusters.

Advantages for companies resulting from effective cluster operations include the following:

[12] https://www.nauka.gov.pl/g2/oryginal/2014_07/475a73e93ea6148d2d71ab18d24c4a1e.pdf (accessed on 19.10.2015).
[13] Announcement of the minister of science and higher education dated 4th July 2014 on scientific categories assigned to scientific entities.
[14] https://www.nauka.gov.pl/g2/oryginal/2014_08/caf36c2da9fef183c32ce8772ec5b426.pdf (accessed on 18.10.2014).
[15] A. Bąkowski, M. Mażewska (ed.), Ośrodki innowacji i przedsiębiorczości w Polsce. Raport 2012 r. (Centres of Innovation and Business in Poland. 2012 Report), PAED, Warsaw 2012.

FIG. 9 Clustering.

– cost reduction by establishment of purchase groups,
– implementation of solutions for the profession,
– generation of additional income from creation of mutual regional brands,
– more effective application for Union funds through establishment of healthy and stable partnerships,
– preferential access to research infrastructure.

And how do cluster organisations work in Poland? The Masovian Voivodeship is currently home to several dozen cluster initiatives, which operate mainly in IT, the automotive sector, and life science, but only a few of them have the potential for further development. There is a similar situation in many other European regions, where the financial support system (in the case of Masovia, grant support from EU structural funds) has artificially generated activeness of environments with no actual potential to build strong cluster organisations.

According to effective methodology, the first of many steps preceding the decision to establish a cluster should be the so-called mapping, i.e. establishment of the number of entities potentially interested in entering the cluster, operating in scope of a common chain of values. Analyses preceding the establishment of a cluster are often omitted in the Polish social and economic reality, which may result from the high standards specified in the cluster excellence, i.e. the standards for the methodology of cluster establishment and management. According to the cluster excellence methodology, the preparations alone can take up to eight months and the number of potential members should be at least 100.

The only effective path leading to quick improvement of operating standards of cluster organisations is to introduce the strongest entities into the system of development policy implementation. Thankfully, such assignments have already started in Poland,

examples of which include the appearing elements of the key cluster system on a national level, but also on a regional one.

The **National Key Cluster (NKC)** status is granted to clusters with special importance to the economy and with high international competitiveness. NKC clusters are entitled to preferential treatment when pursuing grants for ventures from EU funds, specifically in scope of R&D&I, as well as support for international operations (internationalisation). The following National Key Clusters have been established thus far:

1. Aviation Valley Cluster, represented by the "Dolina Lotnicza" Association of Aviation Entrepreneurs,
2. Interizon Cluster, represented by the Interizon Foundation,
3. Metal Processing Cluster, represented by the Innovation and Development Promotion Centre,
4. Masovian ICT Cluster, represented by the "Wiedza" Association of Social and Economic Development,
5. Polish Aluminium Cluster, represented by City Consulting Institute Sp. z.o.o.,
6. Eastern Construction Cluster, represented by the Polish Consulting Association,
7. West Pomeranian Chemical Cluster "Zielona Chemia", represented by the West Pomeranian Chemical Cluster "Zielona Chemia" Association.

KEY DIRECTIONS OF CHANGES IN THE PERIOD 2014–2020

> DUE TO THE ESTABLISHMENT OF THE NSS AND RIS CATALOGUE, A FEW SELECTED INDUSTRIES ARE PROJECTED TO EXPERIENCE INTENSIVE DEVELOPMENT, WHICH WILL RECEIVE THE BIGGEST STREAM OF FUNDS, ESPECIALLY WHEN IT COMES TO R&D&I OPERATIONS.

The Polish document determining the priority operations in scope of R&D&I is the **Strategy for Innovation and Efficiency of the Economy "Dynamic Poland 2020"** (SIEE).[16] The operating directions assumed in the strategy include mainly stimulation of the private sector to invest in R&D&I, support for transfer of knowledge between R&D&I and the economy (promotion of cooperation), and networking of domestic scientific entities with entities abroad. The executive programme to the Strategy for Innovation and Efficiency of the Economy is the **Programme for Development of Enterprises until 2020**[17], which also indicates that certain steps should be taken to improve the flow of information between the sectors of science and industry, raise interest in mutual cooperation, and create an appropriate system of encouragements from the state to stimulate the development of said cooperation.

The **National Smart Specialisation (NSS)** is an attachment to the Programme for Development of Enterprises. The concept of NSS was established by the EU and results from the strategic approach to economic development through oriented support for R&D&I. The areas of smart specialisations of countries and regions are subjects with the top development potential in the given country/region, which can potentially constitute its biggest competitive advantage. Originally, their development should produce the greatest added value and actual economic effects. 19 intelligent NSS in five subject areas were established domestically (see attachment no. 1). The intelligent specialisations of individual voivodeships are specified in scope of the **Regional Innovation Strategies (RIS)** (see attachment no. 4).

Due to the establishment of the **NSS and RIS catalogue**, a few selected industries are projected to experience intensive development, which will receive the biggest stream of funds, especially when it comes to R&D&I operations. As a rule, only innovative projects fitting within the scope of domestic or regional smart specialisations receive support or are treated preferentially concerning funding access (e.g. additional evaluation points).

The trend to focus the support on selected fields is also reflected in the creation of **sector programmes**. They include financing programmes for R&D&I activities in selected industries. They are not, however, established by a sole decision of a financing institution, but rather emerge as a result of grassroot initiatives taken by representatives of a given sector (who do not participate in programme financing). Until now, the National Centre for Research & Development (NCRD) operated sector programmes for the medical industry (Innomed) and the aerospace sector (Innolot). The catalogue can be extended in the foreseeable future.

The importance of **cooperation between enterprises and scientific entities** is growing. The collective ventures of the representatives of both of these environments receive preferential treatment in scope of support from public

[16] Document passed with the resolution of the Council of Ministers dated 15th January 2013. http://www.mg.gov.pl/files/upload/17492/Strategia.pdf.
[17] Document passed with the resolution of the Council of Ministers dated 8th April 2014. http://www.mg.gov.pl/Wspieranie+przedsiebiorczosci/Polityki+przedsiebiorczosci+i+innowacyjnosci/Program+Rozwoju+Przedsiebiorstw.

funds. The scope of the 2014–2020 operational programmes saw the raise of potential for grants of scientific centres in scope of consortia and partnerships with companies. The programme documents also pay close attention to the development of clusters, which are one of the forms of cooperation between science and business, especially the development of Key National Clusters.

There is also extensive support available for entrepreneurs planning to implement R&D results into their activities. This support is mainly for the sector of small and medium enterprises, which, on the date of the application, hold the R&D results necessary for the investment phase.

The growth of the Polish R&D&I sector also means greater **presence of Polish Companies on foreign markets**. Innovative products and services often serve as the core for establishment of international cooperation networks of innovative entities. Some of the forms of support for companies in scope of operational programmes include preparation to enter international markets, development of plans and strategies, and promotional campaigns.

Considering the ever-increasing emphasis on the international competitiveness of Polish enterprises, we may also expect a growth of the importance of industrial property rights, especially under the EPO and PCT, which allow applicants to obtain patent protection outside the territory of Poland.

A significant trend of this financial perspective is the open innovation philosophy, which assumes building a competitive advantage based on the knowledge and experience which cannot be developed within the company or it is unprofitable to do so. According to the open innovation philosophy, new products and solutions are created with conscious abandonment of unlimited authority over the rights to the whole solution and preservation of only the necessary intellectual copyrights in scope of business activity. Creation performed "together" makes sense, because the rapid global progress of science and technology makes simultaneous development of internal knowledge in numerous areas too expensive and time-consuming. When the pressure of competition rises and impatience of consumers forces the commercial release of new products, own resources (intellectual or financial) are not enough to stay on the wave of new technologies.

Open innovation is the ability to adequately enrich an organisation's potential with innovative external solutions and appropriate management of internal solutions. The professionalization of this area in Poland and in Europe is becoming more and more valued – not only by enterprises, but also by their managers, employees, and clients. It allows for development of a competitive advantage and new business models and identification of new consumer groups.

BEST PRACTISE

PHD Pierre Orlewski

OPEN INNOVATION MANAGER EMEA REGION GOODYEAR INNOVATION CENTRE IN LUXEMBOURG

Who are the people able to effectively acquire technologies from the outside and locate them in their companies? Dr Pierre Orlewski, manager of open innovations for the EMEA region at the Goodyear Innovation Centre in Luxembourg, an unquestioned authority in the field of open innovation, multiplies examples of companies which successfully apply the open innovation philosophy. One of them is Procter & Gamble. 40% of its new products were developed in scope of external alliances. More examples mentioned frequently in the context of open innovation include PepsiCo and Lipton (currently Unilever) brands, which contributed business and technological knowledge concerning appropriately bottled beverages and tea and its properties. The fruit of this cooperation is a product we all know from store shelves – Lipton Ice Tea. A new product was created, as well as a new competence and profits for both players.

2

PATENT AND TAX ENVIRONMENT

There are two areas of law of particular importance to research and development activities. The first one is a system of intellectual property rights, which provides appropriate protection of R&D results. The other is tax law with its various mechanisms of preferential treatment of R&D activity that may provide particularly attractive incentives for entities engaged in such pursuit.

PATENT STATISTICS

> PATENT STATISTICS, AS ONE OF THE MOST IMPORTANT MEASURES OF INNOVATIVENESS, INDICATE THAT POLAND HAS IMPROVED ITS POSITION IN THE RECENT YEARS.

Legal protection of research and development results is provided through the catalogue of intellectual property rights, which include in particular patent protection for technical solutions satisfying the conditions of patentable inventions. The various patent indices are among the basic measures of the given economy innovativeness.

Concerning patent indices relative to Poland, it should be noted that over 11 years ago, on 1st March 2004, Poland entered the European Patent Organisation and became bound with the European Patent Convention (EPC). EPC currently includes 38 countries: all EU Member States and countries such as Switzerland, Norway, Iceland, as well as Turkey. Pursuant to the EPC, the European Patent Office (EPO) with its seat in Munich carries out a full patent procedure, including decisions to grant the so-called European patents. However, in order for the European patent to become effective in a given EPC member state, an additional validation procedure should be performed before the national patent office (including translation of the patent documents). Following the validation, the European patent granted by the EPO becomes a part of the domestic legal regime.

Basic patent indices include total number of patent applications filed to the national patent office.

Chart 1 presents this number for the Polish Patent Office (PPO) between 2002 and 2014, divided by domestic and foreign entities.

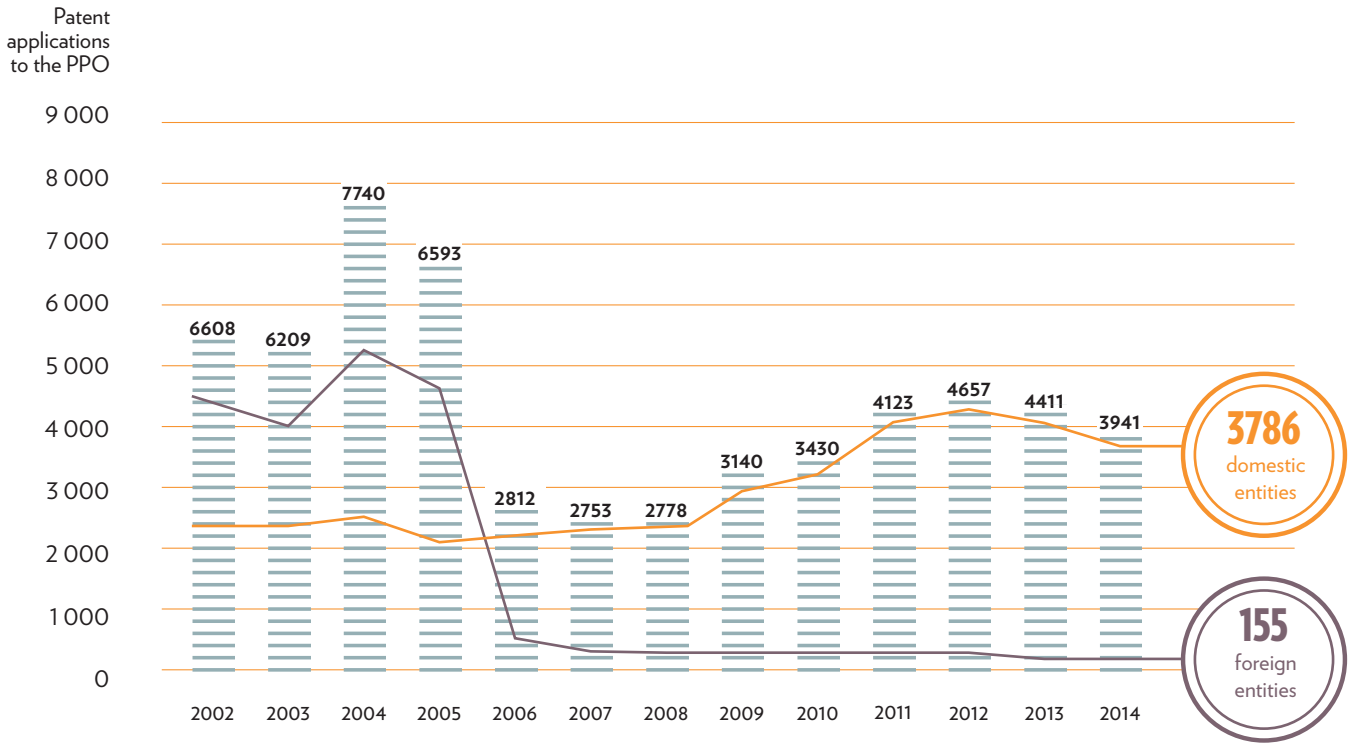


FIG. 1 Total number of patent applications filed to the Polish Patent Office.

The drop of domestic patent applications in the years 2005–2006 was the direct result of Poland's 2004 entry into the EPC. The option of obtaining patent protection in Poland through validation of the European patent granted by the EPO systematically reduced the number of applications filed to the PPO by foreign entities. Before the entry to the EPC, such applications composed approximately 60–70% of all domestic applications whereas there were only 155 such applications (less than 4%) in 2014. Simultaneously, the number of applications filed to the PPO by domestic entities started to rise since 2005, and there were 3,786 inventions filed to the PPO in 2014. This trend may have been adjusted over the past two years, but this does not change the fact that the number of patent applications filed by domestic entities has pretty much doubled over the 10-year period.

Under the current legal order[1], patents are subject to national legal regimes and provide monopoly for use of the inventions in the given country (since European patents still require national validation). Domestic patent protection in a single country (e.g. Poland) is effective for inventions of only local importance. Those with high economic importance require much greater territorial protection, which may be obtained through an application for the European patent filed to the EPO or international PCT[2] application, which ultimately can provide for protection in 148 countries worldwide (including USA, Japan, China, etc.). For this

[1] In the near future it is expected that the so-called European patent with unitary will enter into effect, the protection of which will unitarily cover all countries which enter the appropriate regulation.

[2] Patent Cooperation Treaty (PCT). The PCT procedure is divided into two phases: international and subsequent national phase. The entity interested in the potential patent protection in PCT member states may file an international PCT application (as a single application). Within the international phase of the procedure the applicant receives the International Search Report which helps to determine the level of probability whether the invention satisfies the patentabililty conditions. After due time, the applicant must decide whether to enter into the national phase in individual countries, where the patent procedure continues in all designated countries in accordance with local requirements. The patent grant decision falls is at the sole discretion of a national patent office and from the beginning of the national phase the PCT application is basically treated as a domestic application. It is worth noting that the national PCT phase may lead to grant of the European patent; where this procedure is usually referred to as the "Euro-PCT" route.

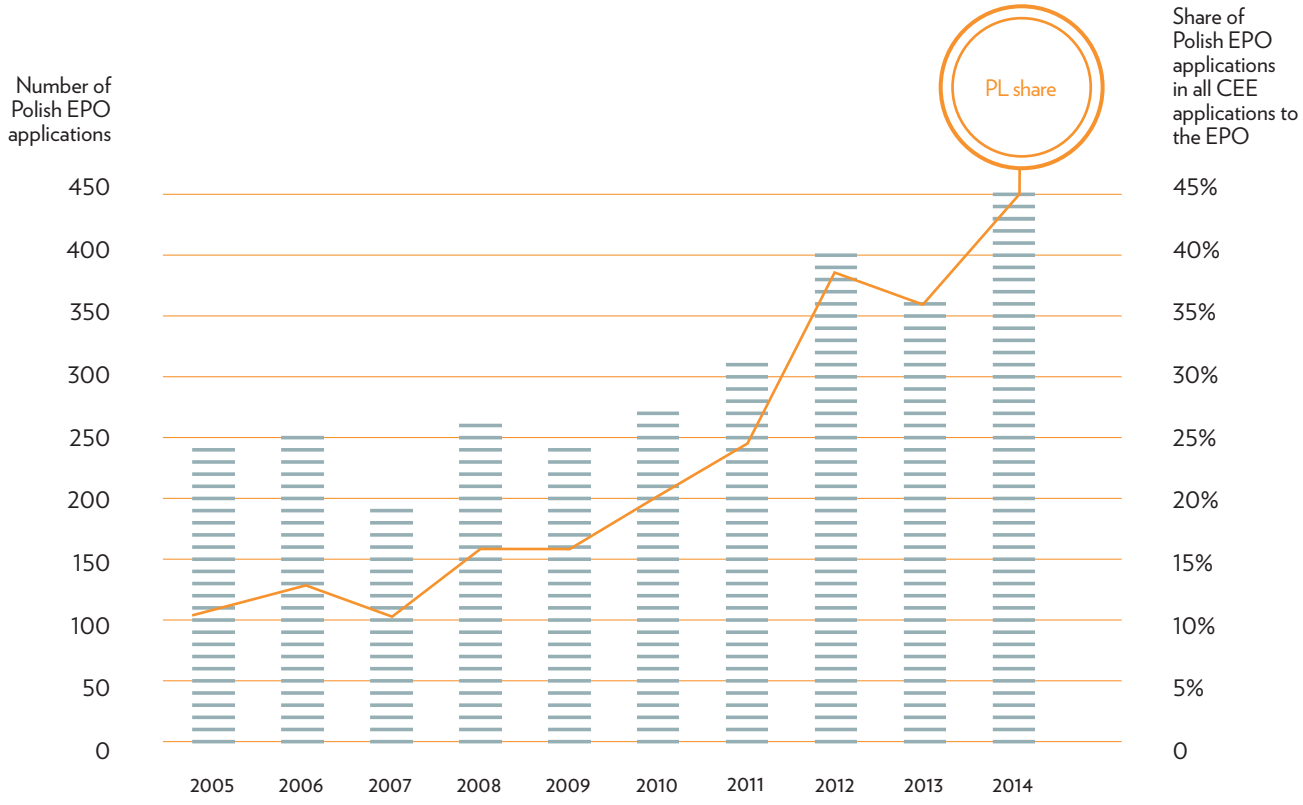


FIG. 2 Number of Polish EPO applications.

reason, it is much better to measure the level of innovativeness with the number of European or international patent applications filed by entities from the given country.

