POLITYKA INSIGHT | **RESEARCH**

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National champions

How they support innovation

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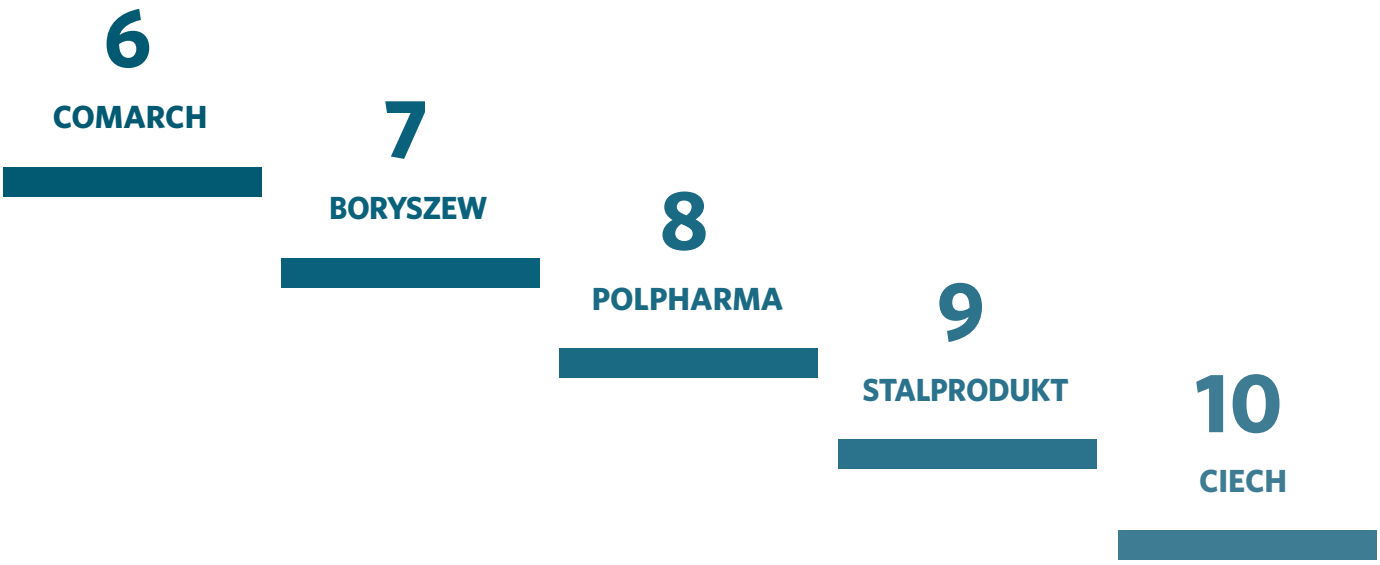
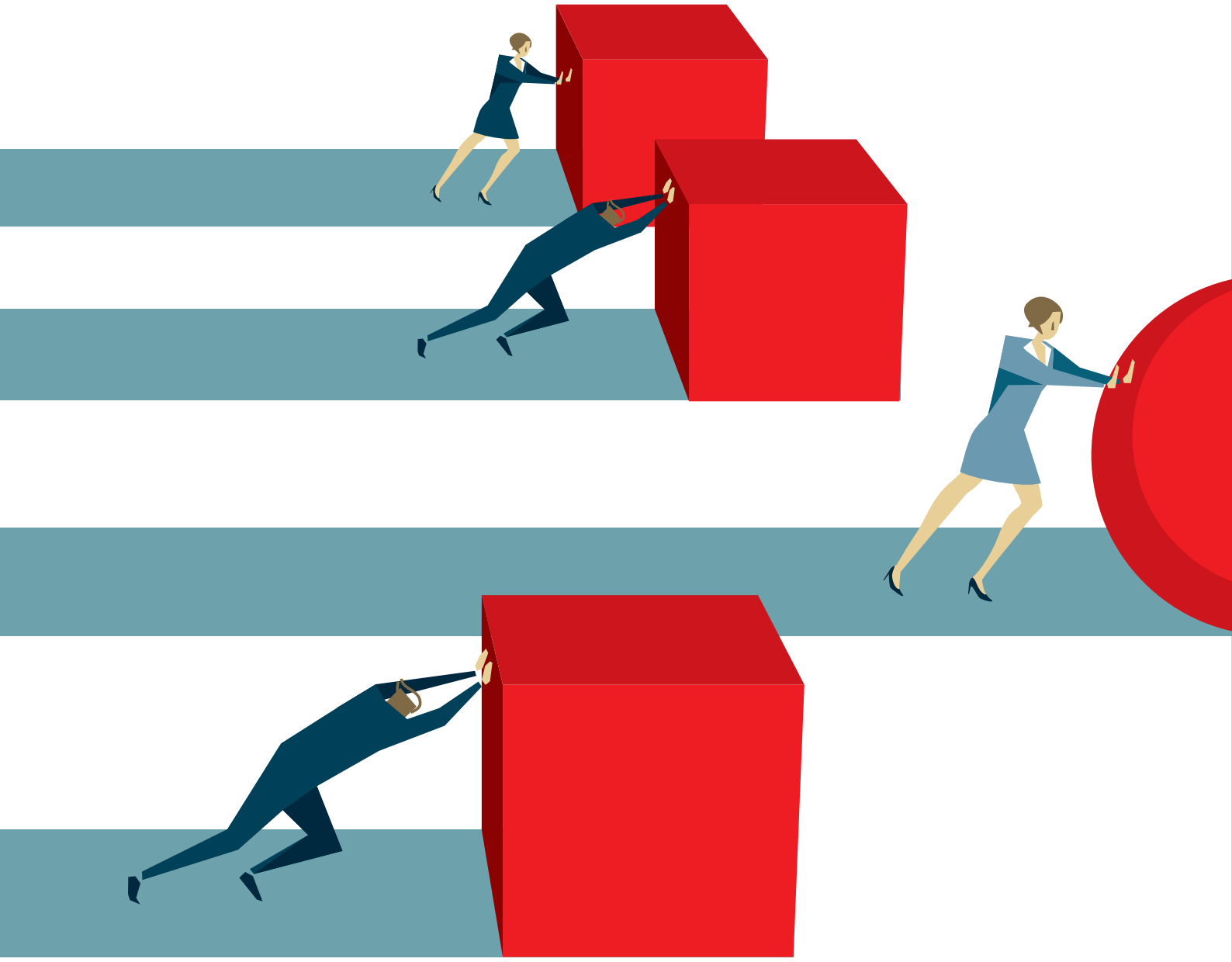
	Marcin Chludziński	Daniel Obajtek	Zbigniew Warmuz	Adam Góral	Piotr Woźniak
Headquarters	Lubin	Płock	Oświęcim	Rzeszów	Warszawa
Employment	34,053	20,262	2,975	24,053	24,694
Value Added	10,041	9,930	1,725	3,517	9,428
ROA	4.5	11.8	10.6	4.0	6.1
Share of sales on foreign markets	73%	56%	68%	80%	19%
Main sector	Extraction of non-ferrous metal ores	Production and processing of refined petroleum products	Production of synthetic rubber in primary forms	Software-related activities	Trade of gas through mains
2018 ranking	1	2	5	7	3

