Annual Report

2015

The National Centre
for Research and Development

This magazine offers you
great digital experiences
using the Layar app.

Download the free app,
find this symbol and
scan the page.

layar

Google play

Available on the iPhone
App Store

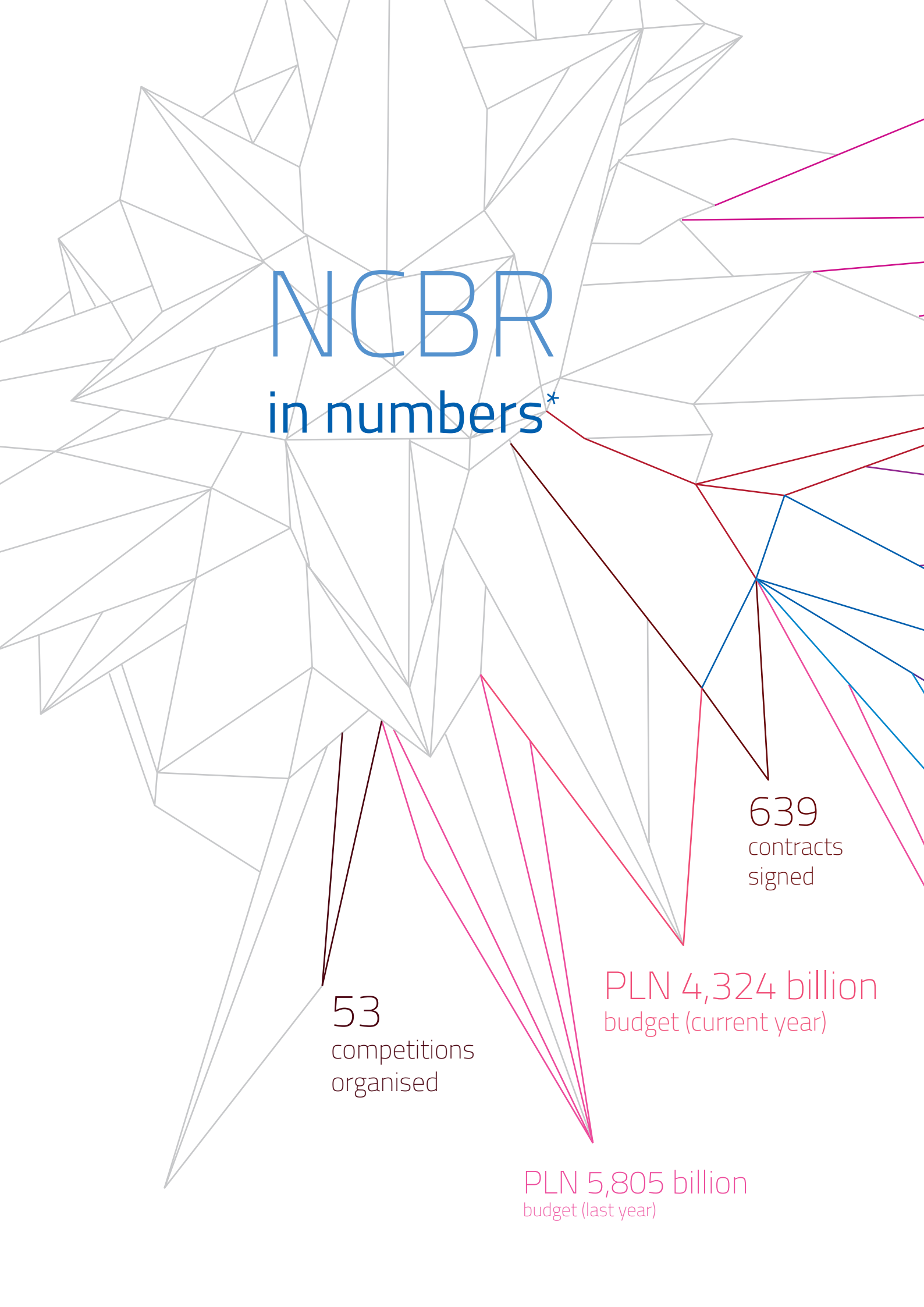
BlackBerry
App World

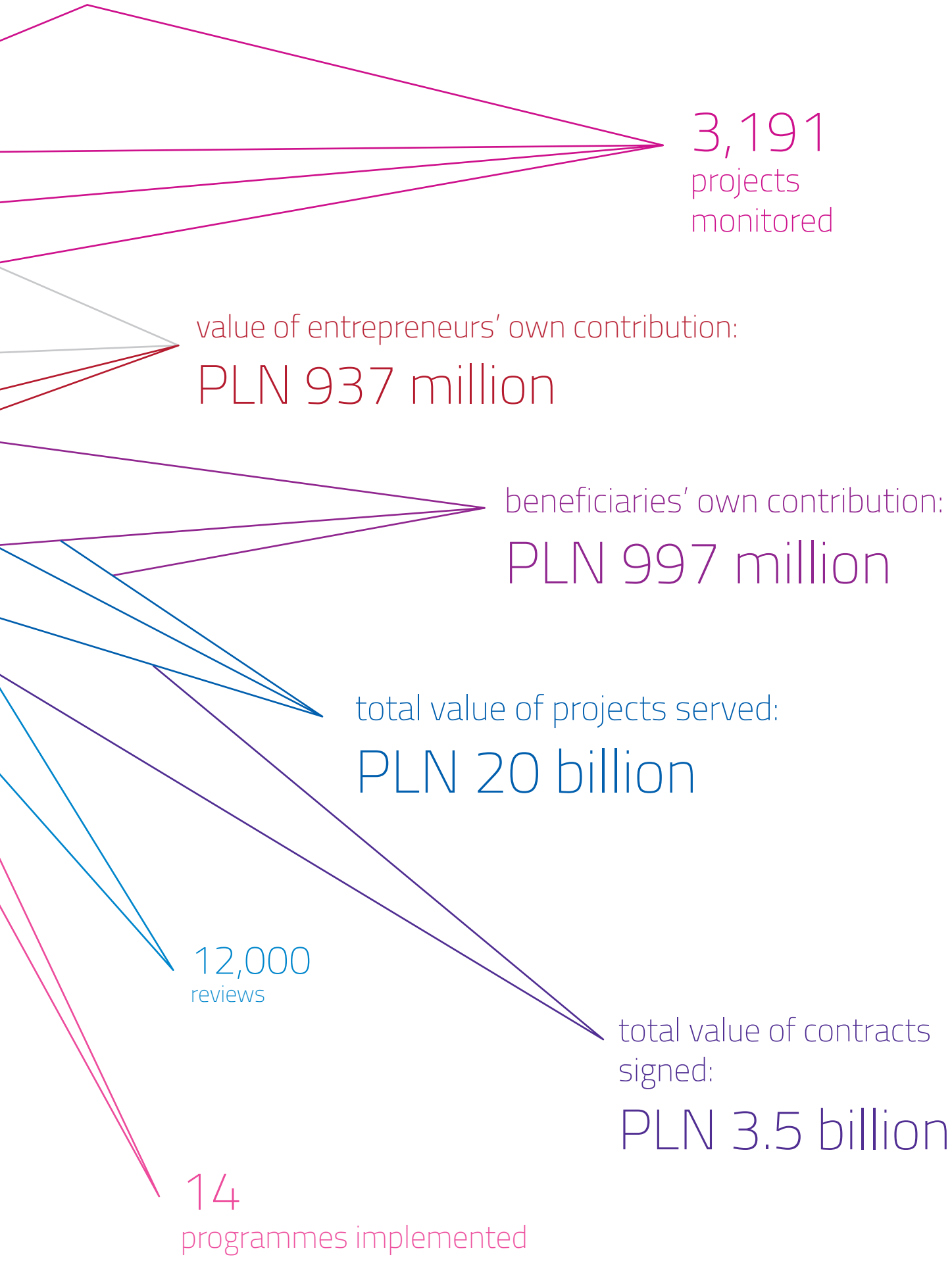
Annual Report 2015

of the National Centre for Research and Development

The National Centre for Research and Development
47a Nowogrodzka Str.
00-695, Warsaw
Poland

NCBR
in numbers*





* as of December 31st, 2015

Table of Contents

1. Introduction

Innovations are for people

Diabetes vaccinations, failure-free planes, ability to cut out cancerous tissue by a proton beam, or farming high protein insects to feed animals are just a few examples of inventions created thanks to the support from the National Centre for Research and Development.

The NCBR combines the immense intellectual potential of Polish scientists and enterprises. Even though the ventures it undertakes are spread across all spheres of life, they all have a common denominator – they serve the people. The mission of the National Centre for Research and Development is to serve the society – it is the people who are the beneficiaries of the activities undertaken by the Centre and its collaborators.

The NCBR offers a comfortable development environment for the scientist both in and out of the country. It supports science centres, NGOs, and enterprises on their quest to create new technologies. Programmes executed by the Centre stimulate the growth of various branches of the Polish economy, and the pressure we put on the commercialisation of research results increases the interest of businesses and venture funds in participating in R&D processes. This way an ecosystem is created, aiding Polish companies' innovativeness, their brand creation, and the influence of the Polish economy. Any implementation of new technology or solutions make Poland ever closer to joining the ranks of highly developed countries.

The Centre is an executive agency of the Ministry of Science and Higher Education based on the Act of 30 April 2010 on the National Centre for Research and Development.

Prof. Maciej Chorowski DSc, Eng.

Director of the National Centre for Research and Development

We turn research potential of Polish institutions into economic success of the country

I am delighted to present you with the annual report of actions undertaken by the institution which bridges the worlds of science and business, and over which I am honoured to preside from April 2016, when I took over from Prof. K. J. Kurzydłowski.

The National Centre for Research and Development is the main funder of research, development and innovation in Poland. Until 2020 we will be implementing projects under three EU operational programmes – Smart Growth, Knowledge Education Development and Digital Poland, which will amount to over 70% of the agency's budget. The rational management of funds of this magnitude is both a challenge and a great responsibility. Even more so, since the success will be measured years after the investments, and long after their results will have successfully been implemented and capitalised on. All programmes executed by the Centre share one basic goal – research commercialisation. Our effectiveness will be measured by the success of Polish companies based on the implementation of innovative solutions and cutting-edge technologies developed thanks to the cooperation with the Centre.

We are dedicated to continuing to work on strengthening the cooperation between science and business. Polish scientists working at universities, research institutes, or in independent research teams have difficulties in reaching investors and obtaining funding for their projects. By supplying them with funds, we remove yet another barrier obstructing R&D commercialisation.

NCBR programmes will focus on R&D in priority economy areas. Their execution will be a key element of the Plan for Responsible Development. We will support Polish researchers at all stages of their projects, and co-share the investment risk with entrepreneurs in order to maximise R&D benefits. I am convinced that the potential of Polish entrepreneurs who are not afraid of risks associated with R&D can be turned into an economic success of the country in the next few years. Presenting you with this report summarising the work of the National Centre for Research and Development in 2015, I therefore oblige myself and the entire NCBR team to work hard to fulfil our goals in the upcoming years.

Sincerely,

Prof. Maciej Chorowski DSc, Eng.
Director of the National Centre for Research and Development

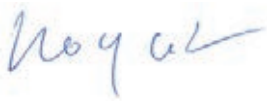
Anna Rogut DSc

President of the Board

NCBR stimulates the increase of competitiveness of the Polish economy

In 2015 the National Centre for Research and Development celebrated its 8th anniversary. It was a very busy time for the NCBR board, resulting in e.g. finalising the works on another research and development strategic programme – this time in the area of mineral technologies, and commencing the works on a new project of our new strategic programme dedicated to society facing new globalised markets. At the same time the Board, alongside that of the National Science Centre, developed the framework for the 2nd edition of our joint undertaking, "Tango", combining basic and applied research. Under the competition, funding is allocated for i.e. creating conceptual application of research results in industry, networking with partners interested in implementation, and intellectual rights protection. The past year was also dedicated to working on sectoral programmes supporting R&D and innovative activities in very important areas of the economy, includ¬ing medicine, aeronautics and chemical industry. Moreover, 2015 saw the NCBR Board approve the creation of sectoral programmes for unmanned systems, electro energetic, steel, textile, motor, ICT, video games pro¬duction and railway (freight, commuter and specialist) industries.

For 8 years the NCBR has been stimulating the increase of competitiveness of the Polish economy. Together with our partners we work on developing and improving the Polish innovation ecosystem, counting on simplification and speeding up R&D commercialisation, as well as more implemen-tations of solutions increasing the innovativeness of the economy and positively influencing our everyday lives. Appreciating the role and commitment of our partners, I would like to take this opportunity and thank them for this fruitful cooperation which I hope we will continue in the future.



Anna Rogut DSc

President of the Board

2. Calendarium

- key events of 2015

Calendarium

January

PLN 50 million for road innovations

Together with the GDDKIA, we announced a competition under our joint undertaking – "Development of Road Innovation". We allocated PLN 25 million each for R&D on road construction and modernisation. It was the result of NCBR-GDDKIA agreement whereby we committed to co-funding R&D projects improving road safety and traffic management systems efficiency. The projects are also expected to optimise the norms and standards of designing, planning, technology as well as construction and maintenance of Polish roads.

Over PLN 1,5 billion for innovations in SMEs

We announced "Fast Track" as the first competition under the Operational Programme Smart Growth. We were also the first public institution in Poland to introduce the market support system reducing the decision to approximately 60 days after applying – an important qualitative improvement in R&D financing. The aim of the programme is to increase Polish enterprises' innovativeness by using R&D results in their businesses. The budget for the competition was PLN 1.6 billion, with micro- and SMEs as its recipients.

April

IDA JSC and NCBR jointly support innovative companies

The NCBR and the Industrial Development Agency, a letter of intent regarding the support for innovative projects. The programme envisages that entrepreneurs who already finished the R&D phase financed by the NCBR will be able to apply for venture capital funding from IDA or IDA Venture. This initiative enriched our BRIdge offer which finances innovative projects through high-risk venture capital.