Chart 2 presents the number of the European patent applications filed to the EPO by Polish entities between 2005 and 2014.

This chart provides for two positive conclusions. First, the past 10 years saw considerable growth of the number of European patent applications filed by Polish entities (from 105 in 2005 to 475 in 2014). Second, there was a significant growth of these applications in relation to applications from the Central and Eastern European (CEE) countries. In 2014, Polish entities filed approximately 45% of all applications filed to the EPO from countries in this region. This trend is a clear proof that Polish companies increase their European patent protection for inventions having top economic importance, at least in comparison with the neighbours. Similar trends can be observed in the case of international PCT applications, 348 of which were filed by Polish entities in 2014.

In the context of European patents, it is interesting to note that Poland's entry into the EPC has resulted in that most valid patents in Poland are those granted by the European Patent Office (and subsequently validated by the PPO) rather than the PPO, which – as it is already known from Chart 1 – mainly grants patents for applications filed by domestic entities.

Chart 3 presents the number of patents granted by the PPO and European patents (granted by the EPO) validated in Poland between 2002 and 2014.

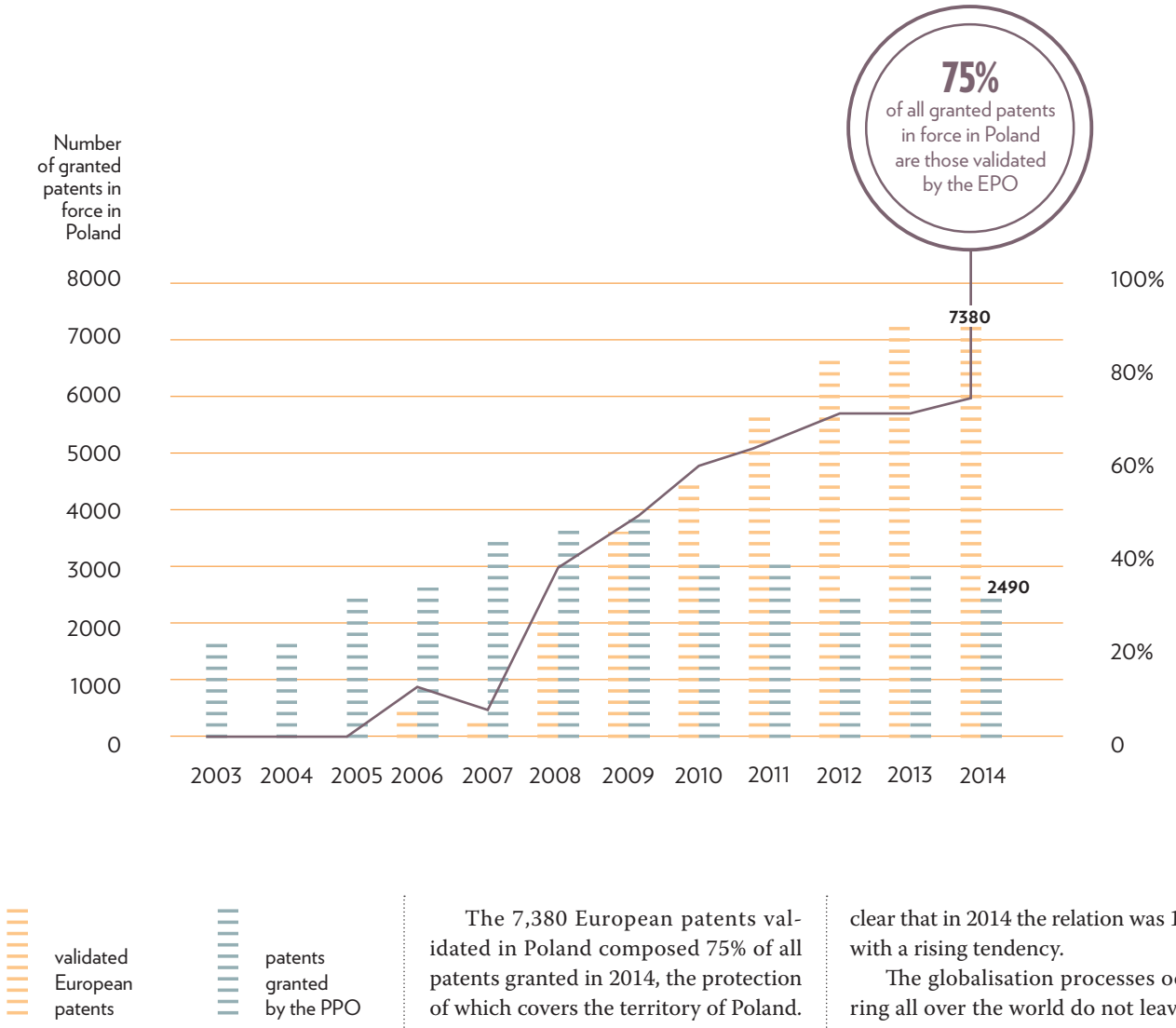


FIG. 3 Number of patents granted by the PPO and European patents validated in Poland between 2003 and 2014.

The 7,380 European patents validated in Poland composed 75% of all patents granted in 2014, the protection of which covers the territory of Poland. Noteworthy, the share is continuously rising. Furthermore, it is well known that not all the European patents are validated in Poland (as this triggers additional costs) and the relation between the number of European patents validated in a given country and the total number of granted European patents may be regarded as a measure of perception of the given jurisdiction from the perspective of "technological significance", including the risk of potential violations, the sales market, or production location attractiveness.

Chart 4 presents the number of all patents granted by the EPO compared with the number of European patents validated in Poland, from which it is clear that in 2014 the relation was 11.4% with a rising tendency.

The globalisation processes occurring all over the world do not leave the science and research activities unaffected. There are more and more inventions developed by international research teams – not only at academies, but also in corporations, which often file patent applications through companies registered in countries with preferential treatment for income obtained from use of intellectual property rights (the so-called Patent Box).

Patent statistics allows to examine this phenomenon and we decided to analyse the patent applications with inventive contributions from Polish inventors residing in Poland. The presented analysis below does not include the contribution of Poles residing abroad (non-Polish residents).

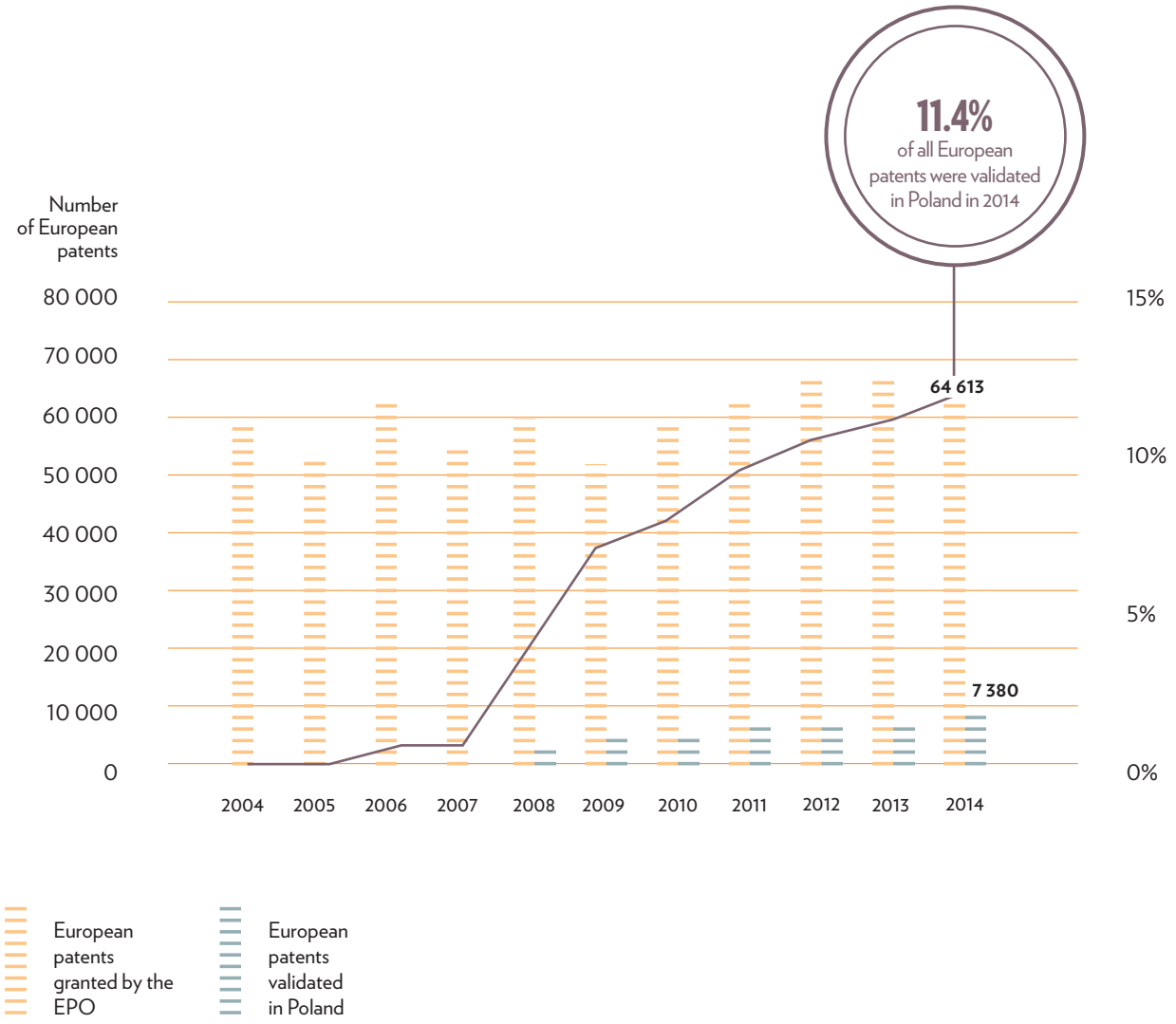


FIG. 4 Number of all European patents and European patents valildated in Poland between 2004 and 2014.

Chart 5 presents a comparison of the number of all patent applications filed between the years 2004 and 2014 having Polish inventors/co-inventors and the number of patent applications having inventive contribution from Polish inventors/co-inventors and filed by foreign entities.

It should be stressed that due to the peculiarities of the patent procedure, which may see the same invention subject to independent applications in various jurisdictions, the image provided by the chart above is only a rough estimate of the problem of patent internationalisation. Nevertheless, the share of applications filed by foreign entities is maintained in the range between 8% and 15%, which is generally consistent with the conclusion presented by OECD in last October's report entitled "OCED Science, Technology and Industry Scoreboard 2015", where Poland's factor of international co-ownership of patent applications is approximately 17%. It is also worth noting that the number of patent applications filed by foreign entities (with recognised inventive contribution from at least one Polish inventor) continues to rise and reached 934 applications in 2014 (compared to 307 applications in 2004).

This analysis, especially focuses on inventions of high economic importance, which are best measured with the number of international PCT applications.

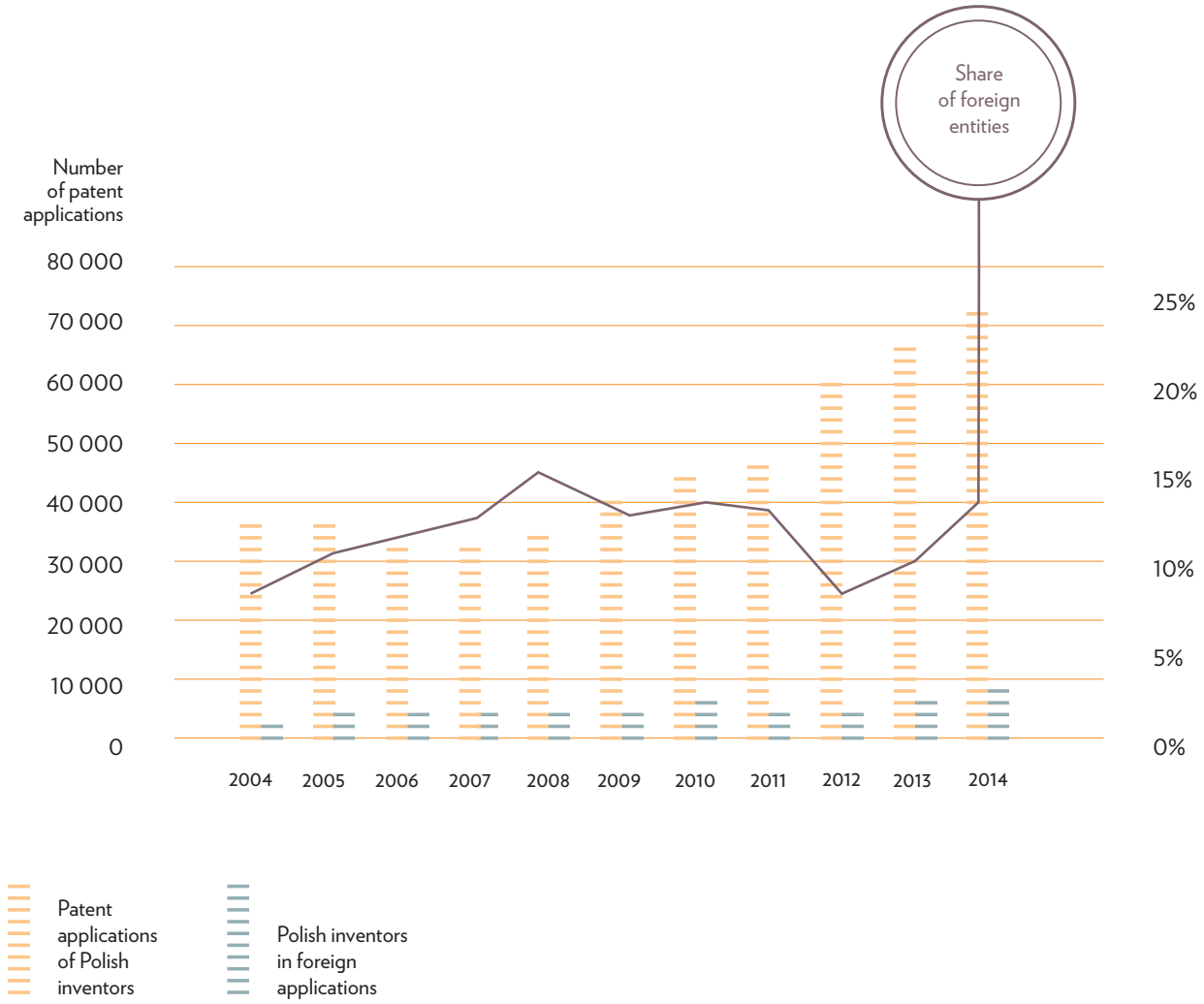


FIG. 5 Comparison of the number of all patent applications filed between 2004 and 2014 having Polish inventors / co-inventors and the number of patent applications having inventive contribution from Polish inventors / co-inventors filed by foreign entities.

Chart 6 presents the comparison of the number of all international PCT patent applications filed by foreign entities and published between 2004 and 2014 which included inventive contribution from Polish inventors / co-inventors with the total number of international patent PCT applications having inventive contribution from Polish inventors/co-inventors.

The analysis of the chart data leads to the conclusion that when it comes to international PCT applications, the share of applications filed by foreign entities in the total PCT applications having inventive contribution of Polish inventors is between 28% (in 2005) and 47% (in 2011) and that this share is considerably higher than that concerning all patent applications in Chart 5 (which often concerns inventions of local importance filed only domestically). This may be at least partially explained by the establishment of research and development centres in Poland by international corporations, which take advantage of the competences of Polish engineers and scientists and engage them in international research ventures.

Table 1 presents a list of foreign entities which filed at least two international PCT patent applications published in 2014 having inventive contribution from Polish inventors/ co-inventors.