* on April 17, 2019 ** own calculations. Financial data for 2017.

Top ten in the ranking of national champions



Janusz Filipiak	Piotr Lisiecki	Markus Sieger	Piotr Janeczek	Dawid Jakubowicz
Kraków	Warszawa	Starogard Gdański	Bochnia	Warszawa
5,541	10,135	5,967	6,088	3,876
503	1,369	917	769	863
2.9	5.0	-3.1	7.0	8.5
58%	64%	20%	40%	58%
Software-related activities	Aluminum production	Production of pharmaceutical substances and medicines	Cold rolling of narrow strip	Production of basic inorganic chemicals
8	10	6	20	4



What is innovation

An innovation means a new or perfected product or process (or a combination thereof), differing significantly from previous products or processes offered by a given entity. The new product, service or process needs to be implemented and made available to users (OECD, Eurostat).

Effective development of an ecosystem fostering innovation is dependent on numerous factors: friendliness of the regulatory environment, availability of qualified workers, easiness of conducting business, quality of education, cooperation of science and industry, availability of financing, government incentives and availability and usage of modern technologies.

A coexistence of these factors is usually found in highly developed countries. Hence innovation rankings are topped by Switzerland, the Netherlands, Sweden (Global Innovation Index 2018), Germany and the United States (The Global Competitiveness Report 2018) or Sweden and Denmark (European Innovation Scoreboard 2018).