Institutions and companies supporting innovativeness join forces in the Coalition for Polish Innovations

Long-term, realistic systemic changes in socioeconomics are the aim of the Coalition for Polish Innovations. Created by the most active Polish academic, business and science institutions, such as: the Foundation for Polish Science, Res Publica Foundation, Gdansk Park for Science and Technology, Intel, Lewiatan Confederation, NCBR, PwC, Startup Poland, and Wardyński & Partners, it aims at creating a favourable environment for the development of an innovative ecosystem in Poland. We co-operate to develop detailed pro-innovation solutions to assist the R&D sector in Poland and increase the innovativeness of the Polish economy.

May

Agreement with the National Information Processing Institute on funding research infrastructure

We will co-fund strategic projects for Polish research infrastructure with the National Information Processing Institute – Polish Research Institute. The aim of the agreement is to support selected projects of big, strategic research infrastructure, on national or international level, featured on the Polish Research Infrastructure Road Map, as well as and provide effective access therein for entrepreneurs and other interested parties. The Map features 53 points of key importance for the development of Polish science and economy.

July

NCBR and PGE: PLN 200 million for innovation development in the Polish energy industry

Together with the Polish Energy Group we are planning to implement a model for open innovations in the electro-energy industry. The co-operation aims at increasing the competitiveness of Polish energetics in the scope defined by the energy company. In line with the agreement signed, R&D will be executed by consortia consisting of science units and entrepreneurs, and will be jointly funded by NCBR and PGE Group. Both partners will supply PLN 100 million each.

July

NCBR and Synthos join forces to innovate the Polish chemical industry

Thanks to an agreement signed with Synthos, we will set up an open innovation-based venture for the chemical industry. It will aim to create and implement new generation chemical products which will increase the innovativeness of the Polish chemical industry. The best R&D projects will receive support from the PLN 200 million budget.

August

NCBR and PKP CARGO will jointly invest PLN 30 million in new technologies for railway transport

Innovation, modern logistics, transport optimisation and safety improvement – these are the projects in which the NCBR and PKP Cargo will invest PLN 15 million each. R&D is an important element of the development strategy of PKP CARGO – Poland's biggest and EU's second biggest cargo carrier. Its collaboration with the NCBR is one of the largest investments of this kind in the entire PKP Group.

September

Olga Malinkiewicz's company finds a Japanese investor

In the presence of the then Deputy Prime Minister and Economy Minister Janusz Piechociński, SAULE Technologies signed a contract with a Japanese investor, Hideo Sawada. A leading Japanese entrepreneur, Mr. Sawada owns shares in several companies, mainly from the financial sector, energy, tourism and hospitality or transportation. SAULE Technologies is a technological company and world leader in the commercialisation of perovskites. It was established by Piotr Krych, Artur Kupczunas and Olga Malinkiewicz - a Polish physicist who had developed a low-temperature technology for the production of flexible photovoltaic cells based on perovskites.

The development of innovation in Poland depends on systemic solutions

Innovative Europe conference, organised by Coalition for Polish Innovation, took place on 27-28 October in Gdańsk. The guests discussed the importance of systemic solutions, such as education, legal regulations or more effective R&D tax credits that could stimulate innovativeness in Polish enterprises.

October

NCBR and PKP PLK will jointly invest PLN 50 million in new railway technologies

October also saw the NCBR - Polish Railways (PKP PLK SA) agreement signed. With PLN 50 million to be allocated to the best R&D projects, the aim of the agreement is to create innovative IT systems, more effective infrastructure maintenance and modernisation, improved comfort and safety of passengers as well as to reduce the impact of rail on the environment.

Private sector innovation expenditure reaches an all-time high

The Central Statistical Office of Poland (GUS) published the most recent data on R&D spending in 2014. Thanks to the combined efforts of the Ministry of Science and Higher Education and the NCBR that have both been stimulating business involvement in R&D activities, the private sector R&D expenses were nearly 20% higher than in 2013 and amounted to over PLN 7.5 billion PLN.

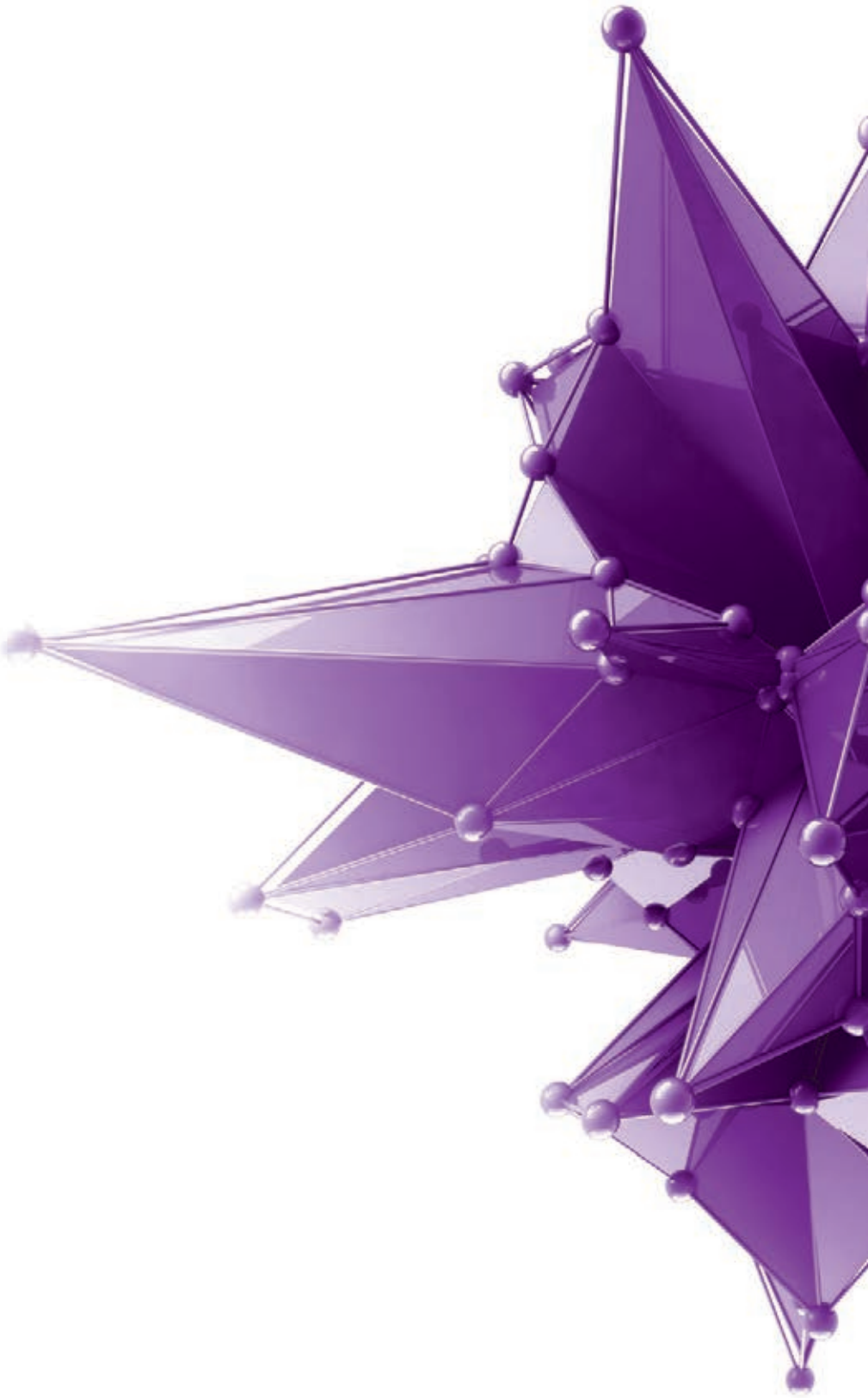
High-risk projects – a chance to increase the competitiveness of the Polish economy

The European Forum for New Ideas took place between September and October in Sopot. The Forum featured "Investing in innovation. Who Takes the Risk and for Whom?" panel organised by the Industrial Development Agency and the National Centre for Research and Development. Public administration representatives, entrepreneurs, investors and scientists discussed the role of the state in supporting innovation. Panellists indicated the possible benefits and challenges of taking the risk associated with the implementation of innovative projects that may lead to breakthrough technologies in various industries.

December

Young science leaders awarded

Deputy Prime Minister/Minister of Science and Higher Education Jarosław Gowin met the laureates of the 6th edition of the LIDER Programme. Together with the then NCBR Director Prof. Krzysztof Jan Kurzydłowski, the DPM presented 34 young science leaders with symbolic cheques totalling PLN 40 million.



3. About NCBR

- The Board
- NCBR Committees
- 2010-2015 Budget
- Funding allocation
- Beneficiaries
- NCBR around the world

The Board of NCBR

An advisory and opinion-forming body, the NCBR Board voices its opinions on matters related to the definition of proposed research activities aimed at the implementation of strategic R&D programmes, terms of competitions for entities wishing to perform research and other tasks set forth by the respective Act. Its voice is decisive in the designation of expert team members and administration of NCBR assets. It also provides advice on annual financial plans, operational plans, and the Director's operating statement as long as the aforementioned elements are at the project stage.

The Board comprises of 30 members, including 10 representatives of science circles, 10 representatives of socio-economic and financial circles, and 10 representatives of public administration. The term of the Board is 4 years, with a biannual change in half of its composition.

1. Members nominated by science circles:

- Marcin Chmielewski, DSc
- Lidia Gawlik, DSc, Eng.
- Prof. Jerzy Jasieńko, DSc, Eng.
- Dominika Latusek – Jurczak, DSc
- Prof. Antoni Waldemar Morawski, DSc, Eng.
- Artur Podhorodecki, DSc, Eng.
- Prof. Piotr Łukasz Rutkowski, MD, DSc
- Prof. Krzysztof Stańczyk, DSc, Eng.
- Prof. Krzysztof Piotr Wodarski, DSc, Eng.
- Prof. Piotr Wolański, DSc, Eng.

2. Members nominated by socio-economic and financial circles:

- Prof. Anna Rogut, DSc - Chairman of the Board
- Dawid Berny, MSc. Eng.
- Zbigniew Dokurno, DSc
- Prof. Leon Gradoń, DSc, Eng.
- Prof. Marek Hetmańczyk, DSc, Eng.
- Dariusz Janusek, DSc, Eng.
- Michał Jaworski, MSc, Eng.
- Ryszard Łęgiewicz, MSc, Eng.
- Gniewko Niedbała, DSc, Eng.
- Prof. Piotr Niedzielski, DSc, Eng.

3. Members nominated by Ministers:

- Marek Cieśliński, DSc, Eng. (nominated by the Minister competent for Agriculture),
- Piotr Dardziński, PhD (Under-Secretary of State at the Minister of Science and Higher Education, appointed by the Minister comptetent for Science),
- Jadwiga Emilewicz, (Under-Secretary of State at the Ministry of Development, representative of the Minister in charge of the Economy),
- Prof. Wojciech Fałkowski, PhD (Under-Secretary of State, appointed by the Minister of Defence),
- Andrzej P. Jarema, (appointed by the Minister of the Interior),
- Marcin Łata, (nominated by the Minister competent for Regional Development),
- Małgorzata Olszewska, (nominated by the Minister competent for Communications),
- Igor Radziewicz-Winnicki, DSc, (nominated by the Minister competent for Health),
- Iwona Wendel, (nominated by the Minister competent for Transport),
- Prof. Tadeusz P. Żarski, DSc, (nominated by the Minister competent for Environment).

NCBR Committees

Committee on finance

The committee is responsible for drafts of the Board's recommendations regarding the financing of the Centre, especially the financial planning, financial report or funding approval for allocations above EUR 250,000.

Chairman: Zbigniew Dokurno, DSc

Members:

- Ryszard Łęgiewicz, MSc, Eng.
- Gniewko Niedbała, DSc, Eng.
- Małgorzata Olszewska

Committee on strategic research and development programmes

The committee is responsible for documenting strategic research and development programmes, which are submitted to the Ministry of Science and Higher Education for approval by the Board, in the area of strategic programmes.

Chairman: Prof. Krzysztof Piotr Wodarski, DSc, Eng.

Members:

- Lidia Gawilk, DSc, Eng.
- Prof. Leon Gradoń, DSc, Eng.
- Dariusz Janusek, DSc, Eng.
- Andrzej P. Jarema
- Dominika Latusek-Jurczak, DSc

Committee on implementation of other tasks

The committee is responsible for drafting the Board's recommendations regarding the implementation of tasks other than those regarding strategic research and development programmes and research for the security and defence of the country.

Chairman: Prof. Antoni Waldemar Morawski, DSc, Eng.

Members:

- Marcin Chmielewski, DSc
- Marek Cieśliński, DSc
- Prof. Jerzy Jasieńko, DSc, Eng.
- Michał Jaworski, MSc
- Marcin Łata
- Prof. Piotr Łukasz Rutkowski, MD
- Prof. Piotr Wolański, DSc, Eng.