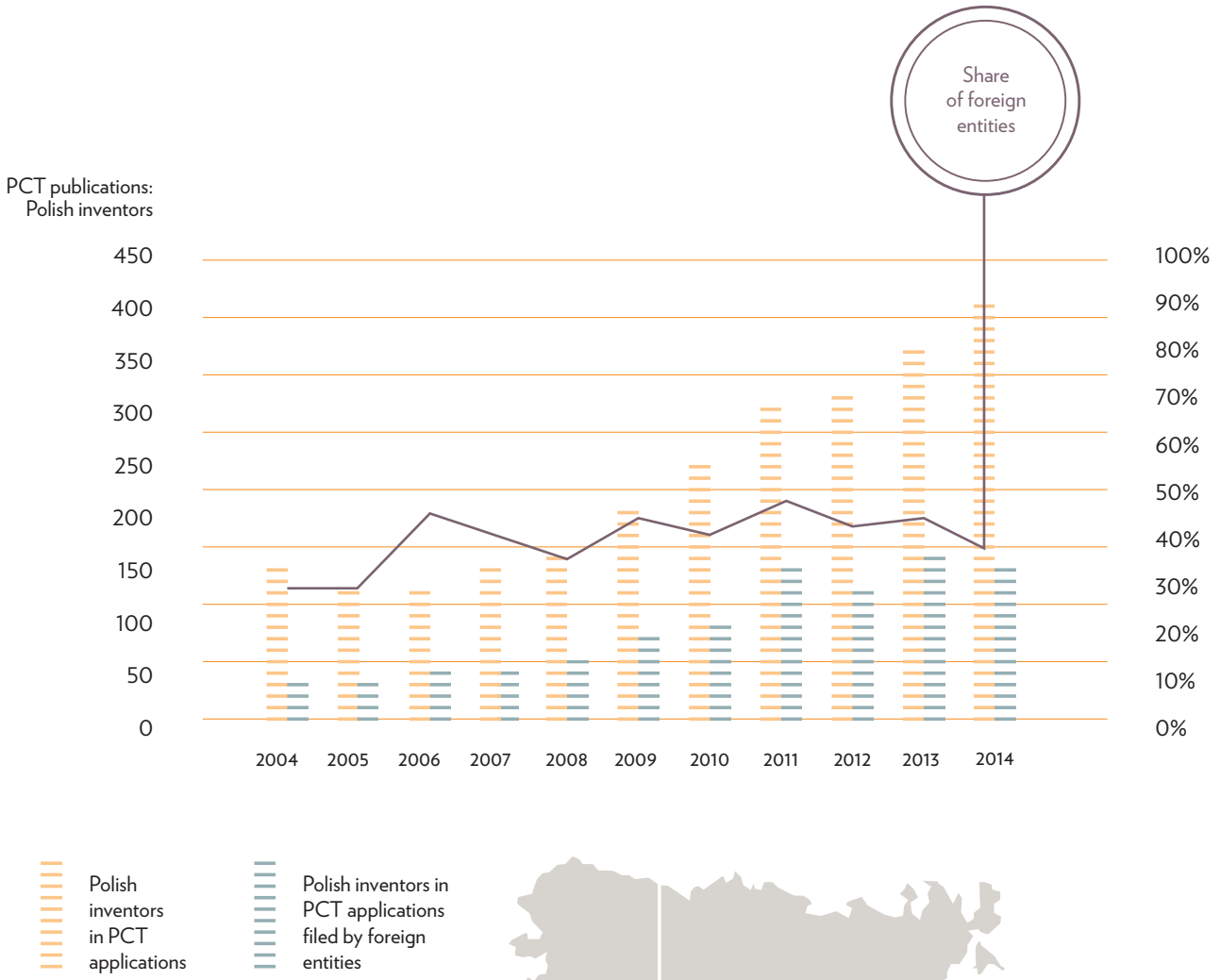
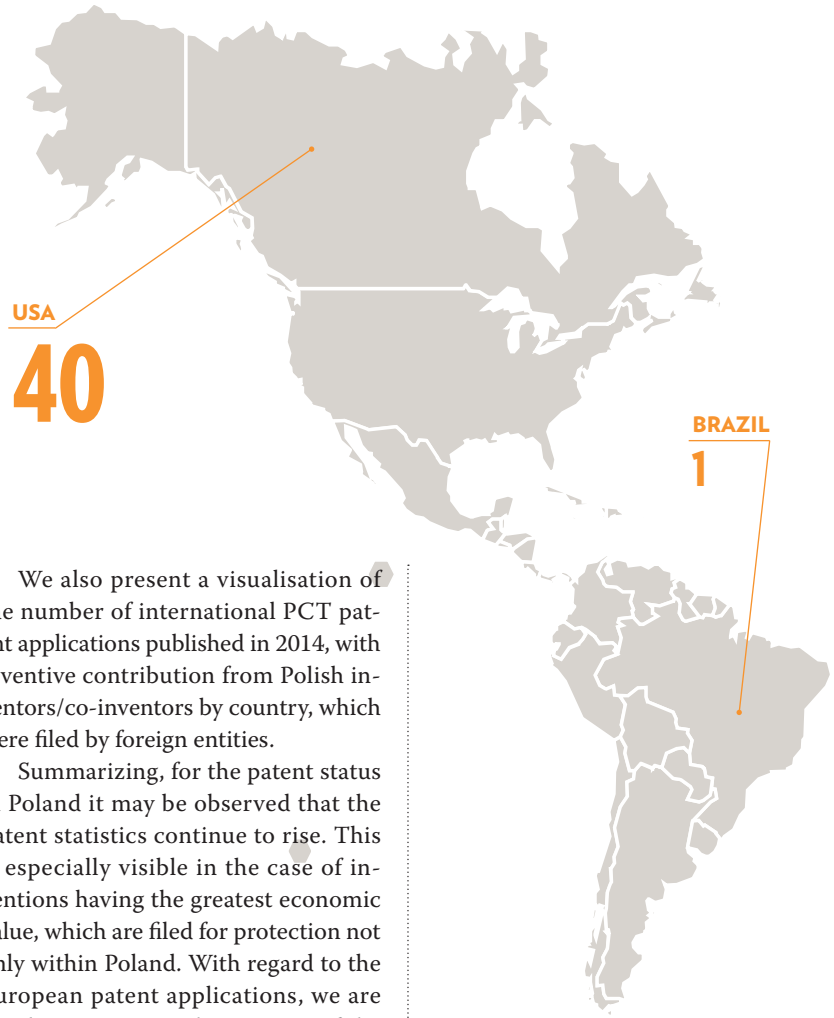


FIG. 6 Comparison of the number of PCT patent applications filed and published between 2004 and 2014 having Polish inventors / co-inventors and the number of PCT patent applications having inventive contribution from Polish inventors / co-inventors filed by foreign entities.



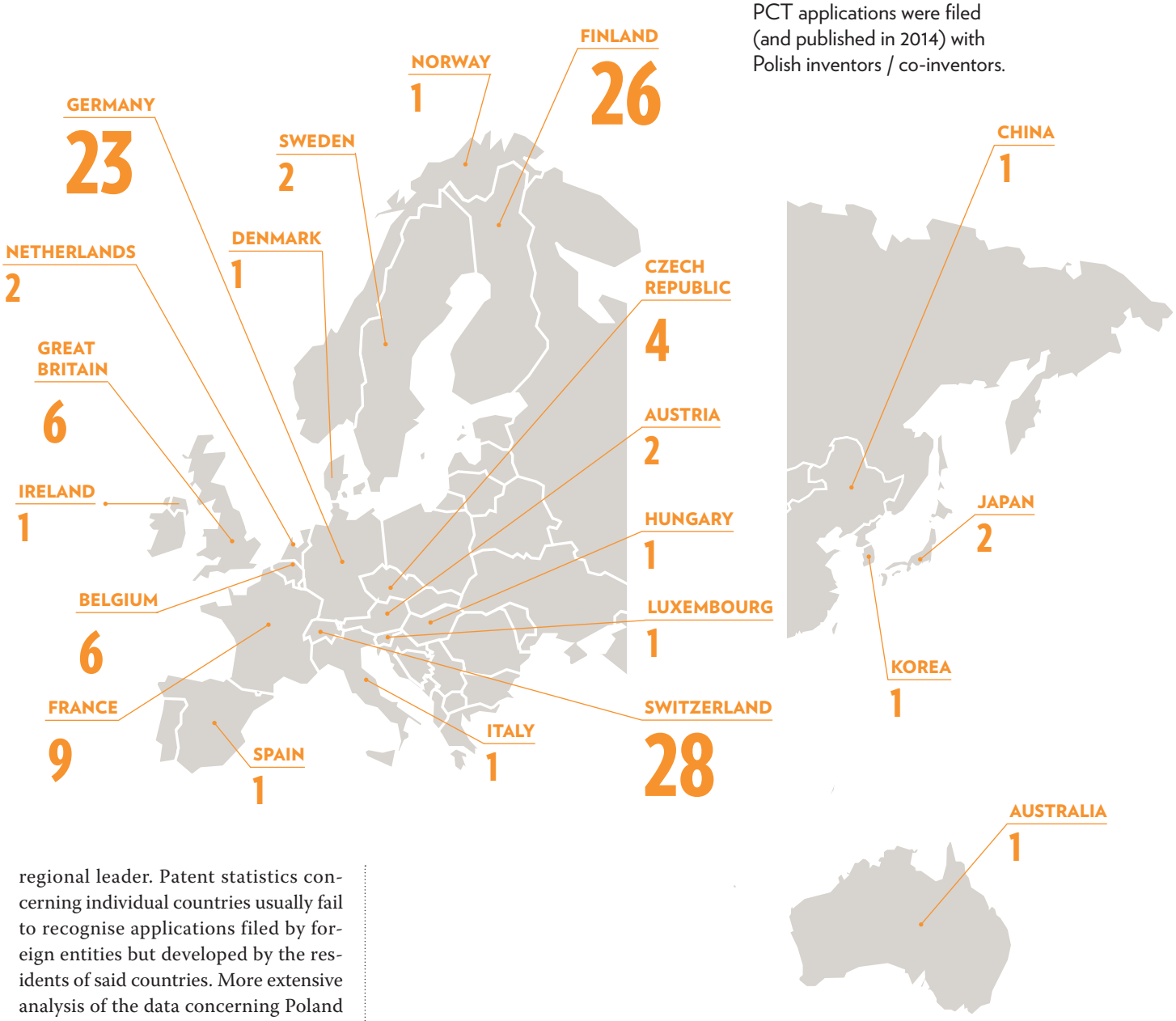
We also present a visualisation of the number of international PCT patent applications published in 2014, with inventive contribution from Polish inventors/co-inventors by country, which were filed by foreign entities.

Summarizing, for the patent status in Poland it may be observed that the patent statistics continue to rise. This is especially visible in the case of inventions having the greatest economic value, which are filed for protection not only within Poland. With regard to the European patent applications, we are slowly moving into the position of the

COMPANY	PCT APPLICATIONS
Nokia Solutions and Networks Oy, Finland	26
ABB Technology Ltd, Switzerland	25
General Electric, USA	8
Bombardier Transportation GmbH, Germany	6
Google Inc, USA	5
Roche Diagnostics GmbH, Germany	5

TABLE 1 A list of foreign entities which filed at least five PCT applications published in 2014 having Polish inventors / co-inventors.

FIG. 7 Countries from which PCT applications were filed (and published in 2014) with Polish inventors / co-inventors.



regional leader. Patent statistics concerning individual countries usually fail to recognise applications filed by foreign entities but developed by the residents of said countries. More extensive analysis of the data concerning Poland shows that an average of approximately 40% of all inventions with inventive contribution from Polish residents is filed by foreign entities, which indicates that Poland's scientific potential is greater than that presented by standard statistical data and shows the internationalisation level of R&D activity.

TAX CONDITIONS

> NEW R&D TAX RELIEF IS A STEP IN THE RIGHT DIRECTION, HOWEVER, THE LEVEL OF TAX DEDUCTIONS MAY BE TOO WEAK AN INCENTIVE TO INFLUENCE SIGNIFICANT PRO-INNOVATIVE CHANGE IN ENTREPRENEURIAL BEHAVIOUR.

The long-awaited piece of legislation, the Act amending certain acts in relation to support for innovation, will come into effect on 1st January 2016. The act completely changes the regulations for tax incentives associated with research and development operations (hereinafter R&D).

The "old relief" for purchase of new technologies, allowing the taxpayers purchasing the intangible assets to additionally deduct 50% of the costs incurred in relation with the purchase of said assets provided that the assets allow to create new or improved goods or services, is still in place until the end of 2015. The deduction is conditioned by obtaining an opinion on innovativeness from a scientific entity confirming that the purchased technology has not been in use anywhere in the world for more than 5 years. The mechanism of this relief provided actual savings of 9.5% of the costs incurred for acquisition of intangible assets. The relief for purchase of new technologies has been criticised for various reasons, mostly for the fact that its structure provided no support for R&D activities or creation of new technologies by the taxpayers but rather promoted acquisition of ready solutions from third parties. This system of support actually strengthened Poland's position as the technology importer and did not contribute to the real change relating to promotion of domestic innovations.

The new tax relief coming into effect with the start of 2016 mainly promotes the research and development activity of the taxpayers, since the relief is only applicable to entities actively pursuing R&D operations. The relief mechanism is based on the additional deduction (i.e. from the taxable base, after tax recognition of the expenses incurred) of qualifying costs directly associated with R&D, including labour costs, processed and raw materials purchase costs, expertise, opinions and services costs and costs of R&D results acquired from scientific entities, as well as costs of using research and development apparatus from not-related entities. The catalogue of eligible costs also includes depreciation deductions for fixed assets (with exception of cars, buildings, structures, and premises) and amortization of intangibles. In relation to qualified labour costs, the amount of the additional deduction is 30% of the costs (which means actual savings of 5.7% of the incurred costs). Whereas, the deducted amount of the remaining qualified costs depends on the taxpayer's status. Medium, small, and micro enterprises can deduct additional 20%, while large enterprises can only deduct 10% of the costs (which means actual savings of 3.8% and 1.9% of the incurred expenses, respectively). Such a low level of permitted deductions is widely criticised, especially in comparison with the additional R&D deductions in other countries,

which often exceed even 100% of R&D costs. Nevertheless, compared to the previous solutions, the new R&D relief is definitely a step in the right direction. There will now be no requirement to obtain the so-called opinion on innovativeness from scientific entities. An anticipated non-tax-related result of the R&D relief is its expected impact on the statistics concerning Business Enterprise Research and Development (BERD) expenses, which despite growing on annual basis, remain far from the expected level when compared with other European countries and assumed strategic objectives for 2020. Additionally, it is important to note that the new relief is conditioned by identification of research and development costs in accounting records. Previously, many entrepreneurs, especially smaller ones, did not have an incentive to keep separate records of such expenses, which in turn could have lowered the domestic BERD statistics.

In economic reality, a frequent barrier for the commercialisation of R&D results by inventors was the need to pay income tax from the nominal amount of shares (stock) acquired in exchange for the contributed-in-kind intellectual property rights. The new act changing certain acts in relation to support of innovation introduces favourable tax solutions in this area as well. The contribution in-kind in the form of the so-called commercialised intellectual property to the companies in 2016 and 2017 is tax-exempt – i.e. no income and costs of such contribution are calculated. The scope of the exempted contribution covers only a narrow catalogue of industrial property rights concerning patentable inventions, utility models, industrial models, topographies of integrated circuits, and know-how (in the sense of valuable industrial, scientific, and commercial information). Interestingly, this catalogue does not cover copyrights, which means that the discussed tax relief does not cover computer software. Interestingly, the tax exemption only concerns situations where the commercialised intellectual property is contributed in-kind by an inventor (as a physical person), university, scientific institute of the Polish Academy of Sciences or a research institute.

3

SUPPORT FOR R&D&I – AVAILABLE PROGRAMMES

> THE MAIN INSTITIUTION SUPPORTING R&D PROJECTS AND HAVING FUNDS FOR THIS PURPOSE IS NATIONAL CENTRE FOR RESEARCH AND DEVELOPMENT (NCRD)

Innovation, achieved primarily through development and implementation of new solutions, has been becoming one of the main factors affecting economic efficiency and strength. As such, it also determines global position of a country and welfare of its population. Therefore, it is not surprising that, in the coming years, the R&D activities which result in the introduction of advanced, unique products and services to the market will have the greatest importance.

This chapter presents the most attractive instruments of support for entrepreneurs, which provide financing for the whole innovation development process, starting from industrial research, going through development activities, and ending with creation of a prototype and incorporation of the output of R&D works in business activity.

The list includes both financial programmes financed with EU structural funds and domestic funding instruments. It is supplemented with a programme addressed to SMEs, a part of the Horizon 2020 programme, financed directly from the funds of the European Commission. The variety of sources and forms of support (grants, loans, tax reliefs) ensures that every business finds an optimum financing source among the presented instruments.

The most important types of activities covered by the operational programmes at the national and regional level include:

- research activities in the strict sense, involving fundamental research, industrial research, and experimental development,
- activities focused on preparation and implementation of R&D results into business activity,
- establishment and expansion of modern R&D centres/departments.

The main institution supporting performance of research and development projects and holding appropriate resources is the National Centre for Research and Development (NCRD). The main funding source for entrepreneurs is the Smart Growth Operational Programme (SG OP), which is funded from the European Regional Development Fund. Its key role is to provide support to increase company expenses for R&D and improve the conditions of their R&D&I operations. It is dedicated to projects of a rather large scale with minimum nationwide level of the developed innovation.

PHD, MBA Monika Lamparska-Przybysz
MANAGER OF SCIENTIFIC PROJECTS AND FUND ACQUISITION
POLPHARMA SA PHARMACEUTICAL WORKS

The current system of R&D support is focused on funding projects with a clear application profile, which are planned to produce economic benefits for not only the enterprises receiving the support but also the entire economy. In my opinion, this is a great and positive change as it allows for the development of technologies which can determine the competitive advantage of Polish and European economy. The evaluation of the submitted projects also deserves praise as it involves a team of economic experts.

The opportunity to receive support allows companies regardless of their size to invest more in R&D and realise high-risk projects to seek innovative solutions providing competitive advantages. The inclusion of the scientific environment in the development of the innovation as a partner is also an important element of this financial perspective. The strategy of gaining a competitive advantage through realisation of risky and innovative projects with scientific contribution will allow companies to evolve, but will also be a way to build Poland's position in the world.

Furthermore, all voivodeships can take advantage of the Regional Operational Programmes (ROP). Based on performed research and analyses, each region identified key developmental needs for an individual ROP. The identified needs determine the different regional support, but all voivodeships consider it important to raise the research and development activity of the enterprises and their expenditures toward the R&D infrastructure. The ROP co-financing concerns R&D projects and investments carried out on a smaller scale from those in scope of national funds.

STATE AID

THE NOVELTY IN COMPARISON WITH THE PREVIOUS PROGRAMMING PERIOD IS A MUCH GREATER AVAILABILITY OF SOURCES FOR R&D PROJECTS DESIGNED TO GIVEN BRANCHES (IE. THE SECTOR PROGRAMS).

The presented programmes/instruments not only offer financial aid for businesses but also impose a number of obligations on them. Below is presented the key information pertaining to horizontal and regional aid, as well as information relating to the so-called *de minimis* aid.

Horizontal aid is the state aid provided for various activities, including research, development, and innovation. It is a targeted assistance, granted irrespectively of the region or sector where a beneficiary conducts its activities. In case of R&D projects, the following operating expenses may be covered: remuneration, testing equipment, lands and buildings, research services, technical know-how, counselling and similar services, operating costs and overheads.