Innovations have been Poland's Achilles heel for years. In 2017 research and development expenditures rose to PLN 20.6 billion (+14.6% in comparison to 2016, GUS); however, they still constitute just 1.03% of GDP, one of the lowest results among EU countries. Average expenditure on research and development in the EU exceeds 2% of GDP. In Germany, government agencies and educational institutions spend around EUR 100 billion on R&D per year, over 20 times more than Poland. Also, large global companies such as Samsung (over EUR 13 billion in 2017 according to 2017 Samsung Financial Report) outperform Poland in research and development expenditure.

Polish companies ceased to base their competitiveness on low product price and started to build their position on international markets thanks to quality and design. To implement products that could be successful internationally, they must become pioneers, not followers. Instead of importing technologies, they should create them. They can achieve it by increasing their expenditures related to innovation. This should be encouraged by the government, which should follow the example of solutions implemented in other countries to form an innovation-friendly environment for business. An increase in innovativeness is a chance for Poland to avoid the middle income trap.

How countries support innovation

Government financial support

Lack of financial incentives related to investing in research and development, as well as limited access to capital, are among the typical problems of countries trying to create an innovative economy. Active governmental support, ensuring financing of scientific research and access to capital for startups, as well as tax exemptions encouraging increased research and development expenditures, helps with overcoming these barriers.

Government financial support for research and development in companies focuses on two main areas – direct (grants) and indirect financing (tax policies). In recent years OECD countries have been increasingly using the latter solution. In 2017, 30 out of 35 OECD countries, as well as 21 of 28 EU members, implemented tax exemptions (OECD, 2018). According to OECD, direct financing of research and development expenditures is dominating in Russia, Hungary, the US, and Israel, while tax exemptions constitute the majority of R&D support in France, Belgium, Ireland, and the Netherlands.

In 2016, direct financing of research and development expenditures of companies in Russia constituted 0.38% of the state's GDP, while tax incentives amounted to 0.11% of GDP. In France the ratio was reversed – tax exemptions constituted 0.29% of GDP, while direct financing amounted to 0.13% of GDP.

France offers, among other solutions, tax exemptions for companies investing in research and development. Entrepreneurs can deduct 30% of R&D expenses of up to EUR 100 million and 5% beyond that amount from the tax basis. Additionally, the French government introduced special arrangements for new, innovative companies. These include solutions such as exempting the personnel of research and development divisions from social security contributions, which translates into lower costs of employment of scientists.

The United Kingdom and Ireland, besides R&D tax exemptions, have also introduced tax instruments supporting companies that had already developed and implemented innovations. British Patent Box and Irish Knowledge Development Box allow lower taxation of profits from new patents and intellectual property. In Ireland, CIT rate amounts to just 6.5% in such cases. A similar solution (IP Box) has been introduced in Poland in 2019 (CIT 5%).

Mobilisation of Private Capital

Policies supporting innovation should be conducted prudently, preventing state funds from replacing private, more effectively allocated capital.

In the US, the system of financing promising companies is based mostly on private venture capital funds. Such funds invested EUR 39.4 billion in 2016, dwarfing the result of EUR 6.5 billion invested in Europe. VC funds are a source of financing for innovative companies at critical expansion stages. Easier access to private capital has led the US to a greater number of "unicorns", i.e., startups whose capitalisation surpassed USD 1 billion in a short period of time. In 2017 there were 26 such companies in Europe and 109 in the US (European Commission, 2018).

In Poland, the government and institutions associated with the Polish Development Fund Group (*Polski Fundusz Rozwoju, PFR*) try to support the development of innovative companies and stimulate the venture capital sector using EU funds. PFR funds have around PLN 2.2 billion for the purpose of financing new companies. They aim at cooperating with venture capital funds, increasing the amount of financing to PLN 3.7 billion. The integration of private business into the process can increase the effectiveness of investments.

Friendly regulatory environment

One of the essential elements influencing the growth of innovativeness is the legal system. The ability of lawmakers to swiftly react to the needs and challenges of the new sector is crucial. It allows for attraction of business representatives, whose solutions help with modernising other branches of industry – the so-called spin-off mechanism. Another important aspect is the openness of government administration to debate with entrepreneurs, as well as the willingness to create regulations in a way that fosters business enterprises.