Appeal committee

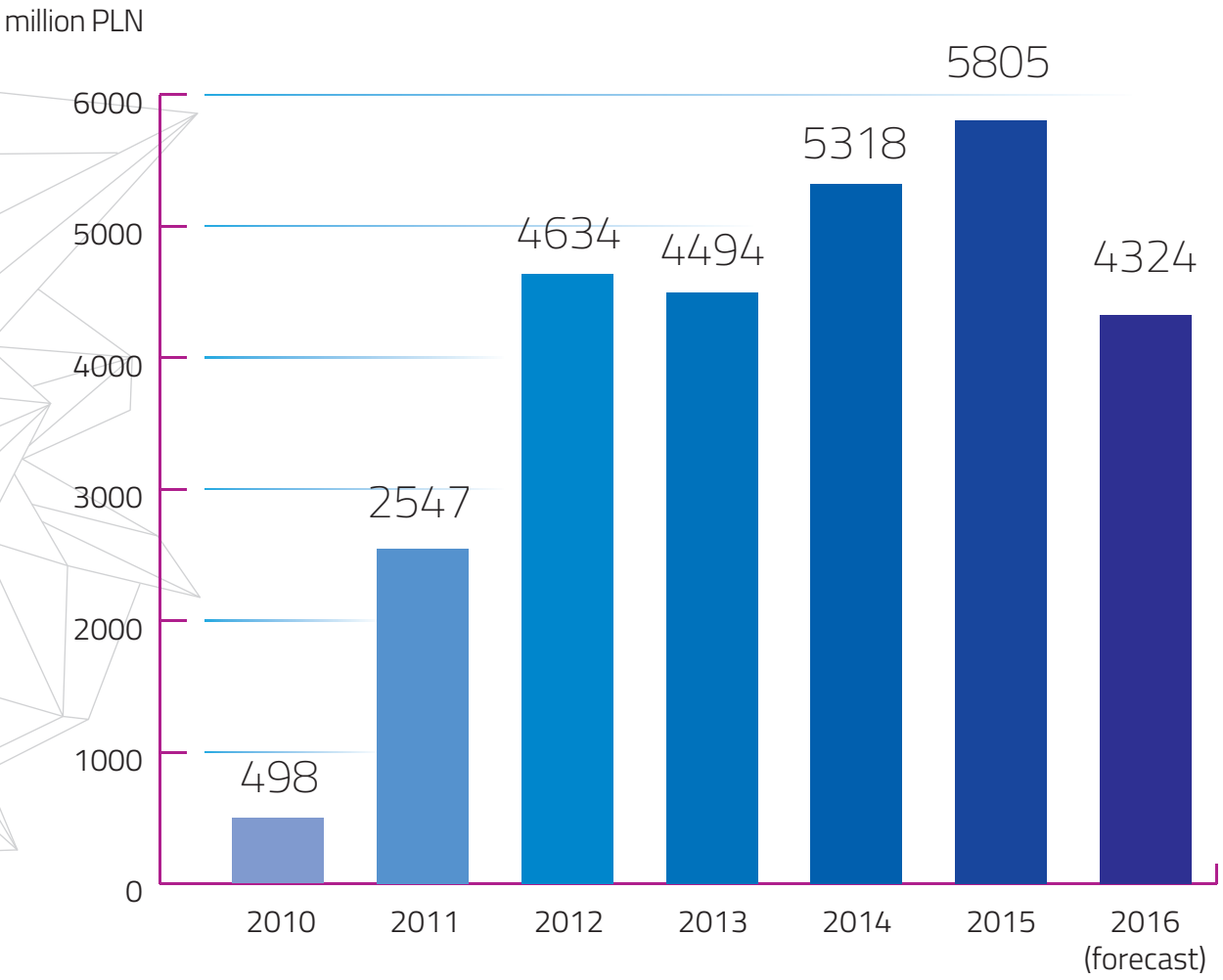
The committee is responsible for dealing with appeals regarding the approval or denial of funding or the promise of the funding.

Chairman: Prof. Marek Hetmańczyk, DSc, Eng.

Members:

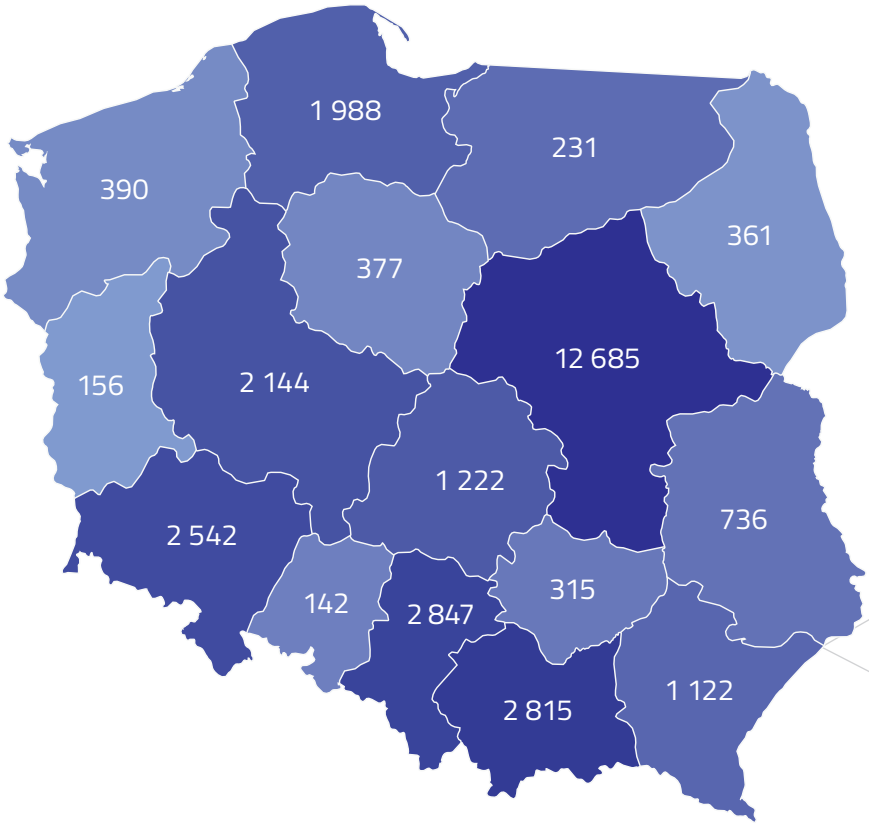
- Dawid Berny, MSc. Eng.
- Prof. Piotr Niedzielski, DSc, Eng.
- Artur Podhorodecki, DSc, Eng.
- Prof. Krzysztof Stańczyk, DSc, Eng.

NCBR budget 2010-2015



NCBR Budget 2010-2016 (in millions of PLN).

Funding allocation

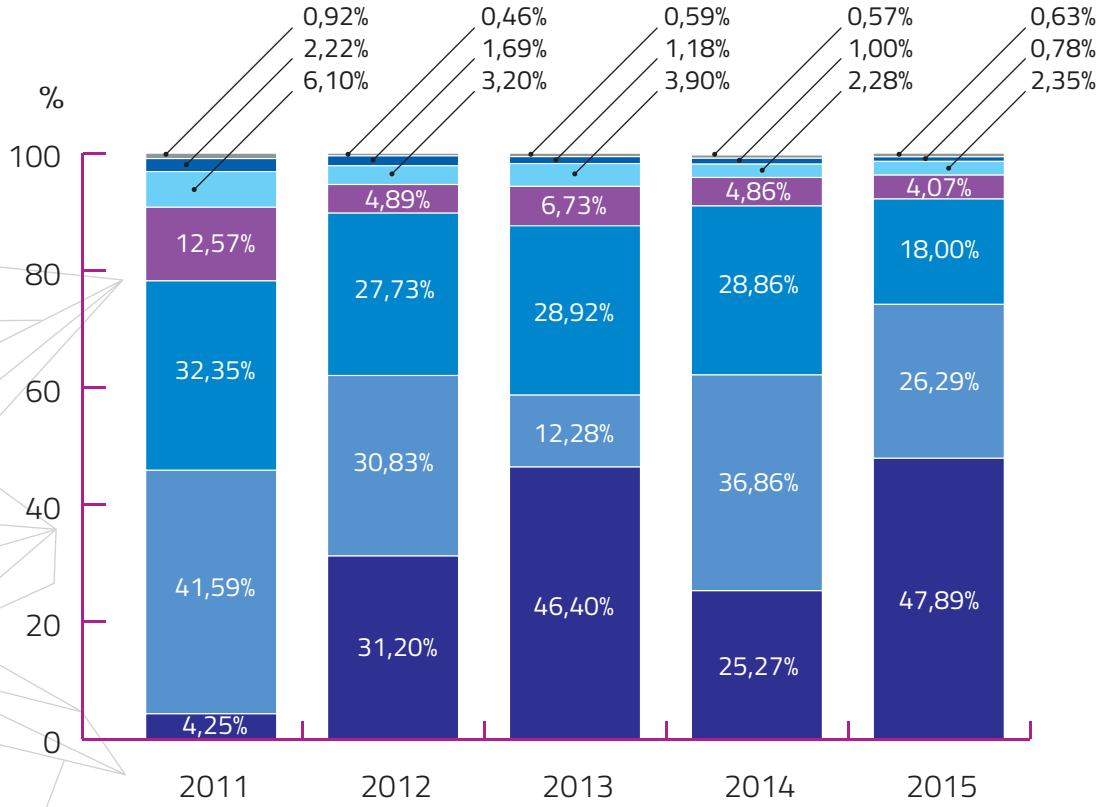


Voivodeship	Number of projects	Value of additional funding (in millions PLN)
Masovian	362	12 685
Silesian	415	2 847
Lesser Poland	470	2 815
Lower Silesian	282	2 542
Greater Poland	355	2 144
Pomeranian	264	1 988
Łódź	199	1 222
Subcarpathian	125	1 122
Lublin	133	736
West Pomeranian	93	390
Kuyavian-Pomeranian	88	377
Podlaskie	35	361
Świętokrzyskie	48	315
Warmian-Masurian	50	231
Lubusz	28	156
Opole	43	142
Total	**2 990**	**30 073**

Funding allocation per voivodeship. (2014-2015, in millions PLN).

Beneficiaries

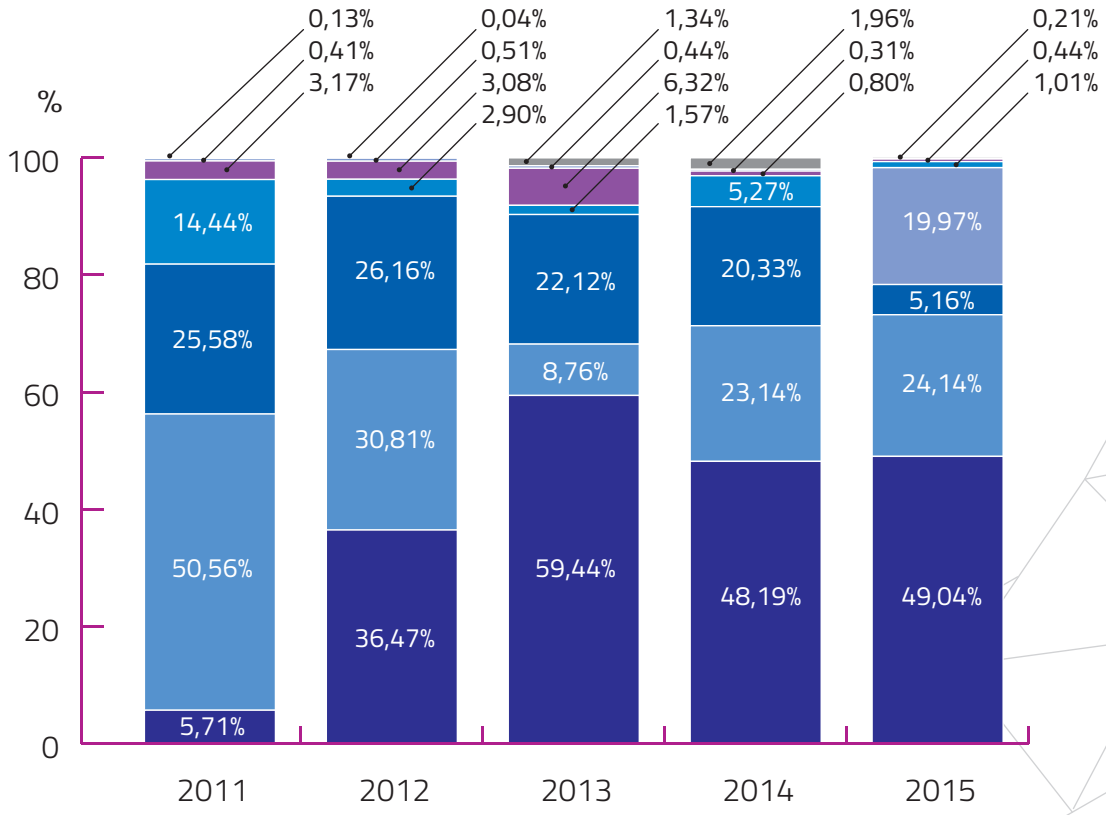
The National Centre for Research and Development puts great importance on the availability of funding to beneficiaries from all over the country. We support researchers from research centres, universities, those who are running their own businesses and cooperating with entrepreneurs. Funding is also available to consortia consisting of business and science representatives.



NCBR beneficiaries by legal type (2011-2015).

Percentage of total contracts signed by legal type (2015)	
Legal type	**%**
Consortium	47,89%
Enterprise	26,29%
University/Higher Education Institution	18,00%
Research Institute	4,07%
PAS science unit	2,35%
Foundation/Association	0,78%
Other	0,63%

Percentage of total contracts signed by legal type (2015).