Base horizontal aid intensity for businesses depends on the type of research and amounts to:

ENTERPRISES	SMALL	MEDIUM	LARGE
INDUSTRIAL RESEARCH	70% + 10 pp*	60% + 15 pp*	50% + 15 pp*
EXPERIMENTAL DEVELOPMENT WORK	45% + 15 pp*	35% + 15 pp*	25% + 15 pp*

* option of increasing assistance by 15 percentage point (pp) if the project covers effective collaboration or the project's results are planned for wide dissemination.[2]

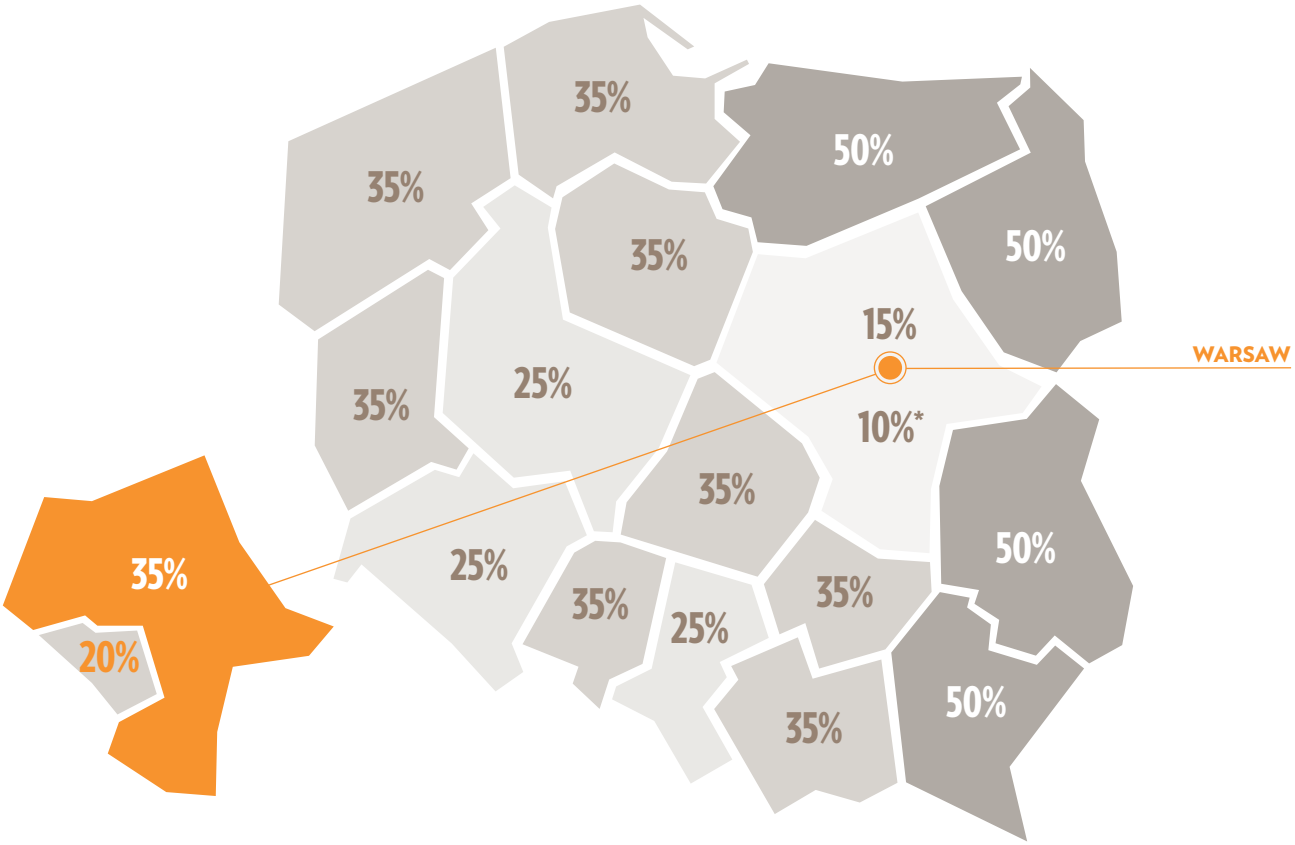
[1] Ed. M. Gwizda, M. Kosewska-Kwaśny, S. Żółciński, 2014–2020 EU Funds. New Perspectives – New Opportunities, Warsaw 2014 – Detailed study on public aid in scope of the new financial perspective.
[2] Framework regulations concerning state aid for business, development, and innovative activity (2014/C 198/01).

Research units involved in targeted projects may count on financing amounting up to 100% of eligible costs.

The horizontal aid will be provided for measures in scope of SG OP priority Axis I falling to the competences of the National Research and Development Centre [including the so-called fast track (submeasure 1.1.1 SG OP), Demonstrator (1.1.2) and sectoral programmes (1.2)] and regional operational programmes (ROP).

Regional aid is granted to finance investment projects, including expansion/establishment of research and development centres. The intensity of regional aid depends on the location of an investment, and its maximum level has been determined in the regional aid map.[3]

FIG. 1 2014–2020 regional aid map. Base intensity of support in scope of regional aid (for large enterprises).



* Lower value of maximum regional aid intensity from January 2018.

Source: Own research of Crido Taxand, based on the Resolution of the Council of Ministers dated 30th June 2014 on establishing the map of regional aid for the years 2014–2020 (Journal of Laws 2014 item 878).

If the beneficiary of the aid is a small or medium enterprise, the intensity of the aid can be increased by adequately 20 and 10 pp.

The eligible costs, which can receive funding in scope of regional aid, are investment costs covering purchase of land, buildings, structures, construction works and materials, fixed assets, and intangibles (patents, licences, know-how, not patented technical knowledge).

The programmes used to provide regional aid will include Loan for technological innovation (3.2.2 SG OP), the Research for the market (3.2.1 SG OP), Support for investments in R&D infrastructure of enterprises (2.1 SG OP), and ROP instruments.

A different type of aid that can be obtained to cover both investing and operating costs is the *de minimis* aid. According to EU regulations (European

[3] Resolution of the Council of Ministers dated 30th June 2014 on establishing the map of regional aid for the years 2014–2020 (Journal of Laws 2014 item 878).

Commission Regulation No. 1407/2013 dated 18th December 2013 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to *de minimis* aid) *de minimis* aid is of a relatively low value and is neither capable of distorting competition, nor affecting trade between EU member states. There is only a limited amount of the *de minimis* aid that may be obtained by every business entity. The maximum amount that a state may grant to a single entity in the period of 3 years is EUR 200,000.00 gross.

The table below presents aid programmes split by horizontal and regional state aid.

TABLE 1 Selected sources of support.

	R&D projects	R&D result implementation	R&D Center creation / expansion
HORIZONTAL AID	– SG OP[4] Axis I: R&D projects, including Fast Track (1.1.1 SG OP), Demonstrator (1.1.2 SG OP) and sectoral programmes (1.2 SG OP) – SG OP Axis IV: Application projects – Submeasure 4.1.4 – ROP[5]: R&D projects – NCRD strategic programmes (Strategmed, Biostrateg, Techmastrateg) – Testing stage		
REGIONAL AID		– SG OP Axis III: Support for innovation in enterprises / R&D result implementation – EP OP[6]: Implementation of innovations by SMEs / R&D result implementation – ROP: R&D result implementation – Special Economic Zone	– SG OP: Measure 2.1 Support for investments in R&D infrastructure of enterprises – Measure 4.2 Development of modern research infrastructure of the science sector – ROP: R&D Center creation / expansion – Special Economic Zones
OTHER FORMS OF AID (INCLUDING DE MINIMIS AID)	– Horizon 2020 – SME instrument, Fast Track to Innovation, other – SG OP: – Bridge Alfa and Bridge VC – Support for development of open innovation – Support for industrial property of enterprises – Innovation vouchers for SMEs – Axis IV: Increasing the research potential – Technological relief – NCRD strategic programmes (Strategmed, Biostrateg, Techmastrateg) – stage of preparation for implementation – GO_GLOBAL.PL		

Iwona Cymerman
MEMBER OF THE MANAGEMENT BOARD
NANOVELOS SP. Z O.O.

Over the last few years the availability of non-repayable public grants has changed radically - today all companies – from start-ups to big players – can reach for funds to develop their R&D. It is a sign of encouragement to take risks and to perceive business development in a longer run. Support from public funds, particularly from the H2020 program, is an attractive factor for reduction of the investment risk. It is a strong impulse to accelerate today's R&D investment decisions that will provide an attractive return on investment in the coming years and a foundation to ensure that taking risks and investing in R&D permanently incorporate into the DNA of Polish companies.

[4] SG OP – Smart Growth Operational Programme.
[5] ROP – Regional Operational Programmes.
[6] EP OP – Eastern Poland Operational Programme.

R&D PROJECTS

The projects supporting the R&D phase see financing of mainly research staff and other costs required to achieve the planned results. The main types of eligible costs subject to financing in scope of the identified support instruments are presented below.

Main categories of expenses in scope of research projects:

- remuneration costs,
- subcontracting costs,
- costs of science and research apparatus and other research devices (mainly amortisation and charges for use),
- intangible costs,
- operating costs (costs of materials and elements used to build prototypes),
- indirect costs (mainly administration costs).

EU funds

In scope of structural funds, the support is oriented toward all or selected stages of work on an innovative solution, which depends on the instrument. Cooperation between enterprises and scientific entities is a significant enforcement of project quality.

The key factors taken into consideration in evaluation of R&D projects include the following:

- the project concerns a **product or process innovation**,
- the project's results are an **innovation**,
- there is actual **market demand** for the project's results,
- implementation of the project's results is appropriately **profitable**,
- the issue of **intellectual property** is not a barrier for implementation of the project's results,
- the project's results are **implemented in Poland**,
- the project fits under the **National Smart Specialisation**.

Fast Track – Measure 1.1.1 SG OP
Industrial research and development work implemented by enterprises

BENEFICIARIES?

Enterprises (SMEs and large)

TYPES OF SUPPORTED PROJECTS?

Projects covering industrial research and development activities or only development activities carried out by enterprises

FORM AND INTENSITY OF SUPPORT

FORM OF SUPPORT: grant

MINIMUM VALUE OF ELIGIBLE COSTS: PLN 2 million for SMEs, PLN 12 million for large enterprises

MAXIMUM GRANT AMOUNT:

- EUR 20 million, if the eligible costs of industrial research compose more than one half of the project's total eligible costs, or
- EUR 15 million – toward other projects.

SUPPORT INTENSITY: according to horizontal aid standards

ALLOCATION AMOUNT: EUR 1.88 billion

Cezary Kozanecki

PRESIDENT OF THE MANAGEMENT BOARD SYNEKTIK S.A.

The NCRD "Fast Track" competition meets the demands of enterprises as it provides opportunity for realisation of projects which would be "put away" or never even see the light of day without external support.

The level of support lets the company assume the risk associated with the realisation of an extraordinary concept, although we believe that it could be maintained at the same intensity of support as that for industrial research throughout the duration of the project.

The information needed in the application require the concept to be extensively thought out, although some of it is hard to foresee at the application preparation stage (e.g. the technical parameters). The character limit in individual sections of the application is also a good proactive, as it requires precise description of the project's premises.

The evaluation period – shortened to 60 days – is an excellent idea. The panel of experts guarantees sober discussion and clarification of any potential concerns of the evaluators appearing during content evaluation. Even if the project does not receive funding, the discussion with the experts will provide conclusions on how to improve it to ultimately receive support.

PHD Marcin Szumowski

PRESIDENT OF THE MANAGEMENT BOARD ONCOARENDI THERAPEUTICS SP. Z O.O.

The systems for R&D&I funding in Poland are evolving in the right direction. The previous project evaluation was based on peer-review, the opinions of scientific experts in the given field or experts in a given industry, covering every stage. It was not an effective system due to the diverse opinions of the reviewers and the high elements of "randomness".

Today, the entities financing industrial research and development, especially in the private sector (NCRD, PAED), are evolving toward western models, where the ultimate decisions on granting financial support to a project are made by panels of experts from diverse industries and with various experience/education [like in the case of the European Commission, the National Institute of Health (NIH), or the Department of Defence in the USA]. Panel discussions with physical presence of the people evaluating the project allow for confrontation of opinions of the leading experts, which provides for more rational and objective selections of projects recommended for financial support.

Another important factor concerns panel interviews with the applications. Meeting the team planned to carry out the multimillion R&D&I applications is very important as it lends credibility to the knowledge, reliability, and competences of the applicant. This is a routine element of R&D&I project evaluation by the United States Department of Defence.

Demonstrator – Measure 1.1.2 SG OP
R&D work related to manufacturing a pilot / demonstration installation

BENEFICIARIES?

Enterprises (SMEs and large)

TYPES OF SUPPORTED PROJECTS?

Development work focused on the search for new solutions and implementation of innovative technologies including the following:

- Construction of pilot/demonstrative installations used to test the new technological solutions developed by research organisations or enterprises
- Testing of new solutions on the pilot/demonstrative installations
- Preparation of the innovative product (technology) for implementation

FORM AND INTENSITY OF SUPPORT

FORM OF SUPPORT: grant

MINIMUM VALUE OF ELIGIBLE COSTS: PLN 5 million for SMEs, PLN 20 million for large enterprises

MAXIMUM GRANT VALUE: EUR 15 million

The total value of eligible costs cannot exceed EUR 50 million

SUPPORT INTENSITY: according to horizontal aid standards

ALLOCATION AMOUNT: EUR 656 million

PHD, MBA Monika Lamparska-Przybysz

MANAGER OF SCIENTIFIC PROJECTS
AND FUND ACQUISITION
POLPHARMA SA PHARMACEUTICAL WORKS

In scope of the "Demonstrator" programme, our company obtained a grant for tests of a biological drug. I believe that this is a great accomplishment, because the current financial perspective offers a lot less funds and programmes to support large companies, which makes the competition much stronger. Our company feels that it is very important to grow our leading position on the pharmaceutical market, but mainly our position as an innovative company.

The Smart Growth Operational Programme includes so-called sectoral programmes financing the R&D of selected sectors of the economy. At this time, there are active programmes for the medical and aviation industries, but there are plans to establish programmes oriented toward other sectors as well in scope of the NCRD competition.

INNOMED – Measure 1.2 SG OP[7]

Programme of scientific research and development for the sector of innovative medicine

BENEFICIARIES

Enterprises
Enterprise consortia

TYPES OF SUPPORTED PROJECTS

Projects covering industrial research and development activities or only development activities corresponding to research subjects, i.e.:
– Medical engineering technologies, including oncologic medical biotechnologies
– Diagnostics and therapy, including personalised cancer therapy
– Production of medicinal products for oncologic use

FORM AND INTENSITY OF SUPPORT

FORM OF SUPPORT: grant
MINIMUM GRANT VALUE: PLN 1 million
MAXIMUM GRANT VALUE: PLN 10 million
SUPPORT INTENSITY: according to horizontal aid standards
ALLOCATION AMOUNT: EUR 874 million (sector programs in total)

[7] Scope of projects financed within the INNOMED programme does not correspond to that of the STRATEGMED Programme, which is financed from national funds.

Innolot – Measure 1.2 SG OP[8]
Innovative aviation

BENEFICIARIES?

Enterprises
Enterprise consortia

TYPES OF SUPPORTED PROJECTS

Projects falling under the subject scope of the competition:
– Innovative Driving System (IDS)
– Innovative Rotorcraft (IR)
– Innovative Airplane (IA)
– Small, Unmanned Airship (SUA)
– Other
and covering industrial research and development activities or only development activities. Each subject defining the content scope includes specific measures which can be realised according to the support group – A or B

FORM AND INTENSITY OF SUPPORT

FORM OF SUPPORT: grant
Group A – programme group with a large, medium, small, or micro enterprise serving as the consortium leader:
MINIMUM GRANT VALUE: PLN 10 million
MAXIMUM GRANT VALUE: PLN 50 million
Group B – programme group with a medium, small, or micro enterprise serving as the consortium leader:
MINIMUM GRANT VALUE: PLN 1 million
MAXIMUM GRANT VALUE: PLN 7.5 million
SUPPORT INTENSITY: according to horizontal aid standards
ALLOCATION AMOUNT: EUR 874 million (sector programs in total)

As a result of the analysis of the first batch of applications for establishment of sectoral programmes, NCRD entailed decisions to establish three more programmes for the following sectors:
– unmanned systems (InnoSBZ),
– textiles (INNOTEXTILE),
– chemicals (INNOCHEM).

Furthermore, following modification of submitted feasibility studies, it will be possible to establish programmes for the following sectors:
– pharmaceutics (INNO-PHARM),
– power generation (PBSE),
– steel (INNOSTAL),
– intelligent devices and systems for energy generation and administration of dispersed or scattered energy systems and elements (IUSER),
– hard coal mining, including machinery and device production, and services for hard coal mining,
– teleinformatics (INNOICT, INNONET),
– offshore (OFFSHORE),
– road building and maintenance (INNODROG),
– forging (INNOFORGE)
– automotive (INNOMOTO).

There may be additional call for proposals of feasibility studies to establish further programmes in the near future.

[8] Based on the documentation of competition II (18th May–17th July 2015).

Application projects – Submeasure 4.1.4 SG OP

BENEFICIARIES?

Consortia (at least one scientific entity and at least one enterprise)[9]

TYPES OF SUPPORTED PROJECTS

Industrial research and / or development activities realised by scientific entities together with a specific enterprise / enterprises aimed to increase the scale of applying new technological solutions necessary for development of enterprises and improvement of their competitive position

FORM AND INTENSITY OF SUPPORT

FORM OF SUPPORT: grant

MINIMUM VALUE OF ELIGIBLE COSTS: PLN 2 million

MAXIMUM GRANT VALUE: PLN 10 million

Support intensity in scope of consortium different for scientific entities and enterprises:

SCIENTIFIC ENTITY – 100% of eligible costs irrespectively of type of R&D

ENTERPRISE – according to horizontal aid standards

ALLOCATION AMOUNT: EUR 143 million.

INSTITUTION GRANTING SUPPORT

National Centre for Research and Development

ADDITIONAL KEY CRITERIA

– Planned project results constitute global innovation
– Planned project results constitute breakthrough innovation
– The nature of the project is superregional

Regional Operational Programmes

BENEFICIARIES?

Enterprises (mainly SMEs)
Enterprise consortia
Enterprise and scientific entity consortia

TYPES OF SUPPORTED PROJECTS

– Launch or expansion of R&D (research and development aimed at creation of new or considerably improved products and production processes)
– Preparation of experimental prototypes
– Creation of demonstrative and pilot installations

FORM OF SUPPORT

Grants, possible financial instruments

ADDITIONAL KEY CRITERIA

Regional Operational Programmes prefer projects fitting under Regional Smart Specialisations, including those based on key supporting technologies and realised in scope of partnerships

[9] The consortium cannot be composed of more than 5 entities. The number of enterprises composing the consortium cannot be lower than one half of the total consortium members.

As noted early in the chapter, ROP resources are distributed depending on the specific needs of individual voivodships, therefore the information presented above demonstrates the potential for grant acquisition in a general manner.

National funds

National funds are oriented toward the selected industries and sectors presented below in scope of the so-called strategic programmes resulting from the state science and innovation policy.

The key criteria for evaluation of the projects include the following:

- scientific value of the project with special consideration of the innovativeness and interdisciplinary nature of the solution produced by the project,
- output and potential of the applicant,
- potential for applying the project's results to the economy,
- projected economic and social effects of the project.

BIOSTRATEG

BENEFICIARIES?