Regulatory sandbox

A regulatory sandbox is an excellent example of co-operation of government and companies fostering the creation of an appropriate regulatory environment for a specific sector (D. A. Zetzsche, R. P. Buckley, J. N. Barberis, D. W. Arner, 2017). This solution is used by countries that want to support the development of financial sector companies using IT tools to conduct business activities (FinTech, TechFin, and InsurTech companies).

The United Kingdom, and specifically the British financial market regulator – the Financial Conduct Authority – was a pioneer of the regulatory sandbox. In 2015, the agency published a report pointing to the need of introduction of a tool that would allow for the identification of barriers for innovative financial businesses based on IT solutions. The example of United Kingdom was followed by other countries – Australia, Hong Kong, Malaysia, Singapore, the US, Switzerland, Thailand, and the United Arab Emirates. These states also implemented regulatory sandboxes to align their legal system with the needs of the dynamically transforming financial sector.

In October 2018, the Polish Financial Supervision Authority Office (*Urząd Komisji Nadzoru Finansowego, UKNF*) announced the introduction of a regulatory sandbox. It is meant to be targeted at startups with untested, innovative financial products and services based on modern information technologies (IT). The regulatory sandbox can be used also by entities that already have some financial solutions on offer and would like to conduct further tests in order to develop new services or business models. In November 2018, the UKNF chose sandbox operators that are going to create virtual environments for companies, allowing them to test their solutions.

Cryptocurrencies

Another example of an area allowing the creation of a friendly regulatory environment is the fast-growing cryptocurrency (bitcoin, tether, ripple, ethereum, etc.) trade. Some of them are used as currencies; others are more similar to securities. Cryptocurrencies allowed for the creation of new types of enterprises: markets (Robinhood, Coinsquare, Coinbase), exchange bureaus, companies offering blockchain technologies (allowing trading cryptocurrencies) and enterprises manufacturing cryptocurrency mining equipment (Bitmain, Canaan, Ebang). Many of those began as startups, choosing countries offering friendly legal solutions as their headquarters. Companies settling their finances using virtual currencies pay attention to aspects such as taxation of turnover and profits, regulation of initial coin offering (ICO – crowdfunding offers based on blockchain technology), and anonymity during the conduction of cryptocurrency transactions.

Different countries approach cryptocurrency regulations in different ways. Malta, Switzerland, Denmark, Germany, Singapore, Slovenia, and UAE would like to benefit from the new sector. In Belarus, cryptocurrencies became legal in March 2018, and virtual mines and exchange bureaus have been exempted from taxes until 2023. Similar companies are also exempt from public duties in Portugal, Germany and Hong Kong (The Law Library of Congress).

Poland is still in the process of introducing a legal framework for cryptocurrencies. An act that entered into force on the January 1, 2019 states that income from cryptocurrency trade is qualified as monetary capital or capital income (tax 19%), even if the revenue from turnover constitutes a part of business activity. Beforehand, they were taxed using general provisions (PIT and CIT, 18% or 32%) or flat tax (19%). Loss on cryptocurrency trade cannot be deducted from another type of taxpayer's income. Additionally, the abolition of currency exchange tax shall be beneficial to cryptocurrency markets and exchange bureaus. Virtual currency buyers will not deposit advances on income tax, which shall be settled in annual statements.

Autonomous Cars and Space Regulations

Regulatory activities of countries can also stimulate the development of new technological solutions at an early stage of development and only gaining popularity. One should pay attention to legislative initiatives focused on public utilisation of autonomous cars.

The United States, Germany, the United Kingdom, and the Netherlands are leaders in this sector. These countries introduced provisions regarding licensing and rules of transport and testing on public roads (collision liability, insurance) of autonomous vehicles. New regulations are being also introduced by Asian countries – Singapore, South Korea and China (T. Peng, Global Survey of Autonomous Vehicle Regulations).

Another interesting example is the initiative of Luxembourg – SpaceResources.lu. It concerns the creation of a friendly regulatory and business environment enticing companies and investors from all over the world to engage in projects related to extracting raw materials from other planets and celestial bodies (space mining). The government of Luxembourg wants to support advanced R&D activities as part of a strategy of attracting advanced space industry. Luxembourg is the second (after the US) country in the world offering a legal system that regulates mining and utilization of extraterrestrial resources. The system ensures the rights of private operators to the mined resources, as long as their headquarters are located in Luxembourg.