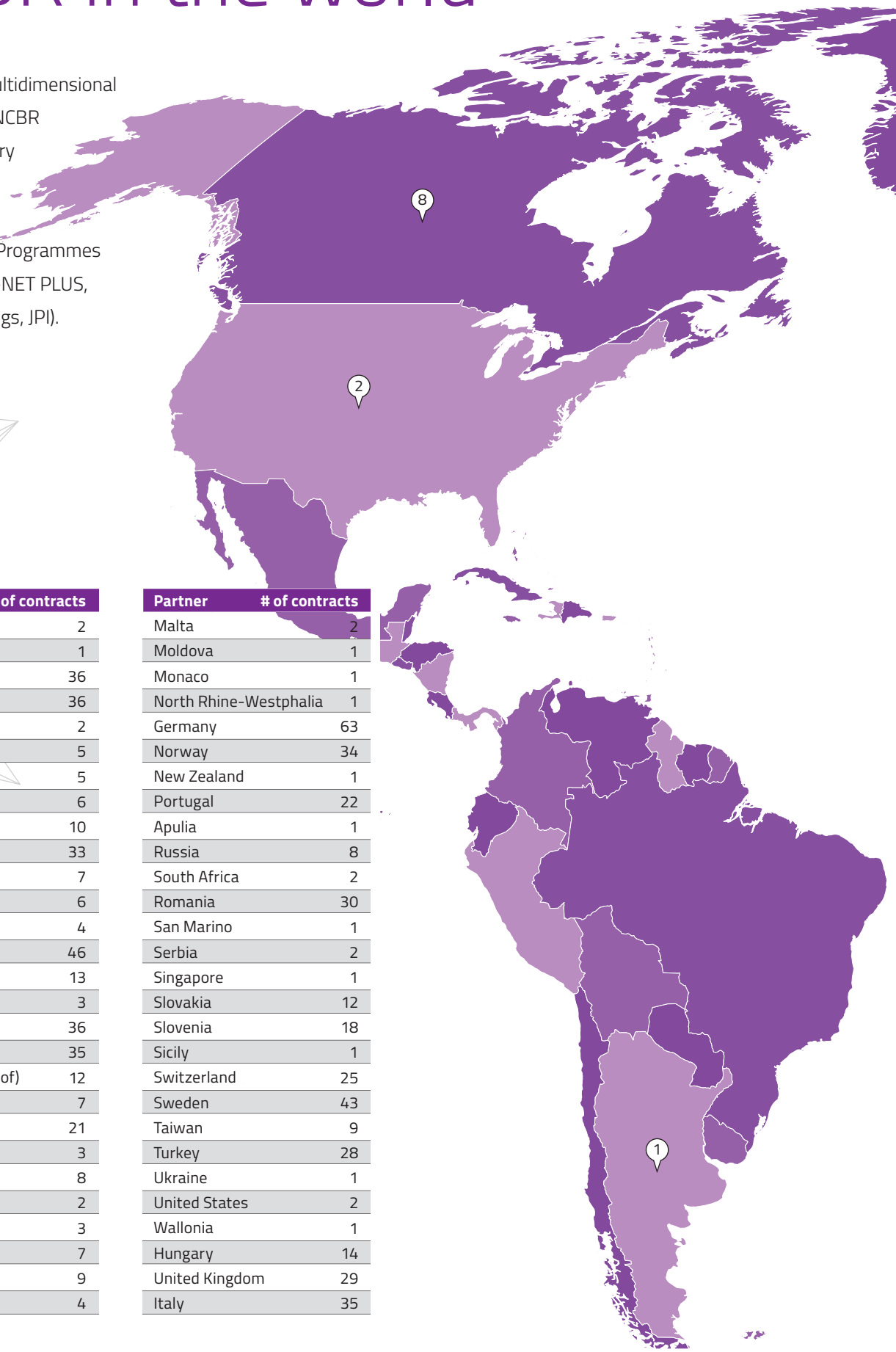
NCBR beneficiaries by legal type (2011-2015).

Percentage of total funding allocated by legal type (2015)	
Legal type	%
Consortium	49,04%
Enterprise	24,17%
Foundation/Association	19,97%
University/Higher Education Institution	5,16%
Research Institute	1,01%
PAS science unit	0,44%
Other	0,21%

Percentage of total funding allocated in 2015 by legal type.

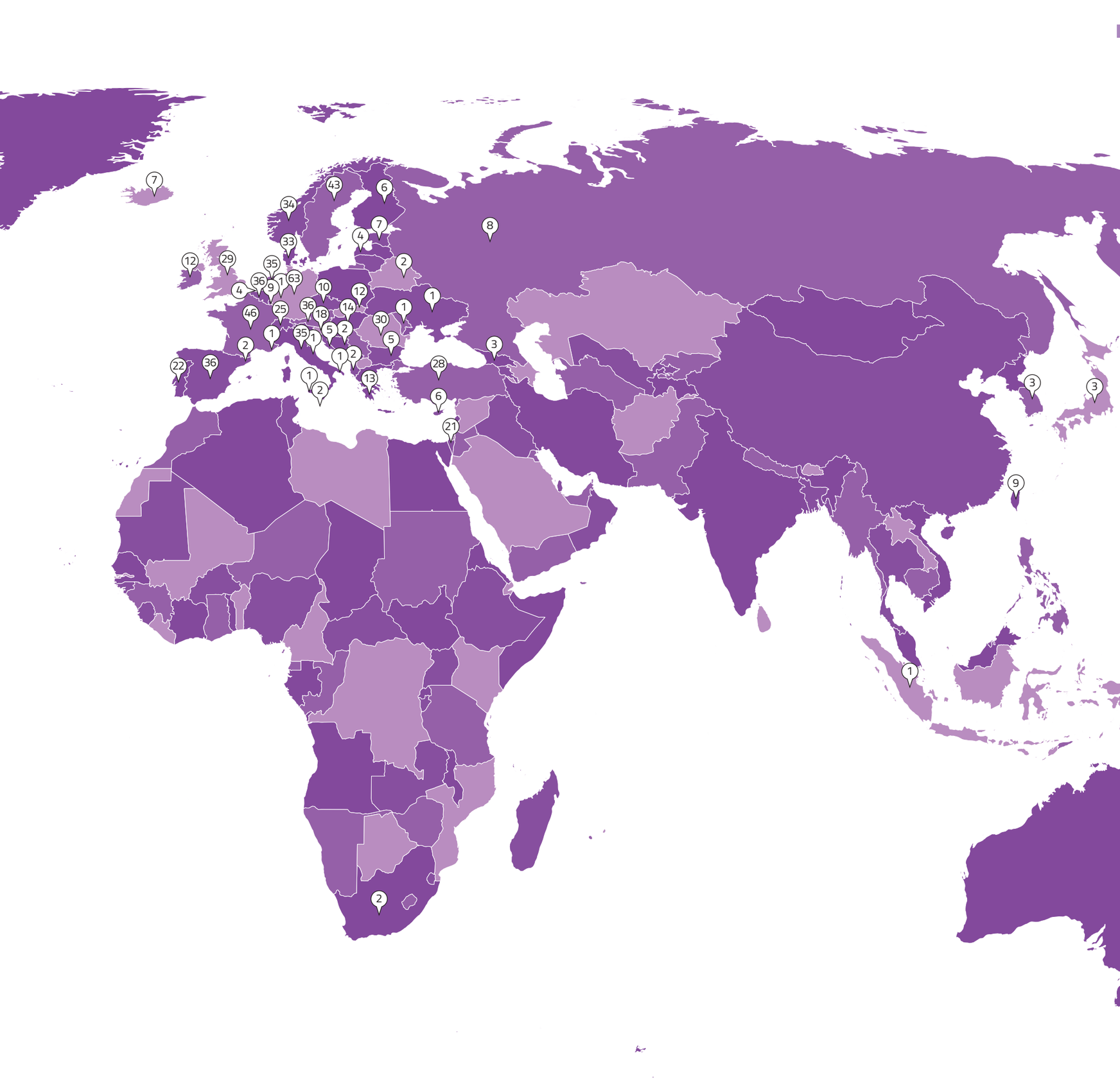
NCBR in the world

Bilateral and multidimensional cooperation of NCBR with each country within bilateral programs and EU Framework Programmes (ERA-NET, ERA-NET PLUS, Joint Undertakings, JPI).



Partner	# of contracts
Albania	2
Argentina	1
Austria	36
Belgium	36
Belarus	2
Bulgaria	5
Croatia	5
Cyprus	6
Czech Republic	10
Denmark	33
Estonia	7
Finland	6
Flanders	4
France	46
Greece	13
Georgia	3
Spain	36
The Netherlands	35
Ireland (Republic of)	12
Iceland	7
Israel	21
Japan	3
Canada	8
Catalonia	2
South Korea	3
Lithuania	7
Luxembourg	9
Latvia	4

Partner	# of contracts
Malta	2
Moldova	1
Monaco	1
North Rhine-Westphalia	1
Germany	63
Norway	34
New Zealand	1
Portugal	22
Apulia	1
Russia	8
South Africa	2
Romania	30
San Marino	1
Serbia	2
Singapore	1
Slovakia	12
Slovenia	18
Sicily	1
Switzerland	25
Sweden	43
Taiwan	9
Turkey	28
Ukraine	1
United States	2
Wallonia	1
Hungary	14
United Kingdom	29
Italy	35



# of contracts	Partner
63	Germany
46	France
43	Sweden
36	Austria
36	Belgium
36	Spain
35	The Netherlands
35	Italy
34	Norway
33	Denmark
30	Romania
29	United Kingdom
28	Turkey
25	Switzerland
22	Portugal
21	Israel
18	Slovenia
14	Hungary
13	Greece
12	Ireland (Republic of)
12	Slovakia
10	Czech Republic
9	Luxembourg
9	Taiwan
8	Canada
8	Russia
7	Estonia
7	Iceland
7	Lithuania
6	Cyprus
6	Finland
5	Bulgaria
5	Croatia
4	Flanders
4	Latvia
3	Georgia
3	Japan
3	South Korea
2	Albania
2	Belarus
2	Catalonia
2	Malta
2	South Africa
2	Serbia
2	United States
1	Argentina
1	Moldova
1	Monaco
1	North Rhine-Westphalia
1	New Zealand
1	Apulia
1	San Marino
1	Singapore
1	Sicily
1	Ukraine
1	Wallonia

4. 2015 Report

Fast Track – reasonable time management

BRIdge Alpha – intellectual capital incubator

Why is it worth to cooperate with us – development path supported by NCBR

- Fast Track – Elastic solar cells – energetic revolution
- Demonstrator+ – Tram for the future
- BRIdge Alpha – The future of food has tentacles
- Sectoral Programmes – Plane with latches and clips
- We support in development – From an idea to rocking the foreign markets
- Operational Programme: Human Capital – Knowledge-based economy
- Operational Programme: Human Capital – Ready to work

The best way to measure NCBR effectiveness is the success of our beneficiaries. With their development in mind, we are constantly working on our programme catalogue, and consult its contents with the recipients in order to best support Polish innovators in their bold and creative endeavours. Below you will find some selected initiatives we are particularly proud of, and statements from their creators

Olga Malinkiewicz

CTO - Chief Technology Officer

SAULE LLC (SAULE Technologies)

2015 Report

Fast Track – reasonable time management

For the SAULE Technologies team working in the laboratory is both a passion and a challenge. Creating a fully functioning prototype is one of the key aspects of our work. At the same time it is de facto a beginning of a great adventure. The long-run goal is to leave the lab by commercialising the product. It requires not only engagement, ideas, knowledge and hard work, but also reasonable time- and resource management.

Programmes such as NCBR's Fast Track help achieve that goal by reducing formalities and, in this instance, providing applicants with a response within 60 days of applying.

The Operational Programme Smart Growth 2014-2020 focuses especially on increasing the innovativeness of Polish entrepreneurs. The world today is fast paced. This also applies to scientists and entrepreneurs who constantly feel the time pressure. If you want to be an innovator, you not only have to be not efficient, but also quick. The majority of R&D projects are won by the team who finishes first. Any element that could speed the process up is incredibly important.

This is why programmes such as NCBR's Fast Track can aid the innovativeness of Polish science on the international arena. It will allow for implementing innovative projects, benefiting Polish economy. Thanks to Fast track, knowledge and technology transfer can be quicker than ever, and the benefits can be reaped by everyone.

Taking part in the programme has many benefits – not only better lab equipment and increased work quality, but also the flow of knowledge and experience.

Funds received under Fast track allowed SAULE Technologies to speed up the work on revolutionising the way we harvest solar energy. SAULE Technologies see the future filled with thin and elastic perovskite-based photovoltaic cells.

Maciej Sadowski

Co-founder/CEO

StartUp Hub Poland

2015 Report

BRIdge Alfa – intellectual capital incubator

The most important advantage of BRIdge Alpha is its combination of two, hitherto separate, processes: support for the best R&D projects in their early development stages and investment in technology start-ups which require high-risk funding in order to prove their market value to potential investors in form of prototypes, first sale or other proof of potential scaling. Supported by Startup Hub Poland and funded by GPV and the NCBR, the aim of StartVenture@Poland fund is to identify extraordinary engineering talents and innovative business pioneers from Central and Eastern Europe, as well as from Polish migration centres and encourage them to move their efforts and commercialise their ideas in Poland. Compared to global funds with similar purpose, the results of our fund make us claim that BRIdge Alpha architecture increased the competitiveness of the Polish ecosystem in the eyes of foreign innovators as well as of Polish Diaspora R&D leaders. In countries where private investors are at the beginning of their adventure, a smart (and well-aimed) state intervention in the form of BRIdge Alpha programme is a necessary factor in unlocking the reserves of the country's development. The aforementioned reserves are the potential of the science staff, research infrastructure, experiments, and science research of Polish innovators and of ambitious inventors from the Eastern Europe who are thankful for Polish hospitality. The pilot generation of BRIdge Alpha funds had fulfilled a part of the Polish market's mission i.e. containment of the precious intellectual capital escaping Poland as well as concentration of important business, investment, legal and research competencies within the country. This combination attracts potential investors and inventors. Without it, the Polish economy would not be able to create mechanisms for renewability of investment potential. This would be an irreversible loss, particularly after a period of such intense R&D funding supplied by the EU. Taking into consideration the global race for innovation between the developed and developing countries, the ability to combine the efforts of scientists and inventors with experience and risk-loving investors is a pillar of creative, dynamic economy based on knowledge and genuine research. The execution of this two-dimensional policy is, in my opinion, the biggest advantage of this programme.

fot. Piotr Blawicki /ddtvn/ East News

Prof. Małgorzata Myśliwiec, MD

Head of Department and Clinic of Pediatrics, Diabetology and Endocrinology at the Medical University of Gdańsk