Scientific consortium (at least three organisational entities, including at least one scientific entity and one enterprise)

TYPES OF SUPPORTED PROJECTS

Projects covering five strategic problem areas:
- Food security and food safety
- Sustainable management of natural resources with special recognition of water management
- Counteracting and adapting to climate changes with special recognition of agriculture
- Protection of biodiversity and sustainable development of agricultural production space
- Forestry and wood processing

and based on development and preparation for implementation of new products, techniques, and technologies and other solutions applicable in the fields covered by the subject scope of the programme

FORM AND INTENSITY OF SUPPORT

FORM OF SUPPORT – grant

MINIMUM GRANT AMOUNT: PLN 10 million

ALLOCATION AMOUNT: approximately PLN 500 million

INSTITUTION GRANTING SUPPORT

National Centre for Research and Development

KEY CRITERIA

- Level of the project contributing to reaching the main objective and specific objectives of the programme
- Scientific value of the project with special consideration of the innovativeness and interdisciplinary nature of the solution produced by the project
- Output and potential of the applicant
- Potential for applying the project's results to the economy
- Projected economic and social effects of the project
- Legitimacy of the planned costs in relation to the scope of assignments covered by the project and in relation to expected results
- Potential for achieving the planned target values of the project's indices
- Share of own resources in the project's total budget

STRATEGMED
Prevention practices and treatment of civilization diseases

BENEFICIARIES?

Scientific consortium (at least five organisational entities based in Poland, including at least one scientific entity and one enterprise)

TYPES OF SUPPORTED PROJECTS?

Projects covering the testing stage (A) and stage of preparation for implementation (B) fitting under at least one of the following four subject groups:
– Cardiology and cardiac surgery
– Oncology
– Neurology and senses
– Regeneration medicine
The projects will make for development and implementation of new prevention, diagnostics, treatment, and rehabilitation methods
The grant for fundamental research can be granted to only one scientific entity

FORM AND INTENSITY OF SUPPORT

FORM OF SUPPORT – grant
MINIMUM GRANT AMOUNT: PLN 10 million
Support intensity in scope of consortium different for scientific entities and enterprises
ALLOCATION AMOUNT: PLN 800 million

INSTITUTION GRANTING SUPPORT

National Centre for Research and Development

TECHMATSTRATEG[10]
Innovative material technologies

BENEFICIARIES?

Scientific consortia (at least three organisational entities, including at least one scientific entity and one enterprise)

TYPES OF SUPPORTED PROJECTS

Grant for projects covering research and development and preparation of their results for practical application in five key areas:
– Construction material technology
– Photonic and nanoelectronic material technology
– Functional material technology and technology of materials with designed properties
– Waste-free material technology and technology of biodegradable engineering materials
– Technology of materials for energy transmission and storage

FORM AND INTENSITY OF SUPPORT

FORM OF SUPPORT – grant
MINIMUM AMOUNT OF ELIGIBLE COSTS: PLN 5 million
ALLOCATION AMOUNT: approximately PLN 500 million

[10] Based on general programme description. Information subject to change depending on individual competitions, specifically in scope of minimum level of eligible costs.

RESEARCH AND DEVELOPMENT CENTRES

Research and development centres are important elements leading to improvement of innovation in enterprises and, thus, in the entire domestic economy. The centres aim to provide the infrastructure for R&D.

The main types of eligible costs, which can be funded in scope of the identified support instruments, are presented below.

Main categories of eligible costs:

- land and building purchase costs,
- costs of construction works and materials,
- costs of purchasing or producing fixed assets, including costs of their installation and activation,
- costs of intangibles (patents, licences, know-how, not patented technical knowledge).

Marek Florkowski
DIRECTOR OF THE ABB RESEARCH CENTRE ABB SP. Z O.O.

The ABB Corporate Research Centre in Cracow contributes to the creation of technologically advanced products and modernisation of existing ones by improving their utility attributes, productivity, and reliability and making them easier to use. Investments in R&D&I activity are very important to the company as they raise its competitive position, strengthen the market position of the ABB brand, and raise the potential for obtaining new clients.

SMART GROWTH OPERATIONAL PROGRAMME – AXIS II

Support for investments in R&D infrastructure of enterprises – Measure 2.1 SG OP

BENEFICIARIES?

Enterprises (SMEs, large)

TYPES OF SUPPORTED PROJECTS

– Investments in apparatus and infrastructure necessary for the creation or expansion of research and development centres within the enterprises
– Research realised in scope of the research agenda

FORM AND INTENSITY OF SUPPORT

FORM OF SUPPORT – grant:
CONCERNING THE INVESTMENT AREA: according to the regional aid map
SUPPORT FOR REALISATION OF THE RESEARCH AGENDA: between 25% and 45% in relation to development
De minimis aid for purchase of materials and products directly associated with the project's realisation

INSTITUTION GRANTING SUPPORT

Ministry of Economy

KEY CRITERIA

– The project must fit under one of the National Smart Specialisations
– As the result of the obtained support, the beneficiary should open or expand own R&D activity, raise private R&D expenditures, and consequently raise the innovation of the beneficiary's operations and of the operations of the beneficiary's consumers
– SME projects are preferred
– A research agenda for realisation with use of the infrastructure funded in scope of the project must be prepared
– The most important factors determining support will be the following:
  – Value of expenditures for research and development in relation to the size of the investment
  – Scope of planned R&D
  – Capacity to perform R&D
  – Creation of new jobs for R&D workers
  – Innovation level of the technology planned for development in scope of CRD
  – R&D cooperation with a scientific entity

REGIONAL OPERATIONAL PROGRAMMES

R&D center creation / expansion

BENEFICIARIES?

Enterprises and scientific and industrial consortia

TYPES OF SUPPORTED PROJECTS

Examples of support areas:
– Creation and expansion of research and development infrastructure used for innovative operations, including establishment of R&D centres, e.g. purchase of specialist apparatus and laboratory devices

FORM OF SUPPORT

GRANT / repayable financial instruments in accordance with the regional aid map

INSTITUTION GRANTING SUPPORT

Marshal's offices

KEY CRITERIA

– In most regions, the support will go to SMEs
– Preferred projects fit under the areas of regional smart specialisations

SPECIAL ECONOMIC ZONES

Creation / expansion of research and development centres

BENEFICIARIES?

Enterprises

WHAT MAY BE SUBJECT TO AID IN FORM OF INCOME TAX EXEMPTION FOR ENTERPRISES?

New investments associated with creation of R&D centres

FORM AND VALUE OF SUPPORT

Up to 70% of investment costs or two-year costs of new jobs (support in form of income tax exemption for enterprises)
Access criteria for investment located in area owned by SEZ – minimum investment costs of PLN 100 thousand
Access criteria for instance of establishing SEZ on private land – eligible costs of at least PLN 10 million or raise of employment by at least fifty new jobs

INSTITUTION GRANTING SUPPORT

Management Boards of Special Economic Zones

KEY CRITERIA

– The investment will realise services in scope of scientific research and development services specified in Polish Classification of Goods and Services part 72

> IN THE 2014-2020 FINANCIAL PERSPECTIVE THE INVESTMENTS SUPPORT RELATED TO THE IMPLEMENTATION OF NEW PRODUCTION TECHNOLOGIES / NEW PRODUCTS WILL ALMOST EXCLUSIVELY BE FOR THE SMES.

IMPLEMENTATION OF THE PERFORMED/PURCHASED R&D

It is possible to obtain support for implementation of R&D results in scope of the Smart Growth Operational Programme, the Eastern Poland Operational Programme, and all Regional Operational Programmes. The implementation can concern both own and purchased R&D results.

The support is oriented mainly toward the SME sector. For certain ROP, support for large enterprises is also permitted. It will focus on areas of high risk/low profitability or special projects, which cannot be realised by SMEs.

In cases of domestic programmes, preferred projects are those fitting under National Smart Specialisations. These projects must also demonstrate positive impact on realisation of sustainable development. In cases of support pursued in scope of ROP, preferred projects are those fitting under Regional Smart Specialisations. In certain regions, projects concerning implementation of R&D results obtained from previously funded projects in scope of the R&D of a given ROP can also receive preferential treatment. The key to success of all measures is innovation of the introduced solutions and the market potential of the product created in scope of the project.

Main types of costs which can be financed in scope of identified support instruments are presented below.

Main categories of eligible costs:

- costs of purchasing perpetual usufruct rights of land and ownership rights of real estate,
- costs of purchasing or producing fixed assets,
- costs of construction works and materials,
- costs of intangibles, including patents, licences, know-how, and other intellectual copyrights.

Selected measures can also include funding for the costs of the development stage or costs of consulting, which constitute a complementary element of the project.

SMART GROWTH OPERATIONAL PROGRAMME – AXIS III

Research for the market – Measure 3.2.1. SG OP
Support for implementation of R&D results

BENEFICIARIES

Enterprises (SMEs)

TYPES OF SUPPORTED PROJECTS

– Development work associated with adaptation of held/purchased technology to the needs of the enterprise (research stage)
– Implementation of the results of own or purchased R&D in the enterprise (implementation stage)
– Ihe project's result should see commercial release of new or considerably improved products or services

FORM AND VALUE OF SUPPORT

FORM OF SUPPORT: grant

MINIMUM VALUE OF THE PROJECT'S ELIGIBLE COSTS: PLN 10 million

MAXIMUM VALUE OF THE PROJECT'S ELIGIBLE COSTS: EUR 50 million (including PLN 1 million for the development phase and PLN 1 million for consulting)

MAXIMUM GRANT VALUE: PLN 20 million (including PLN 450 000 for experimental development and PLN 500 000 for consulting services)

SUPPORT INTENSITY:

– Implementation stage – according to regional aid map
– Research stage – 35% of eligible costs for medium enterprises; 45% of eligible costs for small and micro enterprises
– Consulting costs – 50% of eligible costs

The total costs associated with purchase of real estate, construction materials, and labour cannot exceed 20% of eligible costs (maximum PLN 5 million)

The costs associated with purchase / lease of real estate cannot exceed 10% of eligible costs

ALLOCATION AMOUNT: EUR 1.04 million

INSTITUTION GRANTING SUPPORT

Polish Agency for Enterprise Development

KEY EVALUATION CRITERIA

– Support specifically oriented on implementation of the results of R&D performed independently or under order of the applicant
– Product innovation
– Product's market potential, which is the effect of the project's realisation

Loan for technological innovation – Measure 3.2.2. SG OP

BENEFICIARIES

Enterprises (SMEs)

TYPES OF SUPPORTED PROJECTS

– Purchase and implementation of new technology and using it as foundation for production of new goods, processes, or services or ones considerably improved in comparison to those previously produced in Poland
– Implementation of new own technology and using it as foundation for production of new goods, processes, or services or ones considerably improved in comparison to those previously produced in Poland

FORM AND VALUE OF SUPPORT

FORM OF SUPPORT: grant (technological bonus) limited to repayment of the investment credit from a commercial bank

MAXIMUM SUPPORT VALUE: PLN 6 million

MAXIMUM VALUE OF THE PROJECT'S ELIGIBLE COSTS: EUR 50 million

SUPPORT INTENSITY: according to regional aid map

ALLOCATION AMOUNT: EUR 422 million

INSTITUTION GRANTING SUPPORT

Bank Gospodarstwa Krajowego

KEY EVALUATION CRITERIA

– Sufficient credit rating to obtain an investment credit under commercial conditions.
– Technological innovation: if the technology introduces new positive solutions previously not available from alternative solutions; if the technology expands on existing technologies – improves selected properties of previously available solutions, e.g. speed, productiveness
– The technology planned for implementation constitutes industrial property, result of industrial research, not patented technical knowledge
– Preferred projects fit under the National Smart Specialisations or concern the fields of advanced or intermediate technologies
– Preferred treatment for members of Key National Clusters

EASTERN POLAND OPERATIONAL PROGRAMME – AXIS I

Implementation of innovation by SME – Measure 1.3.1. EP OP

BENEFICIARIES

SME[11] (a member of a superregional cooperative association[12])

TYPES OF SUPPORTED PROJECTS

- Projects leading to creation of (domestically) innovative products through implementation of (own or purchased) R&D results
- Possible funding for individual stages of the investment project aimed toward implementation of the innovative product:
  - Preparation for implementation, covering the following in particular: preparation of market analysis and market potential of the product, preparation of implementation documentation, patent acquisition, validation, and defence, acquisition of certificates and accreditations necessary for implementation of the product or technology into the production operations of the enterprise (this stage can see funding of consulting services in scope of innovation and innovation support services if such are required for effective preparation for implementation)
  - Acquisition of the intangibles required to implement own or purchased R&D results (the R&D results will serve as grounds for the development of the new innovative product);
  - Adaptation work
  - Implementation stage covering investments in material fixed assets

FORM AND VALUE OF SUPPORT

FORM OF SUPPORT: grant

MINIMUM VALUE OF ELIGIBLE EXPENSES: PLN 1 million

MAXIMUM VALUE OF ELIGIBLE EXPENSE FUNDING: PLN 7 million

ALLOCATION AMOUNT: approximately EUR 100 million

INSTITUTION GRANTING SUPPORT

Polish Agency for Enterprise Development

KEY EVALUATION CRITERIA

- The venture applied for support by a SME entered in a superregional cooperative association should fit under the developmental objectives of said association and be associated with the area of its specialisation
- The following projects are preferred:
  - The realisation of which contributes to creating more jobs at the SME receiving support
  - Fitting under the scope of regional smart specialisations mutual for at least two voivodeships in eastern Poland
  - Contributing to the promotion of green and sustainable development

[11] SME doing business in Poland with at least 5 employees within the most recent trading year of at least 12 months and with sales revenue of at least PLN 600 thousand over at least one closed trading year within the three years before the year of the grant application and with membership in a superregional cooperative association for at least 6 months before the date, on which the grant application was filed.

[12] Superregional cooperative association is understood as a group of at least five enterprises operating in related sectors working together to create products or services with operations coordinated by the entity supervising the association. A superregional cooperative association covers at least two voivodeships, including at least one in Eastern Poland. On the date, on which the grant application is filed, it must be operating for at least 12 months.

REGIONAL OPERATIONAL PROGRAMMES

Implementation of R&D results – Regional Operational Programmes

BENEFICIARIES

Enterprises

TYPES OF SUPPORTED PROJECTS

– Implementation of own or purchased scientific research/technologies and intellectual property rights associated with the product or service, including new investments covering application of new, regionally innovative solutions, especially technological solutions, in products and services, e.g. leading to reduction of unfavourable impact on the environment
– Direct support for enterprise investments in implementation of research and development results

FORM AND VALUE OF SUPPORT

FORM OF SUPPORT: grants / financial instruments
The limits concerning project value, eligible expense value, and support volume are different and conditioned by the selected measure and the ROP

INSTITUTION GRANTING SUPPORT

Marshal's offices

KEY EVALUATION CRITERIA

– In most voivodeships, support will be limited to SMEs
– Innovation of implemented products or services
– Market potential of the implemented product or services

SPECIAL ECONOMIC ZONES

Innovative investments

BENEFICIARIES

Enterprises

TYPES OF SUPPORTED PROJECTS

Implementation of new, unprecedented technological solutions and launch of production of new or considerably improved products

FORM AND VALUE OF SUPPORT

Up to 70% of investment costs or two-year costs of new jobs created (support in form of income tax exemption)
Access criteria for investment located in area owned by SEZ – minimum investment costs of PLN 100 thousand
Access criteria for instance of establishing SEZ on private land – eligible costs of at least PLN 20 million AND raise of employment by at least 30 new jobs*

INSTITUTION GRANTING SUPPORT

Management Boards of Special Economic Zones

* The detailed conditions concerning the volume of employment and qualified investment costs are reduced by 30% in Lubelskie, Podkarpackie, Podlaskie, Świętokrzyskie, and Warmińsko-Mazurskie Voivodeships.

OTHER FORMS OF SUPPORT

HORIZON 2020

Horizon 2020 is an EU framework programme oriented toward innovative research and solutions in scope of three priority areas, which are as follows:

– excellent science,
– industrial leadership,
– societal challenges.

Due to the fact that the programme is implemented directly by the European Commission, most cases require the funded projects to be conducted by consortia composed of entities originating from at least three different states. Large, medium, and small enterprises can seek funding in scope of individual Horizon 2020 calls for R&D projects and preparation of their results for implementation. The scope and budget (EUR 77 billion) of Horizon 2020 make it the biggest European Union programme concerning the scope of R&D in history.

It is worth noting that the Horizon 2020 programme takes into account specific needs of SMEs, which is evidenced by the establishment of the SME Instrument presented below. This instrument allows individual SMEs to obtain funding without getting involved in cooperation with entities from other countries.