Friendly administration

It is easier for innovative companies to thrive in countries that invest in modern administration, which allows for settlement of numerous matters and sharing public data online. This gives entrepreneurs a possibility to save time and focus on their business activities. Additionally, digital administration lowers the risk of corruption, making the traces of unlawful actions much harder to conceal. This in turn increases economic stability.

Estonia is a good example of a country focused on digitalisation of administration and of the society as a whole. The development of e-government has begun in 1997; currently 99% of all public services is available online. Thanks to the introduction of further digital conveniences, Estonians can settle their taxes via Internet, use electronic IDs, vote in elections online, have remote access to their medical data, as well as notify the police about an accident or a dangerous event. Foreigners can apply for e-residence in Estonia and so set off their business there.

The Estonian government is working on further facilitating measures for their citizens, which are intended to adapt the country to new challenges to a greater extent. One of the priorities is cybersecurity, especially since April 2007, when Russian hackers attacked Estonian IT systems. This attack caused a blockage of websites of the parliament, the ministries, banks and mass media. It encouraged the Estonian government to base the infrastructure on blockchain technology, offering better protection of public IT networks. Estonian efforts have been recognised by NATO which in 2008 located its Cooperative Cyber Defence Centre of Excellence (NATO CCD COE) in Tallinn, employing cybersecurity experts. In 2003, Estonia also became the birthplace of Skype internet communicator, which is currently owned by Microsoft.

Infrastructure of innovativeness

States play an important role in supporting innovativeness by helping in the development of broader infrastructure. This goes beyond the traditional road, rail and air infrastructure that improves human mobility and regional growth, as it also encompasses technologic infrastructure, allowing the development of completely new businesses.

5G network development might become the greatest challenge and chance in the coming years. 5G mobile internet is supposed to be even 100 times faster than current LTE/4G technology, allowing data transfer of up to 10 Gbps. Introduction of the new standard should accelerate the development of Internet of Things: autonomous cars communicating with each other, telemedicine allowing remote surgeries and teleworking with the possibility of remotely controlling devices and vehicles.

Countries among the first to introduce 5G will increase the growth opportunities of high tech companies, attracting investments and improving the competitiveness of economy. Introduction of the new standards will require changes in the legal system, coordination with neighboring countries (in case of Poland, which borders with non-EU countries) and billions in investments. One of the leaders in 5G implementations is Germany; in 2017, the country has adopted “5G Strategy for Germany”. According to the German government, 5G will be a key technology, improving the efficiency of companies and administration and contributing to economic development.

In January 2018, the Polish Ministry of Digital Affairs presented an initial draft of 5G implementation strategy. The proposed framework was criticised by the Office of Electronic Communication (*Urząd Komunikacji Elektronicznej, UKE*) and other entities. Due to ongoing works and consultations, the draft still requires government acceptance. In December 2018, the Ministry of Digital Affairs presented a draft of an amendment of the act on supporting the development of telecommunications networks and services, the so-called megaact, meant to enter into force in 2019. Its goal is to facilitate investments in broadband networks in Poland, especially 5G, and to lower their cost. The Ministry estimates that implementation of the 5G standard in Poland is going to cost PLN 10-20 billion.

Support for Small and Medium Enterprises

Legal tools supporting small and medium businesses are another crucial part of innovation ecosystems. States have been introducing into their legal systems new, flexible legal forms of conducting business activities, aimed at promoting capital attraction from investors and easing company transformations. One of the widely popular solutions is abandoning the minimum share of capital requirement in case of commercial companies or lowering it to a symbolic level (such as EUR 1.0).

Some countries strive to simplify mergers and acquisitions in order to facilitate raising capital by new enterprises. One such example is Israel that has in 2017 introduced provisions facilitating mergers and acquisitions of tech companies. These provisions define tax exemptions in case of company transformation and share sales, helping to optimise the fiscal aspect of business activities. Additionally, in 2016 Israel has introduced tax exemptions for "angel investors" investing in tech startups. The German stock market created a new platform for SMEs in 2017, helping them in raising funds for their activities.

The European Union directive 2014/24/EU on public procurement, introduced in 2014, also supports SMEs by introducing a new mode of contract awarding, in the shape of innovation partnership. The objective of this new mechanism is to promote purchases of innovative products, construction works and services by public institutions, as well as encouraging SMEs to participate in tenders.