2015 Report

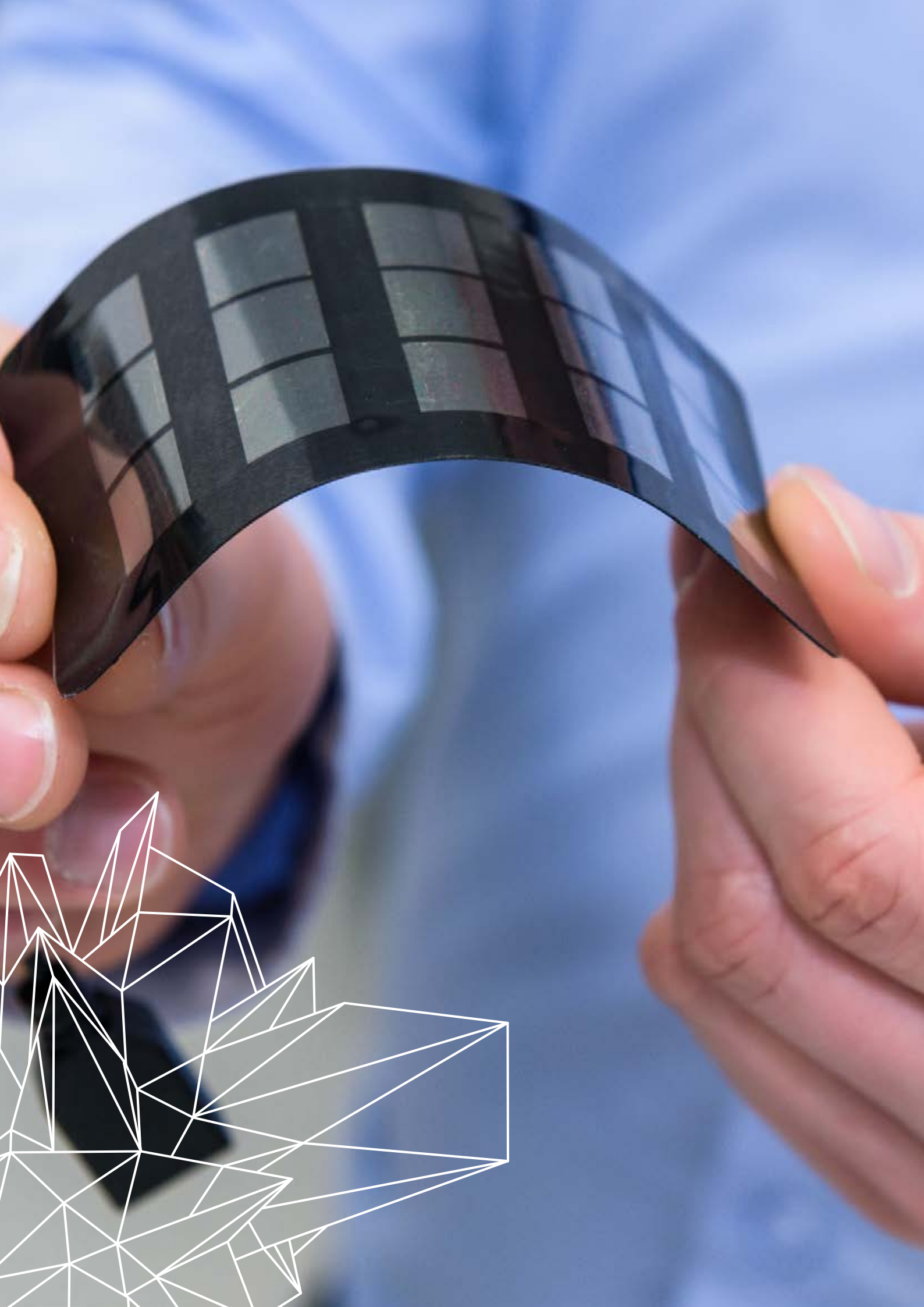
Why is it worth it to cooperate with us – development path supported by NCBR

Our commercialisation and development model has been supported by the funds of the National Centre for Research and Development for innovative entrepreneurships. The company is a beneficiary in the Operational Programme Innovative Development, Measure 1.1.1 "Fast Track" as well as the GO_GLOBAL.PL programme. One of the stock holders is Innoventure investment fund which invested with funds partially sourced by BRIdge Alpha programme. The support, obtained with the help of NCBR will allow us to create a cutting edge laboratory and run research using, amongst others, a bioreactor in order to industrialise our method and increase the number of treated patients. Moreover, we are preparing to introduce our product to foreign markets – including the United States, which, thanks to GO_GLOBAL.PL allows us for the preparation and verification of our entry strategy, as well as to create necessary business networks.

Thanks to the funding we have the opportunity to cooperate with the best biotechnology and innovation implementation specialist not only on the Polish scale, but also on the European one. We are advised on implementation, including complicated legal matters, as well as further funding opportunities by the best.

Subsidies allow for decreasing the risk associated with innovative entrepreneurships, as they are usually not attractive for traditional investors. This lets people like us "leave" the lab and create an implementation process which will increase patients' comfort of daily life, and, in result, decrease the indirect costs of both health care as well as welfare. The most important thing however is the fact that TREGS method, alongside many other inventions commercialised with NCBR's support, can be developed by people who created them in their home-organisations, and aid Polish competitiveness in the innovations market.

PolTREG LLC is a company created as a spin-off dedicated to commercialisation of the innovative world-changing TREGS method treating type 1 diabetes in children. The vaccine is being developed in cooperation with Medical University of Gdańsk and University Clinical Center in Gdańsk.



SAULE TECHNOLOGIES

Elastic solar cells – energetic revolution

Saule, according to old Baltic mythology, was a sun goddess. SAULE Technologies are currently one of the hottest brands in the world of science, aiming at revolutionising the photovoltaic industry. The founder of the company is Olga Malinkiewicz, the inventor of elastic solar cells based on perovskites.

Her invention is the first example of implementing perovskite technology in consumer electronics – soon enough our smartphones and laptops will be coated with photovoltaic foil which will make chargers obsolete. Malinkiewicz's team is working on applying perovskites on any surface – from buildings' rooftops, through cars' front windscreens, to clothing.

The prototype of a phone charging sticker has already been created. What is important now, is outrunning the competition and introduction of a production line for big-format cells. In order to be able to compete, SAULE Technologies needed a quick cash injection. They took part in the "Fast Track" programme, which allows for the funding to be supplied within two

Project:

"Research and development works on obtaining world's first ultra thin photovoltaic cell from perovskites inkjet-printed on an elastic background"

Beneficiary:

SAULE LLC (SAULE Technologies)

Value of the project:

PLN 34,615,532

Value of the funding:

PLN 25,503,650

Funding:

Operational Programme Smart Growth

Sub-measure 1.1.1 "Industrial research and development executed by enterprises"

months from applying. It is an instrument created with the rapid pace of technology competition in mind – offering funding needed to quickly implement a ready solution in the market.

Potential clients are already lining up. One of them is Airbus, thinking about applying the perovskite in aircraft/astronautic technology. SAULE Technologies has also been contacted by the defence and energy industries, with Japanese-based company SOGITS wondering whether they could cover silicon panels with the perovskite foil in order to increase their efficiency. The applications are countless – perovskite cells will be printable onto any surface, making it a solar energy generating cell.

Beneficiary's Opinion:

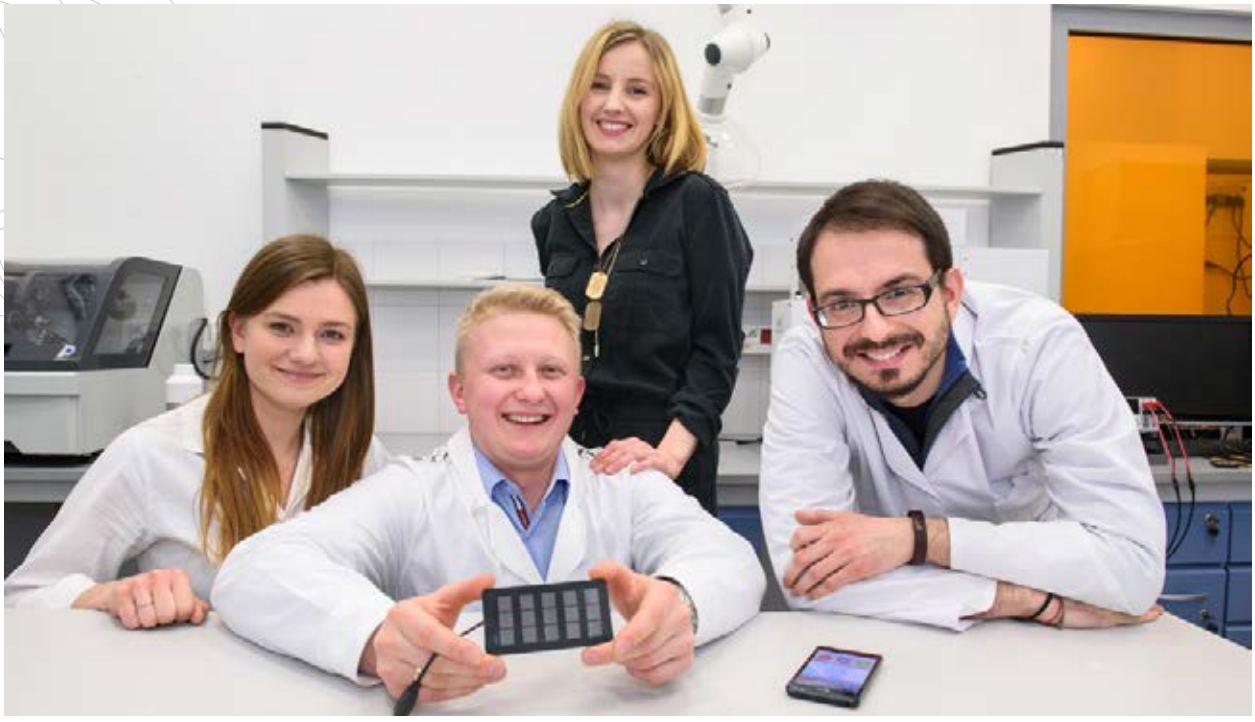
SAULE Technologies' first goal is to introduce perovskite cells to so-called small electronics. They can cover the surface of the devices such as laptops, or smartphones, thus allowing for charging them without cables and any kind of user interference. Foils would charge the devices even at night, sourcing the power from artificial light. The first perovskites-based module for smartphones has been created in SAULE labs this March.

Perovskite foil acts like a typical photovoltaic panel, but because of its properties it will have much wider use, covering surfaces where use of panels is traditionally not feasible. Semi-conductive foil could be used not only on buildings' rooftops, but also their entire walls, or even windows. This could result in the dream about power independent green houses and office spaces, or even factories, coming true.

The technology is already creating immense opportunities, and it is just the beginning. With the current technological progress, the applications will multiply. SAULE Technologies aim at introducing perovskites in many industries, to better everyday life and it is possible thanks to the support of such institutions like the National Centre for Research and Development.

Piotr Krych
President of SAULE Technologies

Artur Kupczunas
vice-chairman SAULE Technologies



The team working on the prototype.

"Perovskite foil acts like a typical photovoltaic panel, but because of its properties it will have much wider use, covering surfaces where use of panels is traditionally not feasible. Semi-conductive foil could be used not only on buildings' rooftops, but also their entire walls, or even windows.

This could result in the dream about power independent green houses and office spaces, or even factories, coming true."

SCAN THIS PAGE
WITH LAYAR APP


GAMMA

A tram for the future

When the risk of failure is too big for private capital to invest in the venture, it is worth to apply for funding from the Demonstrator+ programme. It is a project aimed at enterprises and higher education institutions who want to join their efforts together in order to create a new product or technology. NCBR co-finances the development of a demonstrative version and the research behind it. Modertrans Poznań LLC and Poznań University of Technology made use of the funding, and, as a consortium, created quite an ecological and comfortable tram of the future.

Moderus Gamma is completely low-floor and equipped with supercapacitors collecting the energy saved during braking. It was created with the increasing numbers of public transport users in dynamically developing metropolises in mind. It fulfils ecological requirements and is energy-saving and automated, with low-floors allowing for quick exchange of passengers.

Project:

Moderus Gamma – Innovative urban tram

Beneficiary:

Modertrans Poznań LLC

Value of the project:

PLN 14,115,205

Value of the funding:

PLN 5,635,222

Funding:

Support for research and development on demonstrative scale – Demonstrator +

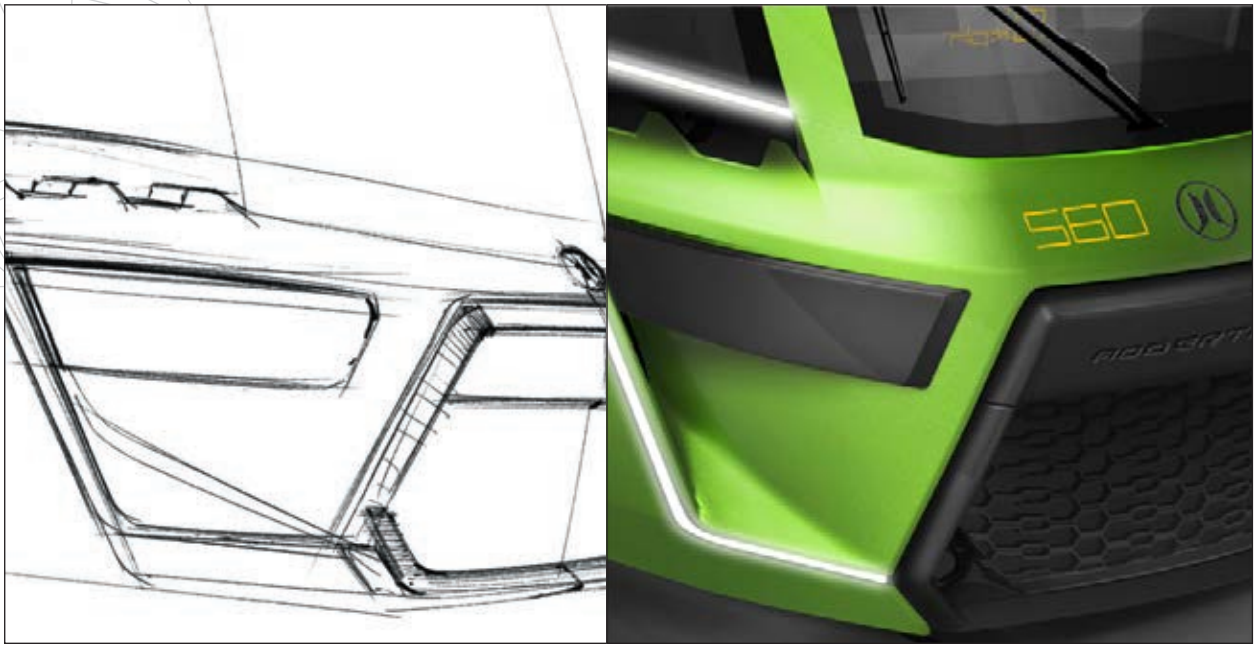
The design and construction of Moderus Gamma tram is a multi-field operation. Computer simulation is performed in parallel and based on complex algorithms. These analyses are the basis of dimension, mass and other guidelines. Documentation on construction of particular modules is created simultaneously with the talks with suppliers from around the world. The buying process of strategic components has also commenced. Engineers from Modertrans Poznań LLC, alongside the scientists from PUT are planning on introducing the prototype to track as early as this year.