Horizon 2020 – SME Instrument

BENEFICIARIES

Enterprises (SMEs)
SME consortia

TYPES OF SUPPORTED PROJECTS

PHASE 1 – FEASIBILITY STUDY

– Assessing the technical feasibility and commercial potential of a breakthrough product / service / technology, risk assessment, intellectual property exploration, finding project partners and drafting a preliminary business plan

PHASE 2 – IMPLEMENTATION

– Verification and testing of a planned solution / product / service and activities aimed at bringing innovation to demonstration and maturity for market take-up
– This includes such activities as prototyping, miniaturisation, scaling-up, replication and validation for market replication

PHASE 3 – COMMERCIALIZATION

– Projects qualified for this phase will be covered by direct (non-cash) support including access to equity and debt instruments, linking with private investors and customers, protection of intellectual property rights, and assistance in bringing products to new markets. Support will be offered exclusively to entities that have received financial assistance in phases 1 and 2. It will not be possible to apply for support under phase 3 only

FORM AND VALUE OF SUPPORT

PHASE 1: A grant lump sum of EUR 50 thousand and free coaching provided through the Enterprise Europe Network
PHASE 2: A grant covering up to 70% of eligible costs, with the Phase 2 project value range between EUR 0.5 – 2.5 million and free coaching provided through the Enterprise Europe Network
PHASE 3: Non-cash support

INSTITUTION GRANTING SUPPORT

European Commission

KEY CRITERIA

– The solution must reach technology readiness level (TRL) 6
– Phase 1 duration – up to 6 months
– Phase 2 duration – 12–24 months

Horizon 2020 – Fast Track to Innovation

BENEFICIARIES

Including SMEs
Consortia composed of minimum three and maximum five partners

TYPES OF SUPPORTED PROJECTS

- Activities associated with setting standards, advanced testing, pilot development and demonstration, validation in realistic conditions, certification, and validation of the business model for new products and services
- Funding for innovative activity
- Funding covers remuneration costs, subcontracting costs, other direct costs (travel, fixed assets amortisation costs, costs of big research infrastructures, purchase of goods and services)

FORM AND VALUE OF SUPPORT

FORM OF SUPPORT: grant
The maximum grant amount is EUR 3 million and the maximum funding level is 70%
Non for profit entities (e.g. universities, research institutes) can seek funding of 100%

INSTITUTION GRANTING SUPPORT

European Commission

KEY CRITERIA

- The projects should fit under the areas listed in the Horizon 2020 Work Programmes:
  - Leadership in enabling and industrial technologies: ICT, nanotechnologies, advanced production and processing, advanced materials, biotechnology, aeronautics and space
  - Societal challenges: health, agriculture, maritime economy, bioeconomy, power engineering, transport, climate and environment protection, effective resource and raw material management, social issues, citizen security
- The supported solutions should be mature – at least at TRL 6 and at a similar level for non-technological innovations. FTI is intended to raise the technology to level 9 to allow its commercial release and return of profits to the European society and economy
- The innovation should appear on the market within 36 months (of the project's launch)

Horizon 2020 – Other options

BENEFICIARIES

Entities from:

- European Union member states
- Countries associated under the Horizon 2020 programme, which automatically qualify for participation in the programme
- Third countries according to the general standards and conditions for participation of such countries in EU programmes established in appropriate framework agreements and if their participation is required to reach the objectives of the Horizon 2020 programme

International organisations of European significance

TYPES OF SUPPORTED PROJECTS

- Innovation activity (IA) – cover pilot development, demonstration, preparation of prototypes, testing, large-scale product validation, and market reproduction. The funding also covers development of production plans and systems or projects of new, changed, or improved products, processes, or services
- Research and innovation activity (RIA) – covers basic and applied research, technology development, small-scale tests and examinations on a prototype in a laboratory or simulated environment
- Coordination and support activity (CSA) – covers supporting activity such as standardisation, distribution, raising awareness, communication, development of a contact network, coordination, supporting services, political dialogues, mutual exercises and learning, and analyses, including analyses for the purposes of the new infrastructure. This activity also covers funding of the creation and coordination of networks, innovative partnerships, programmes, and polices

FORM AND VALUE OF SUPPORT

FORM OF SUPPORT: grant

RESEARCH AND INNOVATION ACTIVITY (RIA) – 100% funding

INNOVATION ACTIVITY (IA) – 70% funding, with exception of non-profit organisations, which receive 100% funding

COORDINATING AND SUPPORTING ACTIONS (CSA) – 100% funding

INSTITUTION GRANTING SUPPORT

European Commission

KEY CRITERIA

- Depending on the programme, projects should be directed toward solution of problems in scope of the following:
  - Leadership in enabling and industrial technologies: ICT, nanotechnologies, advanced production and processing, advanced materials, biotechnology, aeronautics and space
  - Societal challenges: health, agriculture, maritime economy, bioeconomy, power engineering, transport, climate and environment protection, effective resource and raw material management, social issues, citizen security
- Research and innovation actions (RIA) and innovation actions (IA) are conducted under project consortia composed of minimum three partners originating from three different EU member states or countries associated with the Horizon 2020 programme
- The main evaluation criteria are perfection, impact, and implementation
- The projects must present European added value

OTHER OPTIONS OF R&D&I SUPPORT

SMART GROWTH OPERATIONAL PROGRAMME – AXIS I

Support for R&D projects at the 'pre-seed' stage by proof of concept funds – BRIdge Alfa – Measure 1.3 R&D activity financed with capital funds participation

BENEFICIARIES

– Enterprises in early stages of development and conducting R&D in scope of advanced technologies
– Micro enterprises, i.e. spin-off companies

TYPES OF SUPPORTED PROJECTS

The financing covers costs of industrial research and experimental development, as well as other costs associated with the preparation of R&D results for implementation and evaluation of the project's commercial potential

FORM AND VALUE OF SUPPORT

FORM OF SUPPORT: Repayable financial instruments – capital financial instrument in form of Fund of BRIdge Alfa Funds[13]

REPAYABLE FINANCIAL INSTRUMENTS - capital financial instrument in form of Fund of BRIdge Alfa Funds

ALLOCATION AMOUNT: EUR 113 million

INSTITUTION GRANTING SUPPORT

NCRD, Fund of Funds Manager

ADDITIONAL INFORMATION

Investment vehicles will be created to seek innovative ideas mainly from the environment of Polish scientific entities. The investment vehicles will verify the rationality of R&D project concepts at early stage of development (seed)

[13] BRIdge Alfa funds are pre-seed proof of concept funds with standard projected capitalisation of up to PLN 30 million each established by management teams appointed in scope of FoF by the FoF Manager and approved by the NCRD involved in support for research and development at the proof of principle and proof of concept stages.

Public-private support for R&D work with capital fund participation – BRIdge VC – R&D activity financed with capital funds participation

BENEFICIARIES

– Enterprises in early stages of development and conducting R&D in scope of advanced technologies
– SMEs

TYPES OF SUPPORTED PROJECTS

The financing covers costs of industrial research and experimental development, as well as other costs associated with preparation of R&D results for implementation and evaluation of the product's commercial potential

FORM AND VALUE OF SUPPORT

FORM OF SUPPORT: grant / repayable financial instruments
ALLOCATION AMOUNT: EUR 225 mln

INSTITUTION GRANTING SUPORT

NCRD, Fund of Funds Manager

KEY CRITERIA

The VC financial instrument includes plans for collective investments with funds held by the public entity strengthened by funds of the SG OP and venture capital funds (domestic and foreign), which will collectively engage funds for capital contribution to innovative enterprises performing R&D projects and commercialising their results

Other programmes supporting research and development

INSTRUMENT

Smart Growth Operational Programme – Axis II:
Support for development of open innovations

SUPPORT ORIENTATION

Establishment of partnerships between large enterprises and SMEs aimed to make the best use of internal and external resources, technologies, and knowledge, including collection of unused ideas from large companies and identification of SMEs interested in further development and commercialisation of said knowledge

INSTRUMENT

Smart Growth Operational Programme – Axis III:
Support for protection of industrial property of enterprises

SUPPORT ORIENTATION

Acquisition of industrial copyrights and execution of industrial property protection as well as patent clearance analyses, which are necessary elements of effective commercialisation of the technology

INSTRUMENT

Smart Growth Operational Programme – Axis III:
Stimulation of cooperation between science and business – Innovation vouchers for SMEs

SUPPORT ORIENTATION

Support for SMEs concerning purchase of a service associated with development of a new product or service, model project, new production technology, or considerable product or production technology improvement from scientific unit

INSTRUMENT

Smart Growth Operational Programme – Axis IV:
– Strategic research programmes for the economy
– Regional science and research agendas
– Virtual institute research programmes

SUPPORT ORIENTATION

Research and development performed by scientific and scientific-industrial consortia (in each instance, the project leader is a scientific entity)

INSTRUMENT

GO_GLOBAL.PL
Support for innovative companies commercialising the results of research and development on global markets

KEY

- Support for industrial research and development
- Central programme
- Support for development on a demonstrative scale
- Innovative aviation
- Application projects (science + business)
- BIOstrateg
- Regional Operational Programmes
- Innovative material technologies
- R&D programme for medical and pharmaceutical sector
- Support for investments in R&D infrastructure of enterprises
- Implementation (investment) projects
- Eastern Poland
- European Commission Programmes
- Support with contribution of capital funds (VC)

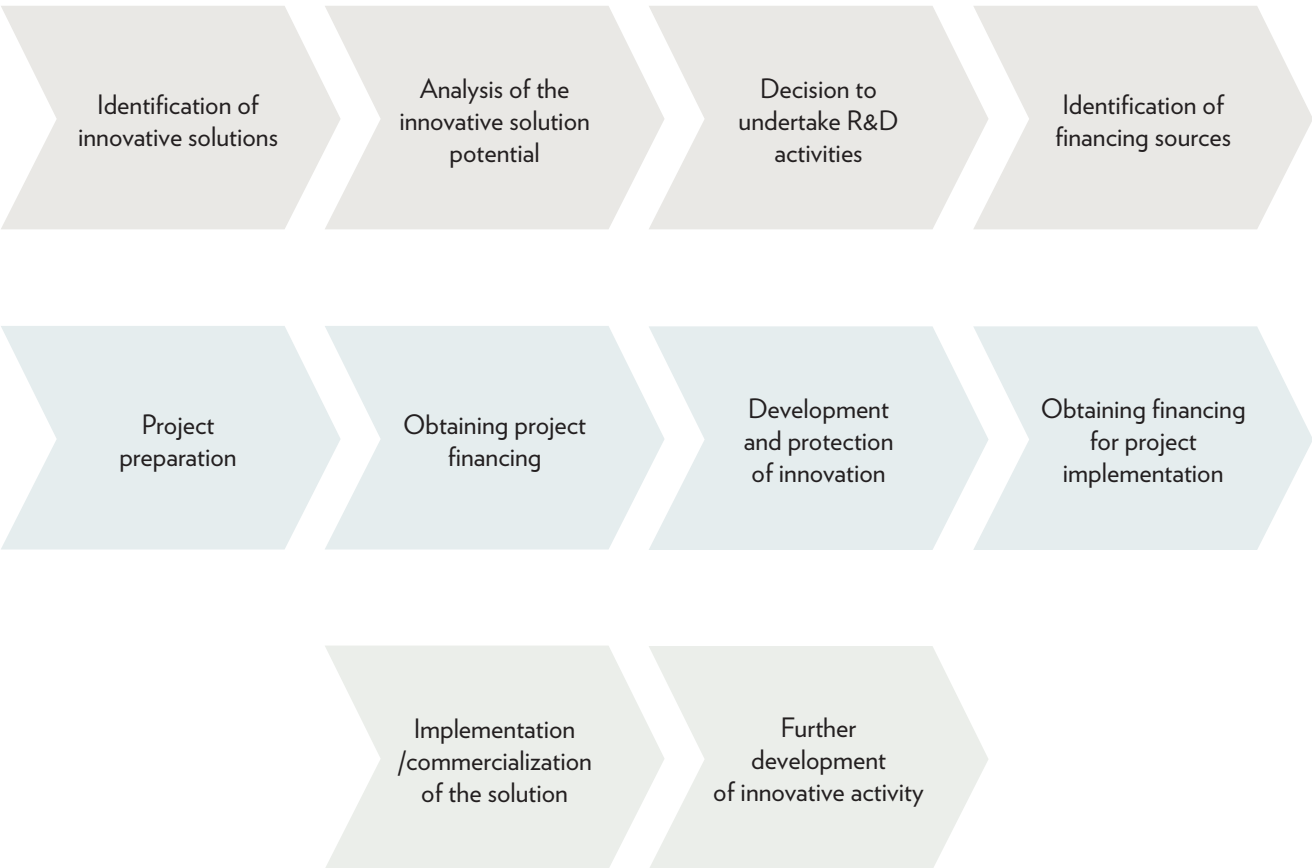
4

EFFECTIVE PREPARATION OF THE PROJECT

> THE FIRST STEP SHOULD INCLUDE IDENTIFYING – SOLUTIONS WHICH BEAR SIGNS OF INNOVATION AND ESTABLISHING WAYS TO IMPLEMENT THEM.

Undertaking innovative activities is one of the decisions that may prove most beneficial to enterprises. An important part of this process is answering the question about the stage of development a company is at and considering its readiness to take up new challenges. The first step should include identifying – solutions which bear signs of innovation and establishing ways to implement them. The use of available financial support offered by the EU and domestic sources may, to a large extent reduce the risk of failure and lead to a complete and successful application of the planned measures. Depending on an enterprise, innovations may be developed with the use of a company's own resources or external resources The innovation resulting from R&D works should be then protected under industry property rights. The process should end up with implementation of the innovation to the business and generation of planned revenues. The entire process, along with some practical guidelines, is described below.

FIG. 1 Execution of an R&D&I project.



I IDENTIFICATION OF SOLUTIONS WHICH BEAR SIGNS OF INNOVATION

The general objective of R&D works is to develop innovative solutions within the sphere of product and/or process. While a product innovation may involve development of a completely new or an improved product, a process innovation consists in the development and implementation of new or significantly improved production processes. Both, innovative solution identification and verification of its practical application should be preceded by a comprehensive analysis of a company's needs.

A thorough needs analysis should cover first and foremost:

- a strategic review of the company,
- development of an innovation strategy,
- setting of development targets,
- determination of potential business partners,
- an analysis of steps taken by direct market competitors.

The most common mistake that entrepreneurs make is taking impromptu decisions to undertake innovative projects.

II ANALYSIS OF THE POTENTIAL OF INNOVATIVE SOLUTION

For an identified innovation to be able to contribute to a company's development and increase of its competitiveness, it must have a significant potential and practical applicability. When analysing the innovation potential, the following two aspects should be taken into account:

- a market analysis:
  - demand and market niche,
  - advantages of the solution compared to products / technologies developed by competitors,
  - in terms of lack of patent infringement – i.e. verification whether the same solution already exists on the market and is protected by industrial property rights,
  - an analysis of practical applicability of the innovative solution – does the company have sufficient resources to implement and to take full advantage of the innovation?

Already at this analytical stage, cooperation with a research unit or another specialized R&D entity should be considered, as scientists and researchers are able, through the activities they undertake, to verify the importance of the solution for a given industry. Entrepreneurs that do not have experience in working together with the scientific milieu can also seek support of the so-called innovation brokers. Their task is to encourage commercialization of R&D results, link entrepreneurs and researchers, as well as to analyze commercial potential of projects.

III DECISION TO UNDERTAKE R&D ACTIVITIES

Confirmation of the significant potential of an solution allows businesses to plan further steps. Generally, there are four possible forms of R&D activities in enterprises:

- on own account – using the company's own resources,
- on own account – procuring research and development work from a specialized R&D centre
- using external resources – as part of a consortium formed e.g. with a research unit or another entrepreneur,
- using external resources – as part of service outsourcing.

Depending on the form of R&D activities, their cost (including limits of state aid), duration and associated risk may be different. Entrepreneurs also need to consider such key issues as safe handling of confidential information and the rights to results; this is especially important in projects undertaken by consortia.

IV IDENTIFICATION OF FINANCING SOURCES OF R&D PROJECTS

Ensuring sufficient funding is one of the most important aspects of R&D activities in a company. As a rule, individual R&D projects may be supported from three different sources:

- company's own funds,
- commercial sources (commercial loans, credit, etc),
- public aid sources (including EU funds).

It is worth noting that despite obtaining financing from external sources, entrepreneurs have to finance part of their projects using their own company funds.

Good practice:

- ongoing analysis of the available instruments of support,
- establishing a dedicated R&D team to develop projects financed externally / using services of an adviser,
- participation in events organised by institutions providing support.

Common mistakes:

- entrepreneurs' timid approach to applying for financial support from public sources,
- focusing on only one type of funding, e.g. EU funds,
- prejudice towards debt instruments.

V PROJECT PREPARATION IN THE CONTEXT OF APPLYING FOR FINANCING

R&D&I projects can be supported through various aid programmes. As a rule, however, the scope of works that need to be undertaken under the various calls is similar. Below are the key selection criteria considered for the purposes of evaluation of R&D projects that should be borne in mind by entrepreneurs drafting R&D projects and applications.

Criteria:

- the innovation level of R&D results (high level of modernity, high level of usability, considerable competitive edge over other services / technologies available on target markets),
- accordance with national and regional smart specialisations,
- sufficient human resources and materials to carry out effect R&D works,
- the company's experience in R&D activities,
- establishment / expansion of R&D unit,
- protecting project results with industrial property rights,
- expected economic and social effects of the utilization of project results (payback period, significant environmental effect, impact on horizontal policies).

Good practice:

- cooperation with a research unit – possibility to increase support intensity by 15 pp for industrial research and development activities,
- in the case of projects realized by consortia, the industrial property rights to project results need to be, as a rule, distributed proportionately to the financial or in-kind contribution of the individual entities,
- verification of the complete call documentation, especially of the grant agreement template to ensure the fulfilment of obligations related to the project realization,
- sending inquiries to the institution providing support.

Common mistakes:

- failure to match the project to call requirements,
- ignoring call accession criteria (amount limits, partnership requirements, excluded sectors, etc.),
- dismissing the score criteria as unimportant when preparing a project,
- relying only on experiences gained in previous calls.

VI OBTAINING PROJECT FINANCING AND COMMENCEMENT OF R&D WORKS

In the case of R&D projects, the period from preparation and submission of a grant application to the competent institution until the execution of the grant (financial support) agreement is usually a few months. As a rule, a project cannot start before the application is submitted. Following a positive grant decision, entrepreneurs should verify all provisions included in a grant agreement. Undertaking a co-financed project entails not only privileges but also numerous obligations.

Key obligations arising from a grant agreement1:

- responsibility for ensuring that a project is implemented in accordance with the agreement and application documents prepared by the entrepreneur,
- responsibility for ensuring accounting transparency of a project (usually by keeping a separate, project-dedicated electronic ledger or by assigning a separate accounting code to the project within an existing system),
- documenting all financial operations related to the project,
- project-related reporting obligations,
- using contract awarding and implementation procedures specified in the agreement,
- informing the relevant institutions about any modifications in the project.

Good practice:

- delegating an employee/employees to coordinate the project,
- use of external services,
- ongoing communication with the implementing institution or a designated project contact person.

Common mistakes:

- failure to implement the project as declared in the grant application,
- lack of ongoing communication with a designated project contact person,
- modification of project terms without the relevant institution's consent,
- failure to observe contractor selection rules,
- failure to observe contractual provisions relating to information and promotion and maintenance of investments in the durability period,
- errors in cost settlement that result in reduction of the effective amount of the aid received.

VII PROTECTION OF RIGHTS TO THE INNOVATIVE SOLUTION

Following the achievement of expected R&D results and development of an innovation, entrepreneurs need to protect such results to ensure that they hold the exclusive right to their use. Failure to take the appropriate steps in this respect may result in a loss of economic benefits that could be drawn from the exploitation of a new solution. Depending on the type of innovation, entrepreneurs may explore different forms of protection for industrial property rights. Among the most basic and frequently used measures are patents, utility models and the registration of industrial designs. A crucial issue here is the determination of the territorial scope of protection. Protection that is confined to the territory of Poland is the cheapest solution but may result in the loss of certain benefits coming from activities conducted abroad. For this reason, entrepreneurs should consider applying for protection of their inventions or developments to the European Patent Office (to guarantee protection in all the states that joined the European Patent Convention) or even application of a broader-range protection under the *Patent Cooperation Treaty*.

Good practice:

- due to the complexity of the procedure, entrepreneurs should consider using the services of a patent agent (the list of patent agents is available at the website of the Polish Chamber of Patent Agents at http://www.rzecznikpatentowy.org.pl/).

Common mistakes:

- restricting the territorial scope of patent protection (e.g. to the territory of Poland despite the fact that business activities are also undertaken abroad).