Clusters

States and organisations can support innovation by creating clusters that group companies with a similar profile, such as aviation or defense. One such example is the European Network of Defence-related Regions (ENDR), supported by the European Commission. The objective of the Network is the facilitation of sharing best practices and business and scientific experience related to development of dual-use technologies. It organises workshops for companies related to funds raising and promotes creating business partnerships that can participate in tenders in EU member states.

Other, similar enterprises can be pointed out, such as the European Regions Research and Innovation Network (ERRIN), created in 2001 and including 130 members, or the Network of European Regions Using Space Technologies (NEREUS) and the Startup Europe Regions Network (SERN), created in 2015. China also promotes the establishment of industry clusters and develops similar forms of cooperation in steel, space, IT, electronics, artificial intelligence and other sectors. China is also planning to create 19 regional superclusters with various specialisations before 2020 (World Economic Forum).

Industry specialisations

States promote innovativeness by supporting companies from chosen sectors, deemed promising or strategic. Israel promotes development of advanced military technologies. New solutions related to defense became in 1970s a catalyst for development of companies creating civilian and dual-use technologies. The development of Lavi airplane, despite the project's failure in 1987, allowed the engineers to gain competence in electronics, aerodynamics, physics and material science.

Currently three Israeli companies are present on the list of top 100 weaponry manufacturers created by Stockholm International Peace Research Institute (SIPRI). These are: Elbit Systems (28th place), Israel Aerospace Industries (41st place) and Rafael (45th place), with total sales exceeding USD 7.9 billion in 2017, which is comparable to results of German and Japanese companies (SIPRI Fact Sheet, December 2018). Israeli companies benefit from numerous domestic orders, as well as diversified exports. They specialise in manufacturing advanced electronics, optoelectronics, computerised communication systems, heavy armored vehicles and tanks, drones, artillery systems, missile systems and battlefield management systems, among others.

Russia is also investing in defense technologies, with Russian companies responsible for 9.5% of global weaponry sales. On the top 100 weaponry manufacturers list published by SIPRI, there are 10 Russian companies present, with total sales of USD 37.7 billion in 2017. These are Almaz-Antey (10th place, missile and radar systems), United Aircraft Corp. (14th place, combat aircraft), United Shipbuilding Corp. (15th place, combat ships), Tactical Missiles Corp. (23rd place, missile systems), and Russian Helicopters (29th place, combat helicopters). The extensive Russian industry and defense sector employs over 1.3 million people. In 2014 it encompassed 1,339 organisations and companies (EUISS, 2017). Russian companies are investing in new technologies in order to maintain the export dynamics and remain competitive on the global defense market. As they are state-owned companies, free from EU regulations concerning public aid, they are supported by direct transfers of funds for R&D activities.