Beneficiary's Opinion:

Our project led to a design and demonstrative production of Moderus Gamma tram. Knowledge and experience of Modertrans Poznań LLC staff and the support from the Poznań University of Technology science team allowed for creation of an innovative tram, equipped with a variety of features guaranteeing the comfort of the passengers. The time horizon of its operation is minimum 30 years, and because of that its design needs to fulfil both current and future trends in automotive industry.

Based on specialist software and mathematical algorithms, the operational conditions were simulated to be as close as possible to the real ones. Thanks to this process, many analyses and verifying simulations were conducted, checking constructive assumptions. We can confirm that assumptions made during application process have been fulfilled. The premiere of Moderus Gamma tram is set for autumn 2016. We would like to see our tram on the streets of one of the Polish cities by then, regularly transporting passengers.

Jarosław Bakinowski
Vice-President
Director for Rail Vehicles
Modertrans Poznań LLC



The design is really important as it will be in use for minimum of 30 years.

"The premiere of Moderus Gamma tram is set for autumn 2016. We would like to see our tram on the streets of one of the Polish cities by then, regularly transporting passengers."

– Jarosław Bakinowski, Modertrans Poznań LLC

The future of food has tentacles

In the face of increasing global food demand, especially for animal-based protein, scientists are racing to find new obtainment methods. The future of food could be insects - sources of high quality protein and fats, and its producers: Polish researchers.

An experimental insect farm in Robaków (c. Poznań), thanks to the support from the National Centre for Research and Development, will soon become a specialised insect-based biomass factory.

HiProMine is all about diversity. Farmed insects will be dried and processed into a starchy powder. At the beginning, the company will focus on fish food, but legislative changes may allow it to produce poultry and pork feed as well. Development plans focus on franchising so the company can grow and become the world's biggest insect producer in the next few years.

Project:

Execution of systemic project BRIdge Alpha

Beneficiary:

StartVenture LLC

Value of the project:

PLN 12,500,000

Value of the funding:

PLN 10,000,000

Funding:

Operational Programme: Innovative Economy

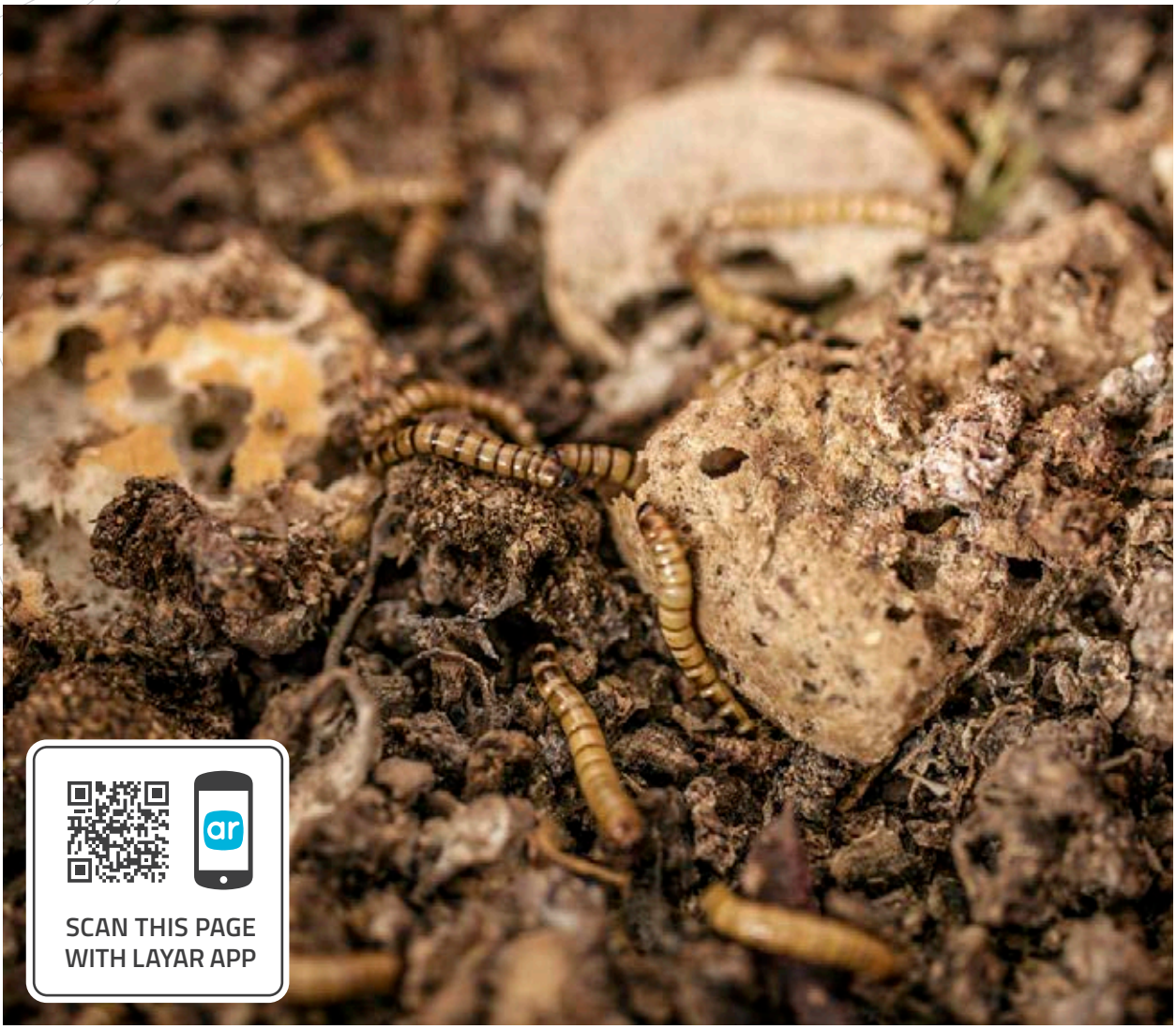
Measure 3.1
Innovation Initiative

Beneficiary's Opinion:

Our activities could solve a few modern economic and ecological issues. The technology and the products we develop can successfully substitute a hard to come by and expensive fish meal in fish food and other animal feeds, decreasing the negative externalities of production, such as greenhouse gas emission and water usage. We can obtain high quality protein without much water use, and the CO_2 emissions from insects is miniscule in comparison to animal farming, which is responsible for 51% of the world's GHG emissions. Farmed insects will also work as natural bioreactors – we feed them with organic waste, difficult to recycle otherwise. Introducing our technology on a bigger scale would also aid solving the issue of food waste – by feeding the insects uneaten food.

Support received from BRIdge Alpha helped us develop the idea through technology development and testing. We received funding at one of the most critical stages of any company's development – at the beginning, when the risk of failure is at its highest and success unknown. We received faith and support. We are planning on becoming the world's leader in supplying insect-based products, as well as related technology on the European market by 2020.

Damian Józefiak
CEO
HiProMine S.A.



"The technology and the products we develop can successfully substitute a hard to come by and expensive fish meal in fish food and other animal feeds, decreasing the negative externalities of production, such as greenhouse gas emission and water usage. We can obtain high quality protein without much water use, and the CO_2 emissions from insects is miniscule in comparison to animal farming (...)"

– Damian Józefiak , HiProMine S.A.


M28

Plane with latches and clips

Soon enough, the planes will be built with latches and clips. The innovative method, decreasing the risk of mechanical failure resulting from material exploitation, is supposed to surpass the current methods using conventional joints such as rivets and bolts. The constructions will be not only stronger, but also lighter, easier to assemble and cheaper to produce. Polish Aviation Works PZL in Mielec are working on "latched" planes alongside Lublin University of Technology, Bryk company producing cutting tools, and Wit-Composites specialising in composite structure production.

The consortium was awarded funding as a winner of INNOLOT Sectoral Programme, executed under the cooperation of NCBR and association of aeronautical companies representing the Polish Aeronautical Technology Platform. The funding is supplied for industrial research and development for innovative solutions in aeronautic industry.

Project:

"Development of innovative mechanic joints as a substitute for conventional joints in aeronautic structures – BloStEr"

Beneficiary:

Polish Aviation Works LLC

Value of the project:

PLN 13,327,915

Value of the funding:

PLN 7,996,733

Funding:

INNOLOT Sectoral Programme

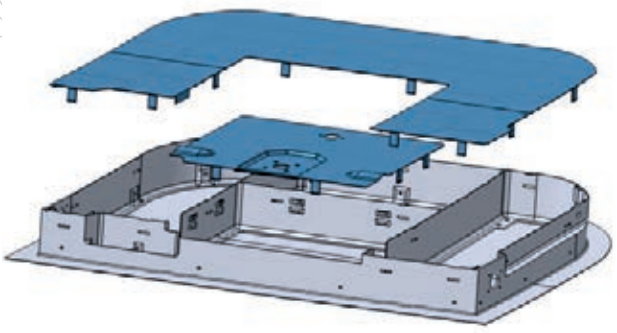
The idea is set to facilitate complicated aeronautic structures by one-step montaging, so-called *block structures*. The joint technology allows for greater overload, and is somewhat similar to everyday use technology of snaps in clothing.

Creating cooperating surfaces, "latching onto" each other, will diminish the number of elements and costs without losing the functionality and efficiency. Constructions in this scope include stressed skin elements with thin walls. The science team tests them on metals, composite materials and metal-composite hybrids. Every application has a unique geometry of the "latch", which will allow junction without an extra joint or glue. This will result in smaller number of elements and easier assembly, which will decrease the costs and increase the quality of the plane. The technology will be tested through production and testing of the fill-scale demonstrators joint together only by the *block structures* technology. M-28 plane, the flagship construction from Mielce, will be the "lab rat" of the project, and the technology will be implemented in its floors, steers and flaps.

Beneficiary's Opinion:

Issues that arise during manufacturing of aeronautical structures led us to embark on a mission to find a way to join elements together without the use of common joints, such as bolts or rivets. It is an innovative approach that will cut the costs and significantly decrease production time of the entire unit, yet still maintain the required joint strength and quality. Similar solutions can be found in other industries, and the probability of success in aeronautics is very high. We combine the materials in different configurations: metal-metal; metal-composite; or composite-composite. Resolving issues that were the base of BIoStEr programme, will lead to an increased competitiveness of our company on the aeronautics market, and will allow us to sign new contracts, and by extension, offering more employment opportunities for engineers and PZL Mielec staff. Currently the project is at a testing stage, where geometrically complex systems are built and then tested under pressure. The results will allow to verify the assumptions and be the base for production of final demonstrative models, to scale with real planes.

Tomasz Gałączyński, DEng
Director of Developmental Projects Office
PZL Mielec / A Sikorsky Company
Polskie Zakłady Lotnicze Sp. z o.o.



Concept of an Advanced Metal Aeronautic Structure

- More resistant
- Lighter
- More economical
- Simplified
- Eliminating human error at production

Courtesy of Polish Aviation Works PZL in Mielec.

SCAN THIS PAGE
WITH LAYAR APP

"Innovative technology we are working on will revolutionise aeronautics, increase planes' safety, and improve the stability and comfort of the flight.

PZL Mielec are already in the technological future, as this is the reality of the markets. We not only don't want be left behind, we want to be world leaders in new solutions."

– Janusz Zakręcki, CEO, PZL Mielec

POLTREG

From an idea to rocking the foreign markets

2.5 million Poles suffers from diabetes and the number is increasing at a staggering rate, due to lifestyle choices and food quality. Even worse, the disease of affluence is spreading towards the youngest part of the society, with the annual rate of new instances amongst children hovering around 1000. It is the highest indicator in all of Europe.

The idea to vaccinate against diabetes was devised by a sick child's father. With the scientists from Medical University of Gdańsk they developed a unique treatment method. The process starts with taking a blood sample from a diabetic patient and extracting regulatory cells, which are then multiplied and returned to the patient in form of a vaccine. The results were astonishing. After the therapy, some patients were taken off insulin for 3 years. The success was global.

This is how the PolTREG company was founded, supported by NCBR since the beginning. Thanks to

Project:

"Commercialisation of TREGS autologous lymphocytes-based vaccine on US market"

Beneficiary:

PolTREG LLC

Value of the project:

PLN 174,585

Value of the funding:

PLN 147,565

Funding:

Support for innovative companies commercialising the R&D results in the world market – Go_Global.pl

the funding, the technology was polished and patented. Today, the vaccine is on the verge of commercialisation, and the scientists from Gdańsk are ready to rock foreign markets. Produced in Poland, the vaccine could soon be allowed for use in the European Union, the United States and Canada, and the process used to create it adapted to treat other diseases.

Beneficiary's Opinion:

TREGS method, treating type 1 diabetes in children, financed thanks to NCBR, is improving the comfort of everyday life for our little patients. Daily insulin shots amongst children in the treatment sample were significantly lower. That means greater flexibility in the daily life of the children and their parents, decreased instances of the disease's dangerous side effects and future effects on their kidneys and eyes. The new laboratory and industrialisation of the method, thanks to the R&D works under the "Fast Track" programme are also a chance to reach many more sufferers with increased production output. In my line of work, the number one priority is the patient, so I'm very glad that relatively soon we will be able to offer many more treatments and lower the number of people we have to send back from our Centre in Gdańsk today. This method's implementation is also beneficial for the health and social systems in the long-run, and aids economic output by decreasing the effects of the disease on the labour force.

Prof. Małgorzata Myśliwiec, MD
Co-creator of the patented TREGS method

PolTREG lab at Medical University of Gdańsk.