1. NOTE: Templates of grant agreements are different for each call and should be verified before the submission of an application. On the other hand, the basic requirements and obligations relating to R&D projects will be similar for each call.

VIII IMPLEMENTATION OF INNOVATIVE SOLUTION

In general, the majority of calls under which financing is provided for R&D works requires that project results are implemented into business activity. The implementation may be effected in two ways:

- implementation of an innovative solution into one's own business activity,
- sale of a solution to another entity that undertakes to implement it.

The implementation of a solution into one's own activity and the related costs (CAPEX) may be supported from EU funds or from domestic funds. Generally investment projects that have been awarded under regional aid supporting new investments should include the implementation of results achieved through a company's own or purchased R&D works. This is one of the criteria on which in many cases call eligibility depends. Other major criteria that are awarded under evaluation procedure include:

- significantly innovative character of a solution related to a product, service and/ or technology,
- accordance with national and regional smart specialisations,
- regular carrying out of R&D activity on own account or in cooperation with research unit,
- cost effectiveness and the entrepreneur's ability to finance their project,
- positive environmental impact and equality of opportunities,
- application of solutions protected by industrial property rights,
- creation of new jobs.

IX WHAT'S NEXT?

Having developed and implemented new solutions, entrepreneurs may focus on their further elaboration to maintain or enhance their competitive advantage on the target markets. One of the ways they can achieve this, is by undertaking their own continuous research and development activities by, e.g. establishing a research and development centre that caters for the internal needs of the company. Such projects are of the priority under the new EU financial framework 2014-2020.

We would like to emphasize that the guidelines included in this Chapter result from an analysis of the available documents and the most recent calls (2014-2020). Taking into account what is stated above, entrepreneurs which are preparing to undertake R+D+I activity at first step should verify the readiness of their businesses to undertake new development projects. Depending on the type of a project (R&D or investment and implementation), specific actions should be planned, including establishing links with research units, procurement of research results, liaising with other businesses, ensuring industrial property rights protection. Moreover, works on the project implementation strategy and schedule should be commenced. Taken sufficiently early, these actions will help potential applicants to be much better prepared to apply for and to obtain EU funds.

APPENDIX

APPENDIX 1

BASIC DEFINITIONS

C

CLUSTERS

Clusters are groupings or independent undertakings, operating in similar sectors and associated public and private institutions. Clusters are formed to foster cooperation between public authorities, research institutes and enterprises.[1] Among the clusters can be identified National Key Clusters (NKC) - which are essential for the country's economy and high international competitiveness. The choice of NKC is made by the Ministry of Economy, among others, on the basis of criteria: critical mass, development and innovative potential, current and planned cooperation, coordinator experience and potential. So far, the following NKC were selected:

- Aviation Valley Cluster, represented by the Association of Aviation Industry Group of Entrepreneurs "Aviation Valley",
- Interizon Cluster, represented by the Interizon Foundation,
- Metalworking Cluster, represented by the Center for the Promotion of Innovation and Development,
- Mazovia ICT Cluster, represented by the Socio-Economic Development Association "Knowledge",
- Polish Aluminium Cluster, represented by City Consulting Institute Ltd.,
- Eastern Construction Cluster, represented by the Polish Association Advisory and Consulting,
- West Pomeranian Chemical Cluster "Green Chemistry", represented by the Association of West Pomeranian Chemical Cluster "Green Chemistry".

D

DE MINIMIS AID

One of the forms of support for enterprises, which, due to its low value, does not distort competition at the EU level. The total amount of *de minimis* aid granted per Member State to a single undertaking cannot exceed EUR 200,000 over any period of three fiscal years. The total amount of *de minimis* aid granted to undertakings performing road freight transport for hire or reward has been reduced EUR 100,000.[2]

E

ELIGIBLE COSTS

Eligible costs are defined as costs that have been actually incurred by beneficiaries on projects during the period of eligibility, spent in accordance with programme guidelines, in relation to which the grant is being awarded.[3]

EUROPEAN PATENT

A patent granted by the European Patent Office under the European Patent Convention. After the so-called validation, a European patent may be effective in each Contracting State to the Convention, and is subject to national laws relating to patent infringement, revocation, transfer, etc.

EXPERIMENTAL DEVELOPMENT

Acquiring, combining, shaping and using existing scientific, technological, business and other relevant knowledge and skills with the aim of developing new or improved products, processes or services, including:

[1] K. B. Matusiak (ed.), Innovation and Technology Transfer – Dictionary, PARP, Warsaw 2011, p.137.
[2] Commission Regulation (EU) No. 1407/2013 of 18 December 2013 on the application of Articles 107 and 108 the Treaty on the Functioning of the European Union to de minimis aid, Art. 2(2).
[3] Eligible costs, http://ncbr.gov.pl/fundusze-europejskie/slownik-pojec/.

– prototyping, demonstrating, piloting, testing and validation of new or improved products, processes or services in environments representative of real life operating conditions where the primary objective is to make further technical improvements on products, processes or services that are not substantially set rather than to develop markets,
– development of a commercially usable prototype or pilot which is necessarily the final commercial product and which is too expensive to produce for it to be used only for demonstration and validation purposes.

Experimental development does not include routine or periodic changes made to existing products, production lines, manufacturing processes, services and other operations in progress, even if those changes may represent improvements.[4]

F

FINANCIAL ENGINEERING INSTRUMENTS (REPAYABLE INSTRUMENTS)

Instruments contributing to achievement of goals under specific priority axes of operational programmes. Repayable instruments for enterprises primarily include venture capital funds, guarantee funds and loan funds as well as urban development funds (funds investing in public-private partnerships and other projects included in an integrated plan for sustainable urban development[5]).

Financial engineering instruments come in three basic forms:
– loans (including micro-finance loans),
– guarantees,
– equity.

FUNDAMENTAL RESEARCH

Experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any direct practical application or use in view.[6]

G

GRANT

Free and non-repayable financial assistance provided under EU and national programmes for implementation of specific projects. Grant is a direct non-commercial support for a particular beneficiary to undertake specific actions or finance part of project budget.[7]

H

HORIZONTAL AID

Horizontal aid is provided to all entrepreneurs regardless of the place where they conduct their activity and economy sector, to resolve a specific problem. The aid is provided to: save and reorganise enterprises at risk; support research, development and innovations; enhance development of small and medium-sized enterprises; support employment; boost services provided in common economic interest; ensure risk capital investments; protect environment and provide trainings.[8]

I

INCENTIVE EFFECT

The necessity to demonstrate that aid granted changes the enterprise's work habits in such a way that it gets involved in additional business it would not have otherwise undertaken. Aid is usually considered to have an incentive effect, if the beneficiary has submitted a written application for the aid to the Member State concerned before work on the project or activity starts.

[4] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 86.
[5] Regulation No. 539/2010 of the European Parliament and of the Council of 16 June 2010, Art. 1(4).
[6] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2 (84).
[7] K. B. Matusiak (ed.), Innovation and Technology Transfer – Dictionary, PARP, Warsaw 2011, p.97.
[8] Horizontal aid, Dictionary, http://www.uokik.gov.pl/slowniczek_pojec2.php.

INDUSTRIAL DESIGN

An industrial design is a novel, unique appearance of a product or its part effected through configuration of lines, contours, shapes, colours, structures, materials or ornamentation. Industrial design may be protected through registration. Protection of industrial design does not cover those features of a product which are related solely to its technical functions. Industrial design may also be subject to protection (as the so-called community design) within the whole EU territory under a decision issued by the Office for Harmonization in the Internal Market, based in Alicante.

INDUSTRIAL PROPERTY RIGHTS

Exclusive rights are granted by patent offices. The Polish Patent Office grants patents and additional rights to protect inventions, trademarks, utility models, as well as rights protecting registered industrial designs, geographical indications and circuit topographies. Industrial property rights in Poland are subject to the Industrial Property Rights Act.

INDUSTRIAL RESEARCH

Investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services or for bringing about a significant improvement in existing products, processes or services.

It comprises the creation of components parts of complex systems, and may include the construction of prototypes in a laboratory environment or in an environment with simulated interfaces to existing systems as well as of pilot lines, when necessary for the industrial research and notably for generic technology validation.[9]

INITIAL INVESTMENT

Initial investment means:

- an investment in tangible and intangible assets related to the setting-up of a new establishment, extension of the capacity of an existing establishment, diversification of the output of an establishment into products not previously produced in the establishment, fundamental changes in the production process of an existing plant; or
- acquisition of assets belonging to an establishment that has closed or would have closed had it not been purchased, and is bought by an investor unrelated to the seller and excludes sole acquisition of the shares of an undertaking.[10]

INNOVATION

Implementation of a new or significantly improved product (good or service) or process, a new marketing method or a new organizational method in business practices, workplace organization or external relations.[11]

INNOVATIVE ENTERPRISE

Innovative enterprise means an enterprise:

- that can demonstrate, by means of an evaluation carried out by an external expert that it will in the foreseeable future develop products, services or processes which are new or substantially improved compared to the state of the art in its industry, and which carry a risk of technological or industrial failure; or
- the research and development costs of which represent at least 10% of its total operating costs in at least one of the three years preceding the granting of the aid or, in the case of a start-up enterprise without any financial history, in the audit of its current fiscal period, as certified by an external auditor.[12]

INTANGIBLE ASSETS

An accounting term for assets that do not have a physical or financial embodiment such as patents, copyrights, licences, know-how or other intellectual property.[13]

INVENTION

An invention is a novel and non-obvious solution of a technical problem which is susceptible of industrial application. Inventions exclude discoveries, scientific theories, mathematical methods, presentations of information, schemes, rules and methods for performing mental acts and doing business. Inventions are patentable (can be protected by exclusive rights).

[9] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2 (85).
[10] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2(49).
[11] OECD and Eurostat, Oslo Manual. Guidelines for Collecting and Interpreting Innovation Data, 3rd edition, Warsaw 2008, p. 48.
[12] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2(80).
[13] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2(30).

INVESTMENT DURABILITY

An investment must be maintained in the recipient area for at least five years, or at least three years in the case of SMEs, after completion of the investment. This does not prevent the replacement of plant or equipment that has become outdated or broken within this period, provided that the economic activity is retained in the area concerned for the relevant minimum period.[14]

K

KEY NATIONAL CLUSTERS (KNC)

A category of clusters that materially affect domestic economy and are competitive internationally. It is recommended that key clusters are selected at a national level, based on a number of criteria including: *critical mass, development and innovation potential, existing and planned cooperation and coordinator's potential.*[15]

KNOWLEDGE TRANSFER

Knowledge transfer means any process which has the aim of acquiring, collecting and sharing explicit and tacit knowledge, including skills and competence in both economic and non-economic activities such as research collaborations, consultancy, licensing, spin-off creation, publication and mobility of researchers and other personnel involved in those activities. Besides scientific and technological knowledge, it includes other kinds of knowledge such as knowledge on the use of standards and regulations embedding them and on conditions of real life operating environments and methods for organisational innovation, as well as management of knowledge related to identifying, acquiring, protecting, defending and exploiting intangible assets.[16]

L

LARGE INVESTMENT PROJECT

means an initial investment with eligible costs exceeding EUR 50 million, calculated at prices and exchange rates on the date of granting the aid.[17]

M

MARKETING INNOVATION

The implementation of a new marketing method involving significant changes in product design or packaging, product placement, promotion or pricing. Marketing innovations are aimed at better addressing customers' needs, opening up new markets and repositioning of a firm's products on the market to increase sales.[18]

N

NATIONAL SMART SPECIALISATIONS (NSS)

Smart Specialisations are economic priorities in the R&D&I area, foreseen both in educational and innovation policies until the year 2020, the development of which will ensure creation of innovative social and economic solutions, improvement of the economy's added value and its competitiveness on foreign markets. The Enterprise Development Programme defines 18 smart specialisations under the following headings: healthy society, agricultural and environmental bio-economy, sustainable energy, natural resources and waste management, innovative technologies and industrial processes.[19]

O

ORGANISATIONAL INNOVATION

It is the implementation of a new organisational method in an undertaking's business practices, workplace organisation or external relations.

Organisational innovation excludes changes that are based on organisational methods already in use in the undertaking, changes in management strategy, mergers and acquisitions, ceasing

[14] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 14(5).
[15] M. Dzierżanowski (ed.), Directions and Assumptions of the Polish Cluster Policy until 2020, Recommendations of the Working Group for Cluster Policy, PARP, Warsaw 2012.
[16] Community Framework for State Aid for Research and Development and Innovation, point 15v.
[17] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2(52).
[18] OECD and Eurostat, Oslo Manual. Guidelines for Collecting and Interpreting Innovation Data, 3rd edition, Warsaw 2008, p. 52.
[19] Enterprise Development Programme until 2020, Appendix 4 National Smart Specialisation.

to use a process, simple capital replacement or extension, changes resulting purely from changes in factor prices, customisation, localisation, regular, seasonal and other cyclical changes and trading of new or significantly improved products.[20]

P

PATENT

A patent is an exclusive right to use an invention within a given territory. Patents are granted by patent offices (e.g. Polish Patent Office, European Patent Office, US Patent and Trademark Office). Rights represented by a patent may be sold, transferred or inherited.

PROCESS INNOVATION

Process innovation means the implementation of a new or significantly improved production or delivery method (including significant changes in techniques, equipment or software).

The concept excludes: minor changes or improvements, increases in production or service capabilities through the addition of manufacturing or logistical systems which are very similar to those already in use, ceasing to use a process, simple capital replacement or extension, changes resulting purely from changes in factor prices, customisation, localisation, regular, seasonal and other cyclical changes and trading of new or significantly improved products.[21]

PRODUCT INNOVATION

Product innovation is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics. Product innovations include both the introduction of new goods and services and significant improvements in the functional or user characteristics of existing goods and services.[22]

PROTOTYPE

Prototype is the first model of a machine or device that can later be used as a basis for further mass production.[23] It is a device, circuit or programme designed and built to demonstrate the ability to build the final product. Most often, a prototype is a result of development work.

R

REGIONAL AID

Aid provided to promote the economic development of certain disadvantaged areas by supporting investment and job creation, providing assistance to newly created small enterprises or, in certain limited circumstances, by granting operating aid. It promotes the expansion and diversification of the economic activities of enterprises located in the less-favoured regions, in particular by encouraging firms to set up new establishments there.[24]

REGIONAL SMART SPECIALISATIONS (RSS)

Priority areas of economy and science-based regional development in the years 2014-2020 set to strengthen competitive advantage of a region.

RESEARCH AND DEVELOPMENT (R&D)

Creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this knowledge to devise new applications. It includes three types of research activities; that is: basic research, applied research (including industrial research) and development. What distinguishes R&D activity from other types of activities is the novelty aspect and elimination of scientific uncertainty, therefore a non-obvious solution to an existing problem.[25]

RESEARCH AND DEVELOPMENT CENTRE (R&D CENTRE)

In accordance with the Act on Certain Forms of Support for Innovative Activity, this status may be granted to all enterprises that run innovative businesses, especially in the area of R&D, that are not R&D units and do not have the status of such units. An enterprise that has been assigned the status of an R&D Centre

[20] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2(96).
[21] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2(97).
[22] OECD and Eurostat, Oslo Manual. Guidelines for Collecting and Interpreting Innovation Data, 3rd edition, Warsaw 2008, p. 50.
[23] Prototype, Słownik Wyrazów Obcych Wł. Kopalińskiego; www.slownik-online.pl.
[24] Regional aid, Dictionary, http://www.uokik.gov.pl/slowniczek_pojec2.php.
[25] GUS, "Science and Technology in 2012" http://old.stat.gov.pl/cps/rde/xbcr/gus/NTS_nauka_i_technika_2012.pdf, p.14.

may apply for exemption from property tax and agriculture and forestry tax, as well as claim the amount allotted to innovation fund against the tax base. To be assigned the status of an R&D Centre, an enterprise must satisfy the conditions specified in the Act.[26] In the context of EU structural funds, R&D centres are defined more broadly – as organizational units or organizationally separate units that are commencing or continuing their activities, whose main task is to carry out research and development in designated facilities, adapted for the purpose, using adequate technical infrastructure and qualified personnel.

RESEARCH AND DEVELOPMENT PROJECT

R&D project means an operation that includes activities spanning over one or several categories of research and development defined in this framework, and that is intended to accomplish an indivisible task of a precise economic, scientific or technical nature with clearly pre-defined goals. An R&D project may consist of several work packages, activities or services, and includes clear objectives, activities to be carried out to achieve those objectives (including their expected costs), and concrete deliverables to identify the outcomes of those activities and compare them with the relevant objectives. When two or more R&D projects are not clearly separable from each other and in particular when they do not have independent probabilities of technological success, they are considered as a single project.[27]

RESEARCH AND DEVELOPMENT SECTOR (R&D SECTOR)

R&D sector is created by institutions and persons engaged in activities to increase the stock of knowledge and identify new applications. The result of R&D activities are different types of innovation – product, process or technology innovations – that are key to rapid economic development.[28]

RESEARCH AND KNOWLEDGE-DISSEMINATION ORGANISATION

Research and knowledge-dissemination organization means an entity (such as universities or research institutes, technology transfer agencies, innovation intermediaries, research-oriented physical or virtual collaborative entities), irrespective of its legal status (organised under public or private law) or way of financing, whose primary goal is to independently conduct fundamental research, industrial research or experimental development or to widely disseminate the results of such activities by way of teaching, publication or knowledge transfer.

Where such entity also pursues economic activities the financing, the costs and the revenues of those economic activities must be accounted for separately. Undertakings that can exert a decisive influence upon such an entity, in the quality of, for example, shareholders or members, may not enjoy preferential access to the results generated by it.[29]

RESEARCH INFRASTRUCTURE

Facilities, resources and related services that are used by the scientific community to conduct research in their respective fields. It covers scientific equipment or sets of instruments, knowledge-based resources such as collections, archives or structured scientific information, enabling information and communication technology-based infrastructures such as grid, computing, software and communication, or any other entity of a unique nature essential to conduct research. Such infrastructures may be "single-sited" or "distributed".[30]

RESEARCH UNIT

An institution conducting research and carrying out development activities on an ongoing basis. In accordance with the Act on the Principles of Financing Science of 30 April 2010[31] the following research units may be distinguished in Poland:

- basic organisational units of universities within the meaning of university statutes,
- research units of the Polish Academy of Sciences,
- research institutes,
- international research institutes established under separate regulations and operating in Poland,
- Polish Academy of Learning,
- other organisational units not listed above, established on the Polish territory, which are conducting research and spreading knowledge within the meaning of Art. 2 (83) of Commission Regulation (EU) No 651/2014.[32]

[26] Act on Certain Forms of Support for Innovative Activity, Art. 17.
[27] Community Framework for State Aid for Research and Development and Innovation, point 15cc.
[28] Leszek Leśniewski, Research and Development sector in Poland, PAIiIZ, Warsaw 2010, p. 1.
[29] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2(83).
[30] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2 (91).
[31] Act on the Principles of Financing Science of 30 April 2010 (Journal of Laws of 2010, No. 96, item 615), Art.2(9).
[32] Commission Regulation (EU) No 651/2014 of 17 June 2014, Page 1).