"In my line of work, the number one priority is the patient, so I'm very glad that relatively soon we will be able to offer many more treatments and lower the number of people we have to send back from our Centre in Gdańsk today."

– Prof. Małgorzata Myśliwiec, MD, PolTREG

Knowledge-based economy

Students from Maria Curie-Skłodowska University had an opportunity to take part in paid internships in France, Spain, United Kingdom, Romania, Kazakhstan and Russia. The 5-year long programme focused on professional skills development benefited 1,629 participants. The project aimed to facilitate the introduction of the students to the job market, and consisted of a series of career advice meetings, entrepreneurial workshops, new majors and specialisations, as well as paid internships at home and abroad. Implemented by the University with cooperation from future employers, it was the biggest and most complex educational programme in Eastern Poland's higher education institutions.

The openness of the University to the dialogue with interested students and their potential employers allowed for the programme's evolution. The developments included an idea for short study visits to foreign companies and institutions. Thanks to this, future translators were able to see the work of interpreters in the European Parliament and other such opportunities were also carried out.

Project:

"UMCS for the job market and knowledge-based economy"

Beneficiary:

Maria Skłodowska Curie University in Lublin

Value of the project:

PLN 17,031,397

Value of the funding:

PLN 17,031,397

Funding:

Operational Programme: Human Capital

Sub-measure 4.1.1 Increasing of the didactic potential of higher education institutions

17 new specialisations were created, e.g. cyber-culture, e-editorship, official and business communication, cultural management, Balkan studies, cartography and geo-information. The level of execution and the results achieved brought accolades in competitions organised by various institutions, including the then Ministry of Infrastructure and Development and the Polish Agency for Enterprise Development.

Beneficiary's Opinion:

Implementing such a "tailor-made" project is an important factor in improving teaching quality at universities, and significantly influences the professional development and career choices of the youth.

Cooperation with the economy and honing of practical skills, paired with increased soft competencies, are hugely advantageous for graduates. Human capital investment brings real and measurable economic benefits, increases economic growth, and stimulates the competitive advantage of the enterprises.

The European Social Fund, designed to support people, their competencies and needs, plays a key role in that scope. We hope that the (prospective) future projects will support our students to an even greater extent on their professional path.

Anna Grzegorczyk
Project Coordinator
Interim Manager of the Centre for Innovation and Research Commercialisation at Maria Curie-Skłodowska University

UMCS receives an award for the "UMCS for the job market and knowledge-based economy" project.


REJESTRACJA

Politechnika Łódzka

Ready to work

Working on the relationship between science and business is the key mission of the National Centre for Research and Development. Specifically, we are interested in strengthening the cooperation between universities and the companies which may employ future graduates. Under the Operational Programme: Human Capital, NCBR supports projects which aim at development of students' competencies. Higher education institutions receive funding for qualifications increasing classes, such as: certified workshops, additional practical tutorials, and cooperation with foreign subjects, as well as potential future employers.

Thanks to the NCBR's funding, over 200 technical students of Łódź University of Technology took part in internships and workshops. The programme included: design thinking, entrepreneurship analysis, and planning and negotiation. Over 100 companies from Łódź and surrounding areas took in and trained 223 students. During the pilot programme "Business laboratory", the students executed 25 projects in cooperation with big corporations, such as: ABB, Accenture, Blue Brick, Comarch, Ericpol, Fujitsu, Siemens, and Transition Technologies.

The icing on the cake of the programme was a debate on entrepreneurial attitudes, attended by 190 of the project's participants.

Project:

"Business competences – support for Łódź University of Technology students"

Beneficiary:

Łódź University of Technology

Value of the project:

PLN 1,781,485

Value of the funding:

PLN 1,781,485

Funding:

Operational Programme: Human Capital

Sub-measure 4.1.1 Increasing of the didactic potential of higher education institutions

Beneficiary's Opinion:

The main aim of the project was the adjustment of students' competencies to the needs of employers and the labour market. The aim was achieved thanks to the execution of the developmental programme, encompassing both workshops and training sessions, 3-month long internships in enterprises cooperating with the Łódź University of Technology, but also the pilot programme for student projects executed alongside future employers.

The debate on entrepreneurial development, initiative and attitudes of the ŁUT's students and entrepreneurs was an extension of the project. The project allowed for students to gain practical, professional, interpersonal and analytical skills in the modern technological environment, and cemented the cooperation between the Łódź University of Technology and entrepreneurs focused on educating the students towards answering the needs of the labour market.

Grzegorz Kierner
Chair of the Department of Innovation
and Economic Cooperation
Łódź University of Technology

„The project allowed for students to gain practical, professional, interpersonal and analytical skills in the modern technological environment, and cemented the cooperation between the Łódź University of Technology and entrepreneurs (...)"

– Grzegorz Kierner, Łódź University of Technology

5. NCBR and Technology Readiness Levels

- TRL Framework
- NCBR's programmes

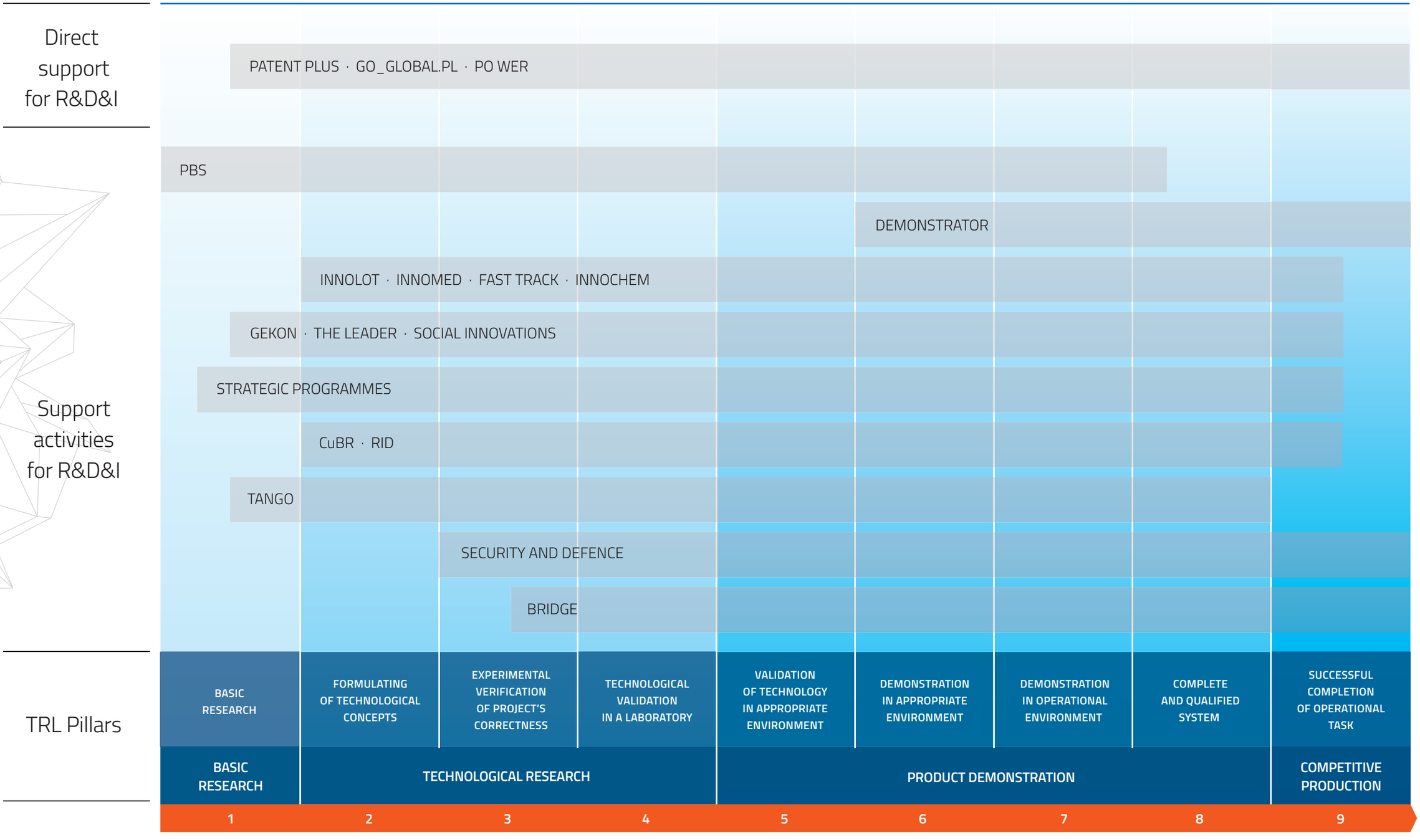
NCBR and Technology Readiness Levels

All activities of the National Centre for Research and Development are concentrated on bettering the quality of Poles' lives and strengthening the Polish economy. Modern technologies, services and objects developed in research centres, higher education institutions and science consortia are improving the competitiveness of our economy.

NCBR supports the most innovative Polish companies, often founded and funded by Polish scientists, and their international market entries. The cooperation with innovators is the basis of Centre's actions. NCBR assists the idea-makers on every stage of works – from project design up until commercialisation, including not only Polish, but also foreign market penetration.

The importance put on innovative implementations is mirrored in Centre's competitions. The scientists are offered support at the earliest stages of the works, not only by research financing, but also partner selection, development strategies formulation, or looking for potential consumers of created technology or service.

TRL Framework



Applied Research Programme (ARP)

Value of additional funding:	PLN 1,408,111,246
Number of projects:	484
Total value of activities funded:	PLN 1,653,464,117

Applied Research Programme supports scientists and entrepreneurs in research on particular solutions for various industries. The ARP incorporates two approaches. Firstly, the research is undertaken with the aim of gaining new knowledge in a particular field of science, having practical applications (e.g. research on a material that exhibits particular properties that may be useful for use in specific products or technologies – path A). Secondly, the research is conducted with the aim of fulfilling previously set practical targets, e.g. through application of new solutions in particular industries (e.g. modification of a material used in the specific product in order to improve its parameters – path B).

The works on 484 projects awarded financing in competitions (1–3) continued in 2015.

INNOLOT – Innovative Aeronautics

OP SG

Value of additional funding:	PLN 159,001,263
Number of projects:	11
Total value of activities funded:	PLN 281,641,913

INNOLOT commenced in order to increase the competitiveness of Polish economy in the field of high-tech production for aviation industry, through increasing the number of innovative solutions implemented in the industry, as well as strengthening of the R&D cooperation between science units and entrepreneurs. 11 projects which were awarded funding under the 1st competition continued in 2015. Moreover, 2nd INNOLOT competition was called for and completed, under Measure 1.2. "Sector R&D programmes" of OP: ID. Support for entrepreneurs applying on their own, or in industrial consortia, were awarded for financing new aeronautic technologies exhibiting the highest implementation and marketization potential. Allocation for the 2nd competition amounted to PLN 400 million. 19 projects were recommended for financing, with additional funding exceeding PLN 162 million, and the total value of the projects exceeded PLN 258 million.

INNOMED

OP SG

Value of additional funding:	PLN 99,583,729
Number of projects:	17
Total value of activities funded:	PLN 178,616,874

The execution of 16 projects awarded funding from the 1st competition continued in 2015. Moreover, 2nd INNOMED competition was called for and completed, under Measure 1.2. "Sector R&D programmes" of OP: ID. Funds for entrepreneurs and medical consortia were awarded for R&D of innovative technologies in the field of discovering and developing new drugs and therapies, and innovative technologies in production of generic drugs. The programme encourages the cooperation of science groups in possession of appropriate and useful know-how and proper research infrastructure, and R&D divisions of pharmaceutical companies. The main driver behind it is to improve the innovativeness of the Polish economy, and to increase the availability of modern medical supplies for the Polish people.

Allocation for the 2nd competition in 2015 amounted to PLN 95 million. 9 projects were recommended for financing, with additional funding exceeding PLN 57 million, and the total value of the projects exceeded PLN 96 million.

DEMONSTRATOR

OP SG

Value of additional funding:	PLN 420,787,041
Number of projects:	44
Total value of activities funded:	PLN 749,185,072

Continued since 2013, the competition is aimed at entrepreneurs opened to cooperation with universities and higher education institutions. Its aim is to strengthen the transfer of research results through supporting R&D works in the new technology before introducing them to market. The programme is based on a modern selection and management mechanism for projects on every Technological Readiness Level, which are to test the newly developed technology or product in the demonstrative scale.

Micro- and SMEs, as well as big enterprises can all apply for DEMONSTRATOR funding.

The execution of 44 projects awarded funding from the 1st competition continued in 2015. A call for the 2nd competition has also been made.

FAST TRACK

OPSG

Value of additional funding:	PLN 315,589,719
Number of projects:	80
Total value of activities funded:	PLN 447,834,858

Fast Track is a novel format for research and development support for entrepreneurs cooperating with higher education institutions and research teams, where the decision-making process has been shortened to 60 days. The programme aims at aiding companies taking part in so-called "technological race" where timing and quick responsiveness in the scope of innovation are key.

Funding is granted for industrial research and development on technological projects and solutions. NCBR strengthens the competitive position of enterprises taking part in National Smart Specialisation. Programme's budget amounts to PLN 1.6 billion. An important facilitation of entrepreneurs is novel application format. For the better part of the year it is the entrepreneur's decision when to apply.

1307 applications for PLN 11 billion have been submitted in 2015.

GEKON

Value of additional funding:	PLN 205,934,975
Number of projects:	59
Total value of activities funded:	PLN 279,770,758

The joint undertaking of the National Centre for Research and Development and the National Fund for Environmental Protection and Water Management is directed at entrepreneurs and science consortia that have entrepreneurial participants. The aim of the programme is the development of pro-ecological innovative technologies and their implementation in Polish businesses in various areas: environmental aspects of obtaining non-conventional gas; energy efficiency and energy storage; protection and rationalisation of the use of waters; obtaining energy from pure sources; and innovatory methods of obtaining fuels, energy or materials from waste, as well as recycling.

Projects selected consist of two parts: R&D and implementation are led by an entrepreneur interested in implementing the technology developed in their own business. 59 projects which had received funding in the competitions (1-2) continued in 2015.

LIDER

Value of additional funding:	PLN 217,191,560
Number of projects:	151
Total value of activities funded:	PLN 217,207,331

The programme is aimed at young scientists who want to gain experience in leading the execution of a research project, and increase their skills in building, managing and heading their own research team. The programme also stimulates the cooperation between scientists and entrepreneurs via the execution of activities that have implementation and commercialisation potential. Additionally, it improves inter-industrial and inter-university mobility, as well as mobility between science units.

151 projects which were awarded funding under the competitions (2-6) continued in 2015.

SOCIAL INNOVATIONS

Value of additional funding:	PLN 30,127,010
Number of projects:	41
Total value of activities funded:	PLN 33,516,657

The idea behind the Social Innovations Programme was to take actions which stimulate social development, as well as societal wellbeing. The programme was created in order to support scientists, entrepreneurs and NGOs which want to undertake social initiatives based on the achievements of science and engineering. The increase of inter-industry cooperation on the local, regional and national level is one of the key aims of the programme.

The programme is directed at consortia, which include at least one science unit and at least one entrepreneur, or at least two science units with the obligatory participation of a non-government organisation having legal status and its base in Poland. The programme offers three support instruments: additional financing for science units and non-governmental organisations, public funding for research and development for entrepreneurs, and de minimis support for actions leading to implementation of the results by entrepreneurs.

41 projects which had received funding under the competitions (1-2) continued in 2015.

STRATEGMED

Value of additional funding:	PLN 556,510,992
Number of projects:	30
Total value of activities funded:	PLN 654,737,759

PREVENTION AND TREATMENT OF DISEASES OF AFFLUENCE – STRATEGMED strategic research and development programme was created with the aging society, the rise of diseases of affluence and constantly increasing health care costs in mind. Its role is to support R&D aimed at advancements in the fight with diseases of affluence, and rehabilitative methods. Four areas of medicine are covered by the programme: (1) cardiology and cardiac surgery, (2) oncology, (3) neurology and senses, and (4) regenerative medicine. The programme is to stimulate the growth of innovation and competitiveness of the Polish economy in areas such as biotechnology or biomedical engineering. It will result in the compilation and implementation of new preventative, diagnostic, therapeutic and rehabilitative methods.

Advisory and financial support for projects winning competitions (1-2) was continued in 2015, with contracts from the 2nd competition signed. The call for 3rd Competition has been made, with 82 applications for funding of over PLN 1.4 billion submitted. The total of additional funding allocated amounted to PLN 1.28 billion. We finalised formal assessment of the applications, advancing 29 to the merit-based stage and recommending the rest for rewrite.

BIOSTRATEG

Value of additional funding:	PLN 108,135,560
Number of projects:	7
Total value of activities funded:	PLN 163,215,315

"Natural habitat, agriculture and forestry" – BIOSTRATEG strategic research and development programme deals with natural environment, agriculture and forestry. It aims at increasing innovativeness and competitiveness of the Polish economy, especially in agriculture, forestry and related industries. It is directed at science consortia which can apply for funding for research, development and implementation-related actions. BIOSTRATEG budget amounts to PLN 500 million. 7 projects, with financing of over PLN 108 million, are being executed under the 1st competition (2014). 2nd (out of 3) competition was finalised in 2015 by NCBR. 14 projects out of all submissions were recommended for funding which totalled over PLN 191 million.

CuBR

Value of additional funding:	PLN 88,618,895
Number of projects:	12
Total value of activities funded:	PLN 102,749,546

CuBR is a joint undertaking of NCBR and KGHM Polska Miedź aiming at creation and implementation of modern technologies, devices, materials and products, in order to increase the competitiveness of the Polish non-ferrous metals industry as a part of the global market and global economy. This, in turn, will allow Poland to achieve a leading position, especially in the production of copper. The budget amounted to PLN 200 million – equally co-funded by NCBR and KGHM.

The strategy is set to improve the efficiency of the production process (investing in new technologies, modernisation of infrastructure), the development of new mining technologies, new solutions in regard to the maintenance system, effective industrial risk management, and the development of the resource base through extraction of ones stuck deep down. The effectiveness of the undertaking is constrained by the complexity and quality of the research and its level of implementability. In order to maximise its effectiveness, four areas of expertise have been differentiated: mining and geology; ore handling; metallurgy, manufacturing, new materials; and environment protection, risk management, business effectiveness.

12 projects which had received funding under the competitions (1-2) continued in 2015. The 3rd competition under CuBR Undertaking was called for on December 21st, 2015. Planned budget amounts to PLN 108 million. 20 topics from 4 aforementioned areas entered the competition.

SECURITY AND DEFENCE

Value of additional funding:	PLN 3,144,409,452
Number of projects:	148
Total value of activities funded:	PLN 3,417,762,681

The National Centre for Research and Development, in agreement with the Minister of National Defence and the Minister of the Interior, conducts activities in terms of research on security and defence. Ventures that have the most actual potential for increasing public safety receive funding in competitions for particular research topics. The aim of the programmes and projects is not only to increase the potential of Polish science and industry subjects, but also to pursue technological independence through the creation of Polish expertise in terms of critical technologies regarding security and defence of the country.

TANGO

Value of additional funding:	PLN 41,951,953
Number of projects:	50
Total value of activities funded:	PLN 47,868,614

The National Centre for Research and Development and the National Science Centre decided to create a joint undertaking – TANGO – in order to facilitate science units in introducing modern technologies, products and services to the market. It offers funding for industrial and economic applications of research results, help in looking for business partners, and advice in legal matters of intellectual property protection. The funding will also go to market analyses, and industrial research and development.

TANGO competition can be entered by science units, PAS science centres, university science centres and individual scientists and offers funding up to PLN 1.15 million.

50 projects which had received funding under the 1st competitions continued in 2015. Applications opened for the 2nd competition.

Development of Road Innovations

(pol. Rozwój Innowacji Drogowych (RID))

Number of submitted applications:	76
Value of funding applied for:	PLN 172 million

The RID programme commenced under the cooperation of The Centre and the General Director of National Roads and Motorways in order to support road construction R&D. The goal of the project is to create and implement research on increasing the road safety, improve traffic management systems, as well as designing optimal standards for planning, design, technology and construction and maintenance of roads in Poland. The undertaking aims at supporting research that could aid development and modernisation of processes implemented by the GDDKiA and help the Director fulfil its mission, which, according to the Act on Public Roads is road network development and maintenance and construction of national roadways. The execution of the project will lead to development of design and surface technologies, increase road safety, modernise tools for network assessment and will offer new solutions for managing and protecting surround areas.

The projects financed under the scheme will lead to implementation of better, modernised and more effective models for planning, design, technology, construction and maintenance. The ever-expanding road network will be constructed and maintained on the basis of clear, modern and economical technologies and standards.

1st competition was called for and concluded in 2015, with 15 projects submitted by science consortia or units having been awarded funding which amounted to PLN 38 million. The budget for the undertaking amounts to 50 million and is equally co-funded by NCBR and GDDKiA.

BRIDGE

OPSG

Value of additional funding:	PLN 280,596,380
Number of projects:	14
Total value of activities funded:	PLN 420,496,324

BRIdge programme was created to aid technology transfer from science to the economy. The Centre and its partners offer support for: R&D projects in the early stages of development (BRIdge Alpha), venture capital investment (pilot project of NCBR – Public-private funding of commercialisation of R&D results through venture capital – investment component) and project analysis in order to attract private equity investors (pilot project of NCBR – Public-private funding of commercialisation of R&D results through venture capital – advisory component).

BRIdge is aimed at entrepreneurs, higher education institutions, research institutes, PAS institutes and private persons (individual innovators). Micro-, and SM-entrepreneurs can expect preferential treatment, especially if they are a start-up created in order to commercialise R&D results.

PATENT PLUS

Value of additional funding:	PLN 12,500,526
Number of projects:	48
Total value of activities funded:	PLN 17,833,094

The programme was created in order to encourage both scientists and the management of science units to improve their intellectual property protection via applying to patent their R&D results. The main goal is to increase the number of patent applications submitted, and thus to increase the protection of industrial intellectual property created in Polish research organisations (science units) or created through the cooperation of Polish research facilities with entrepreneurs. It should also help to intensify the commercialisation of the created inventions.

26 contracts for execution and funding of the projects have been signed under the 4th competition in 2015. 48 projects which had received funding under the competitions (1-4) continued in 2015 alongside those selected by the Minister of Science and Higher Education for his *Patent Plus – support for patenting inventions programme.*

GO_GLOBAL.PL

Value of additional funding:	PLN 13,913,737
Number of projects:	40
Total value of activities funded:	PLN 16,941,389

The main task of the venture is to support innovative companies commercialising R&D results in global markets. The programme assists in creating an entry strategy for the world markets, preparing innovations developed in accordance with global markets requirements, and verifying the strategy, in particular through evaluation performed by venture capital institutions operating in foreign markets. The addressees of the venture are micro- and SMEs performing within high-tech (and medium high-tech) service industries. Supported industries include: ICT, construction, automatics and robotics, biotechnology and telecommunication.

PO WER

Operational Programme: Knowledge Education Development was created in response to reforms required in the scope of employment, social inclusion, education, higher education, health and improvement of the country's structures. Its aim is to support social innovations and supranational cooperation in this area, as well as youth employment initiatives implementation in Poland. The National Centre for Research and Development acts as an intermediary under the 3rd Priority Axis: Higher education for economy and growth.

Through organised competitions, the programme aims to support higher education and includes: education and training fulfilling the requirements of modern economy, labour market and society; improvement in PhD courses' quality and environment; increase in openness and international mobility, as well as an increase in quality of teaching and universities' management.

The budget amounts to EUR 1,351 million.

Projects dedicated to skill development in higher education, that is „Competence Development Programme, Are you studying? Practice!" and „Academic Career Offices" have been funded under OP: KED in 2015. Total allocation for the competitions amounted to PLN 430 million. Moreover, 3 non-competitive projects executed by the MS&HE have been assessed: „Professional training programme in State Professional Schools", valued at PLN 136 million, „PhD education: creating diverse PhD curricula", valued at PLN 5 million, as well as „The best of the best!" which aimed at supporting extraordinary students at international competitions, valued at PLN 8 million.

INNOCHEM – sectoral programme for chemical industry

OPSG

INNOCHEM was created as a response to a study from chemical entrepreneurs submitted by the Polish Chamber of Chemical Industry. Supported under the programme are innovative projects encompassing prospecting of raw materials, and manufacturing of basic and specialist products by the means of new technologies and so-called horizontal areas, that is optimisation of processes and manufacturing technologies with low emission

The aim of the programme is to strengthen entrepreneurial skill to generate innovative solutions in cooperation with the science sector, as well as the improvement of competitive position of the Polish chemical industry in world markets.

Programmes commencing in 2016

INNOSBZ – new sectoral programme for unmanned systems

The programme is a response to industry's needs and was requested by WB Electronics for the Polish Aeronautical Technology Platform for Unmanned Aerial Systems. The first edition of this competition will be available to entrepreneurs requiring funding for research on civilian unmanned planes and platforms, and their accompanying technologies. The total funding pool amounts to PLN 50 million.

NCBR plans on allocating PLN 35 million to research on unmanned planes of mini class, VTOL/STOL, small and medium range, MALE and helicopters. Moreover, part of this money will go to construction of unmanned land and over-water platforms. Another PLN 15 million will go to companies manufacturing subsystems, subparts and technologies for unmanned platforms, such as companies producing sensors, communication and navigation systems, analysis and image processing tools, manipulators and effectors, as well as industrial applications inventors.

The systems created thanks to NCBR funding will be used by the police, fire department, crisis management service, border patrol, forestry service and a variety of specialist enterprises.

SYNCHEM – new sectoral programme for chemical industry

The aim of this new programme, jointly created by NCBR and Synthos, is to support research and development for new generation of chemical products. The initiative is directed at science-industrial consortia, and will aid the innovativeness of the chemical industry.

The applicants can apply for funding for research and development for new generation of chemical products, that is: ecological anti-degradants, high-efficiency elastomers, bio-pesticides, fibres and composite materials for the manufacturing industry and medicine.

INNOTEXTILE – new sectoral programme for textile industry

The National Centre for Research and Development has prepared INNOTEXTILE programme for textile industry. Funding, with budget amounting to PLN 60 million, will be available to entrepreneurs and entrepreneurial consortia working on new technologies and innovative projects in clothing and textile industry. The programme was created per request and a study submitted by the Federation of Apparel & Textiles Industry Employers (PIOT).

INNOTEXTILE focuses on seven areas of research, which can be financed under a dedicated programme. They include: personalisation of fashion design, individualisation of textile design and production per individual order. The research will also tackle development of computer systems for clothing design and construction, creation of textiles with built-in physiological monitoring systems of the wearer, as well as special textiles such as protective clothing against electromagnetic smog.

Implementing innovative technologies in textiles will further advance such areas like medicine, agriculture, and construction – where textiles usage is very important. R&D works in the textile industry will aid innovativeness of other sectors of Polish economy.

GAMEINN – new sectoral programme for video games industry

GAMEINN programme supporting Polish video game producers was created per request of the Polish Games Agreement (pol. *Porozumienie Polskie Gry*) signed by 9 renowned Polish video game producing companies.

PLN 80 million will be allocated for innovations in game industry in the 1st competition. The funds will aid creation and development of technologies such as multiplatform graphic engines, real images mapping, 3D modelling for expansive virtual realties, or the use of artificial intelligence.

INNOSTAL

INNOSTAL programme, created thanks to the Polish Steel Association's initiative, will aid innovations in steel industry, and increase its competitiveness before 2026.

The initiative is aimed at stimulating research activities in the steel sector, and diminishing negative environmental externalities, by e.g. decreasing energy consumption in metal production. Thanks to the funding, new production technologies for alloys and recycling will also be developed.

PLN 120 million will be allocated to the 1st INNOSTAL competition.

European Funds

European Union

Project co-financed from European Union funds
under the European Regional Development Fund
and European Social Fund.

The National Centre
for Research and Development

SCAN THIS PAGE
WITH LAYAR APP