S

SCIENTIFIC AND INDUSTRIAL CONSORTIUM

A scientific and industrial consortium is a group of organizational units comprising at least one research unit and at least one entrepreneur, which takes up a joint undertaking, on the basis of a civil law agreement, covering scientific research, development works or investments aimed at meeting the needs of scientific research or development work.[33]

SINGLE INVESTMENT PROJECT

Single investment project means any initial investment started by the same beneficiary (at a group level) in a period of three years from the date of start of works on another aided investment in the same NUTS 3 region.[34]

SMALL AND MEDIUM-SIZED ENTERPRISES (SMES)

Small and medium-sized enterprises are classified into the following categories:[35]

micro-enterprise:
- employs less than 10 persons,
- annual turnover does not exceed EUR 2 mln or annual balance sheet total does not exceed EUR 2 mln,

small enterprise:
- employs less than 50 persons,
- annual turnover does not exceed EUR 10 mln or annual balance sheet total does not exceed EUR 10 mln,

medium enterprise:
- employs less than 250 persons,
- annual turnover does not exceed EUR 50 mln or annual balance sheet total does not exceed EUR 43 mln.].

Linked enterprise[36]
an enterprise which has any of the following relationships:
- an enterprise has a majority of the shareholders' or members' voting rights in another enterprise,
- an enterprise has the right to appoint or remove a majority of the members of the administrative, management or supervisory body of another enterprises,
- **han enterprise has the right to exercise a dominant influence over another enterprise pursuant to a contract entered into with that enterprise or to a provision in its memorandum or articles of association**,
- an enterprise, which is a shareholder in or member of another enterprise, controls alone, pursuant to an agreement with other shareholders in or members of that enterprise, a majority of shareholders' or members' voting rights in that enterprise.

Partner enterprise[37]
enterprise which is not classified as a linked enterprise and which:
- holds, either solely or jointly with one or more linked enterprises between 25% and 50% of the capital or voting rights of another enterprise; or
- another enterprise holds between 25% and 50% of the capital or voting rights in the enterprise.

START OF WORKS

Start of works means the earlier of either the start of construction works relating to the investment, or the first legally binding commitment to order equipment or any other commitment that makes the investment irreversible. For take-overs, "start of works" means the moment of acquiring the assets directly linked to the acquired establishment.

Buying land and preparatory works such as obtaining permits and conducting feasibility studies are not considered start of works.[38]

[33] K. B. Matusiak (ed.), Innovation and Technology Transfer – Dictionary, PARP, Warsaw 2011.
[34] Guidelines on National Regional Aid for 2014-2020, point 20t.
[35] Commission Regulation (EU) No 651/2014 of 17 June 2014, Annex I, Art. 2.
[36] Commission Regulation (EU) No 651/2014 of 17 June 2014, Annex I, Art. 3.
[37] Commission Regulation (EU) No 651/2014 of 17 June 2014, Annex I, Art. 3.
[38] Commission Regulation (EU) No 651/2014 of 17 June 2014, Art. 2(23).

TECHNOLOGY INCUBATORS

Technology incubators (TI) are a variant of business incubation schemes implemented in cooperation with scientific research institutions with evaluation of innovative projects and creating an environment conducive to technology entrepreneurship. The main purpose of technology incubators is to help newly established, innovative businesses to reach maturity and act independently on the market.[39]

TECHNOLOGY PARKS (TP)

The technology park is a cluster of separate buildings, including technical infrastructure, used to stimulate the flow of knowledge and technology between companies and research units. Technology parks cooperate with research institutions, public authorities, other bodies of business and risk financing *(venture capital)*, and their offer is addressed to companies.[40]

The largest technology parks in Poland include:[41]

- Pomeranian Science and Technology Park, operating in the biotechnology, ICT, environment, engineering, automation and robotics, and industrial design sectors,
- Wrocław Technology Park, operating in the ICT industry, food processing, biotechnology, medical and pharmaceutical sectors,
- Kraków Technology Park, operating in the ICT industry, electronics, industry design, petrochemical and automotive sectors.

UTILITY MODEL

A utility model is a new, useful solution of technical nature relating to the shape, structure or composition of a durable object. Utility models may be subject to protection. They are protected in certain jurisdictions only and are sometimes referred to in English as "petty patents".

[39] A.Bąkowski, M.Mażewska (ed.) "Innovation and Entrepreneurship Centres in Poland. 2012 Report", PARP, Warsaw 2012, p. 43.
[40] http://www.sooipp.org.pl/parki-technologiczne.html.
[41] Technology parks, http://www.sooipp.org.pl/parki-technologiczne.html.

APPENDIX 2

TECHNOLOGY READINESS LEVELS (TRLS)

Fundamental research	LEVEL 1	Basic principles have been observed and reported – scientific research has been undertaken and is beginning to be translated into applied research and development. It may include paper studies of a technology's basic properties.
Industrial research	LEVEL 2	Technology concept and/or application has been formulated. This marks the commencement of practical applications invention. Once basic principles are observed, practical applications can be invented. There is no proof or detailed analysis to support the assumptions yet.
	LEVEL 3	Analytical and experimental assessments have identified critical functionality and/or characteristics. This includes analytical studies and laboratory studies to physically validate the analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
	LEVEL 4	The technology component and/or basic subsystems have been validated in the laboratory environment. Basic technology components have been integrated. Examples include integration of "ad hoc" models in the laboratory. The target system has been modelled in the laboratory environment.
	LEVEL 5	The technology component and/or subsystems have been validated in a relevant environment. Basic technological components are integrated with reasonably realistic supporting elements. The technology may be tested with equipment that can simulate all system specifications.
	LEVEL 6	A model or prototype of the technology system or subsystem has been demonstrated as part of a vehicle that can simulate all system specifications. This means that a representative model or prototype system, which is well beyond that of TRL5, has been tested in a relevant environment. Examples include testing a prototype in a high-fidelity laboratory environment or in a simulated operational environment.
Experimental development	LEVEL 7	Prototype technology has been demonstrated in an operational environment. The prototype is near planned operational system. Represents a major step up from TRL 6 by requiring demonstration of an actual system prototype in an operational environment. Research includes prototype testing on the so-called research platforms.
	LEVEL 8	Test and demonstration phases have been completed. The technology has been proven to work in its final form and under expected conditions. Examples include developmental test and evaluation (DT&E) of the system to determine if it meets design specifications, including logistics and training specifications.
	LEVEL 9	The actual technology system has been proven through operational experience. The technology has been applied in its final form and may be implemented into the target system. Examples include using the system under operational conditions.

SOURCE: HTTP://WWW.NCBIR.PL/GFX/NCBIR/PL/DEFAULTOPISY/1195/1/1/POZIOMY_GOTOWOSCI_TECHNOLOGICZNEJ.PDF.

APPENDIX 3

NATIONAL SMART SPECIALISATIONS:

HEALTHY SOCIETY

1. Medical engineering technologies, including medical biotechnologies
2. Medical diagnosis and treatment of diseases of affluence and in personalized medicine
3. Production of medicinal products

BIOECONOMY AND ENVIRONMENT

4. Innovative technologies, processes and products of the agricultural and forestry sectors
5. Healthy food (high quality, organic production)
6. Biotechnological processes, household chemicals and products of environmental engineering

SUSTAINABLE ENERGY

7. High-efficiency, low-emission integrated systems for generation, storage, transmission and distribution of energy
8. Low-energy construction and smart buildings
9. Environment-friendly transport solutions

NATURAL RESOURCES AND WASTE MANAGEMENT

10. Advanced technologies for sourcing and utilising natural resources and production of substitutes
11. Minimising waste production, including non-recyclable waste, and the use of materials and energy waste (recycling and other recovery methods)
12. Innovative water processing and recovery technologies and technologies reducing water consumption

INNOVATIVE TECHNOLOGIES AND INDUSTRIAL PROCESSES (HORIZONTAL APPROACH)

13. Multifunctional materials and composites with advanced properties, including nano-processes and nano-products
14. Sensors (including biosensors) and smart sensor networks
15. Smart grids and geographic information technologies
16. Electronically conductive polymers
17. Automation and robotics technology
18. Optoelectronic systems and materials
19. Intelligent creation technologies

REGIONAL SMART SPECIALISATIONS

DOLNOŚLĄSKIE PROVINCE

Industrial specialisations:

1. Chemical and pharmaceutical industry
2. Spatial mobility
3. High quality food industry
4. Natural and recyclable materials
5. Machines and devices production, finishing materials
6. Information and communication technologies

KUJAWSKO-POMORSKIE PROVINCE

1. Highest food safety – processing, fertilisers and packaging
2. Medicine, health services and medical tourism
3. Automotive industry, transport equipment and industrial automation
4. Tools, injection moulds, plastic goods
5. Information processing, multimedia, programming, ICT services
6. Biosmart technologies – natural potential, environment, energy generation
7. Transport, logistics, commerce – waterways and overland routs
8. Cultural heritage, art, creative industries

LUBELSKIE PROVINCE

Key specialization

1. Bioeconomy

Complementary specialization

2. Medicine and health

Emerging specialization

3. Low carbon emission energy

Supporting specialization

4. IT and automation

LUBUSKIE PROVINCE

1. Green Economy
2. Health and quality of life
3. Innovative industry
4. Business collaboration and cooperation

ŁÓDZKIE PROVINCE

1. Modern textile and fashion industry (including design)
2. Advanced construction materials
3. Medicine, pharmacy, cosmetics
4. Energy generation, including renewable energy sources
5. Innovative agriculture and food processing
6. IT and telecommunications

MAŁOPOLSKIE PROVINCE

1. Life sciences
2. Sustainable energy
3. Information and communication technology
4. Chemistry
5. Production of metals and metal products and non-metallic mineral products
6. Electrical engineering and machine building
7. Creative and leisure industries

MAZOWIECKIE PROVINCE

1. Safe foods
2. Smart management systems
3. Modern business services and solutions
4. High quality of life

OPOLSKIE PROVINCE

1. Chemicals technologies (sustainable)
2. Sustainable construction and wood technologies
3. Machine-building and metal industry technologies
4. Energy industry technologies (including renewable energy, energy efficiency improvement)
5. Agri-food industry technologies
6. Health and environment protection processes and products (potential specialisation)

PODKARPACKIE PROVINCE

Leading specialisation
1. Aviation and astronautics
2. Quality of life

Supporting specialisation
1. IT and telecommunications

PODLASKIE PROVINCE

1. Agri-food industry and related sectors
2. Metal and machinery industry, boatbuilding and related sectors
3. Medical sector, life sciences and related sectors
4. Eco-innovations, environmental sciences and related sectors
5. All sectors covered by the National Smart Specializations with high growth potential

POMORSKIE PROVINCE

1. Off-shore and harbor-logistics technologies
2. Information processing and ICT services
3. Eco-effective solutions for generation, transmission, distribution and usage of energy and fuels
4. Medical technologies for diseases of affluence and elderly treatments

ŚLĄSKIE PROVINCE

1. Energy generation
2. Medicine
3. Information and communication technology

ŚWIĘTOKRZYSKIE PROVINCE

1. Resource efficient construction
2. Metal and casting industry
3. Medical tourism
4. Modern agriculture and food processing

WARMINSKO-MAZURSKIE PROVINCE

1. Water economics
2. High quality foods
3. Wood and furniture making

WIELKOPOLSKIE PROVINCE

1. Biomaterials
2. Interiors of the future
3. Industry of tomorrow
4. ICT based development
5. Specialized logistic processes
6. Modern medical technologies

ZACHODNIOPOMORSKIE PROVINCE

1. Bioeconomy
2. Maritime operations and logistics
3. Metal and machine-building industries
4. Services of the future
5. Tourism and health

PROJECT PARTNERS

CRIDO TAXAND

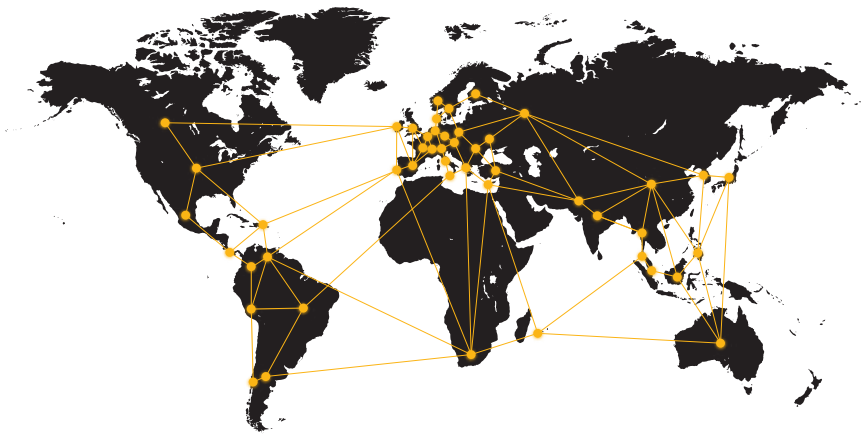
Crido Taxand is the first advisory firm on the Polish market which is a part of an international organization but does not combine consulting and auditing services. The company was founded in 2005. From the beginning it has been operating within the international network Taxand, which has 2000 tax advisors and 500 partners in 46 countries.

The 150-strong Crido Taxand team in Poland advises clients within the scope of tax (Crido Taxand Tax Advisory Services Team), obtaining funding, especially from the EU funds (Crido Taxand European Advisory Services Team), law (Crido Legal) and business strategy (Crido Business Consulting). Both the company and its experts hold **top positions in tax rankings** and are among top companies providing advisory services in obtaining EU funding.

The European Advisory Services Team consists of nearly **40 experienced specialists** consulting large, medium and small businesses on obtaining grants:

- from structural funds (National and Regional Operational Programmes),
- from international programmes (Horizon 2020, LIFE+, Norway Grants),
- from nationally funded programmes (SEZ, NFEP&WM programmes, NCBR).

FIG. 1 Taxand worldwide.



CRiD 10 LAT Taxand

CONTACT:
Crido Taxand
European Advisory Services
ul. Grzybowska 5A (Grzybowska Park)
00-132 Warsaw
Tel.: +48 22 324 59 00
Fax: +48 22 324 59 01
crido@taxand.pl
www.taxand.pl
www.dotacjenainnowacje.taxand.pl

POLISH INFORMATION AND FOREIGN INVESTMENT AGENCY (PAIIIZ)

The Polish Information and Foreign Investment Agency has been helping investors for more than 20 years. Its mission is to increase Foreign Direct Investment (FDI) by encouraging international companies to invest in Poland. It guides investors through all the necessary administrative and legal procedures along the way to setting up their business in Poland. Agency offers investors: quick access to comprehensive information about the economic and legal environment, assistance in finding appropriate partners and investment locations and support at every phase of the investment process. The Agency promotes Polish goods and services abroad by organizing conferences, visits for foreign journalists and investment trade missions to Poland and for Polish entrepreneurs around the world.

Invest in Poland
POLSKA AGENCJA INFORMACJI I INWESTYCJI ZAGRANICZNYCH S.A.

CONTACT:
Polish Information and Foreign Investment Agency (PAIiIZ)
ul. Bagatela 12, 00-585 Warsaw
tel.: +48 22 334 98 75
fax: +48 22 334 98 89
post@paiz.gov.pl, invest@paiz.gov.pl
www.paiz.gov.pl

TECHBRAINERS

techBrainers helps corporations select and implement technologies.

techBrainers provides consulting services concerning diagnostics of technological problems and the best solutions to international corporations and Polish innovative companies. The extensive network of relations with scientists and academies and experience in technological and business projects allow techBrainers to effectively assist the creation of a product, technological, and business advantage.

The techBrainers team provides support to R&D departments in scope of introducing open innovation and operating professionalism of research teams oriented on effective development of new and innovative products. The techBrainers R&D Club initiative was established for this very purpose. Its activity aims to strengthen research and development cooperation among entrepreneurs and to support their relations with the scientific and institutional communities.

The R&D Club is a place to establish professional and social contacts, a forum to share ideas and form social opinion.

It pursues its objectives with the following measures:

- development of tools for effective utilisation of the research and development potential of Polish enterprises and scientific centres,
- activities to intensify R&D cooperation,
- support for international and domestic projects aimed at development and integration of enterprises, the world of science, and public institutions in scope of R&D,
- creation of conditions for the management staff to raise qualifications and professional competences.

techBrainers®

CONTACT:
techBrainers
al. Solidarności 74A, 00-145 Warsaw
tel.: +48 606 245 993
iconcontact@techbrainers.com
www.techbrainers.com

THE AUTHORS

CRIDO TAXAND

Michał Gwizda
PARTNER
michal.gwizda@taxand.pl

Łukasz Kościjańczuk
MANAGER
lukasz.koscijanczuk@taxand.pl

Bogusława Mazurek
SENIOR MANAGER
boguslawa.mazurek@taxand.pl

Anna Zaleska
MANAGER
anna.zaleska@taxand.pl

Łukasz Czernicki
IP COUNSEL
lukasz.czernicki@taxand.pl

Coopoeration:
Aleksandra Małolepsza **CONSULTANT**
Magdalena Wolińska **SENIOR CONSULTANT**

TECHBRAINERS

Magdalena Jackowska-Rejman
PRESIDENT OF THE MANAGEMENT BOARD

PAIiIZ

Iwona Chojnowska-Haponik
DIRECTOR FOREIGN INVESTMENTS DEPARTMENT

Cooperation:
Dorota Pyszniak **SENIOR SPECIALIST**

Crido Taxand Sp. z o.o., Polish Information and Foreign Investment Agency S.A. and Techbrainers Sp. z o.o. declare that the content of this Information Guide is for general information purposes only and shall not be construed as professional advice or opinion which is provided to customers based on individual assessment of their situation and needs. Crido Taxand Sp. z o.o., Polish Information and Foreign Investment Agency S.A. and Techbrainers Sp. z o.o. shall not be held liable for the legal consequences of any acts based on this Information Guide undertaken without consultation with Crido Taxand Sp. z o.o. The facts and the legal status for 20.10.2015.

NOTES