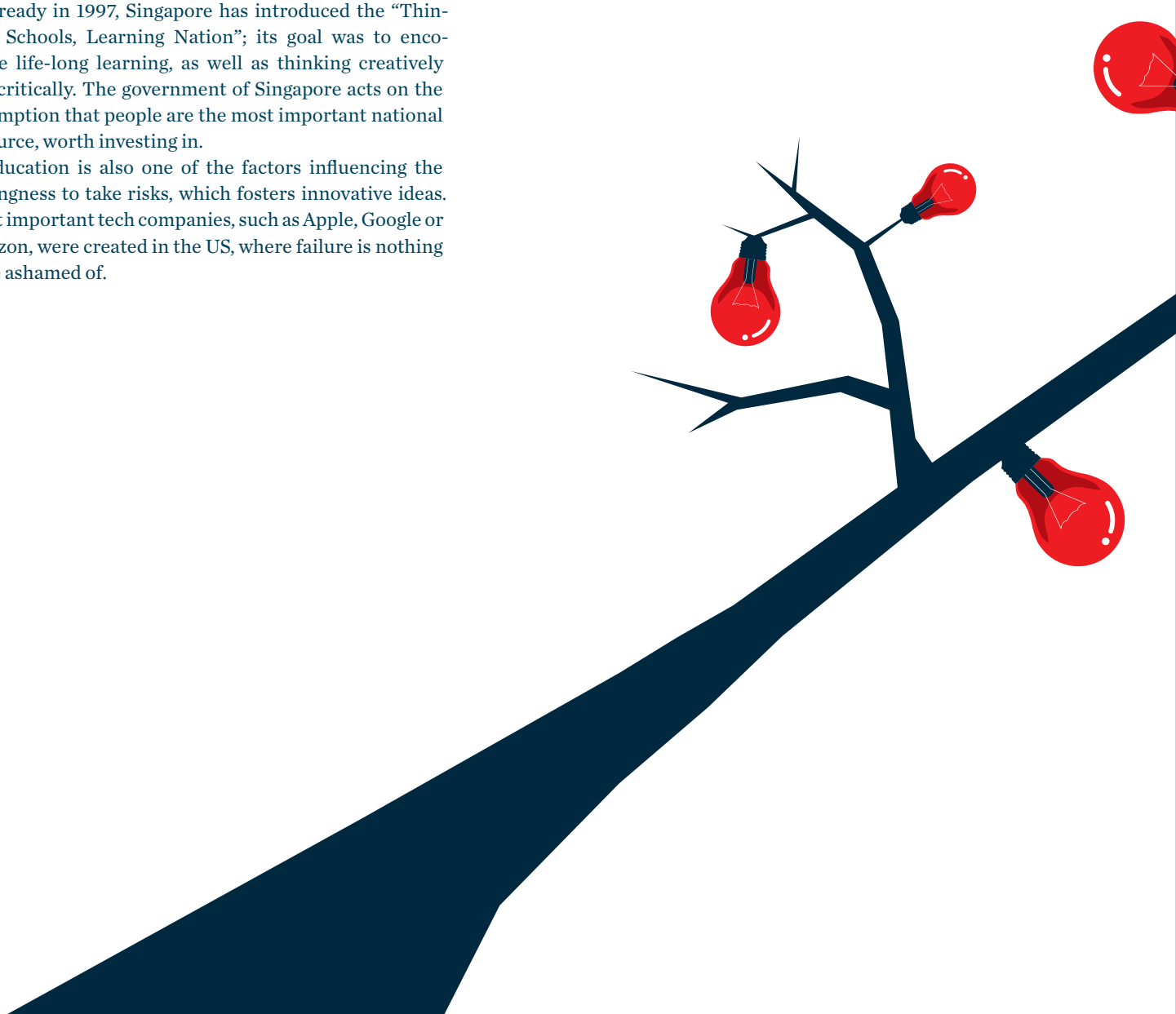
Building the innovation culture

The creation of new or significantly perfected products, services and processes requires non-standard thinking and specific skills, such as creativity, openness, determination in reaching objectives and willingness to take risks. Their development is dependent, among other factors, on the ability of the educational system to keep up with social and economic trends.

Finnish students receive some of the highest marks in PISA (Programme for International Student Assessment) studies organised by OECD. The Finnish education system is based on cooperation between schools. Teachers are strictly scrutinised and the profession is highly compensated and prestigious. During classes, teachers promote emotional and social development of children instead of just following the curriculum. Schools in Finland foster creativity, while limiting stress and fatigue of children.

Already in 1997, Singapore has introduced the "Thinking Schools, Learning Nation"; its goal was to encourage life-long learning, as well as thinking creatively and critically. The government of Singapore acts on the assumption that people are the most important national resource, worth investing in.

Education is also one of the factors influencing the willingness to take risks, which fosters innovative ideas. Most important tech companies, such as Apple, Google or Amazon, were created in the US, where failure is nothing to be ashamed of.



Cooperation of business and science

A large part of potential innovations is created at universities and in research centers. Unfortunately, the effects of scientific research are rarely commercialised, also due to the lack of appropriate cooperation between science and industry. For universities, cooperation with companies means additional source of financing, for business it would mean a source of qualified employees.

Studies conducted in 2016 on behalf of the European Commission show that the main barriers for cooperation between science and industry are lack of awareness of research, insufficient funds for cooperation, bureaucracy, lack of time among the scientists and requirements of businesses regarding research confidentiality. These studies also show that cooperation of European universities and the industry concentrates mainly on research and development, student mobility and consulting. Experience of scientists regarding work in commercial companies definitely promotes cooperation – the longer scientists work at universities, the less inclined they become to cooperate with the industry.

Activities undertaken in Poland

One of the pillars of the Strategy for Responsible Development (*Strategia na rzecz Odpowiedzialnego Rozwoju, SOR*), adopted by the Polish government in February 2017, is increasing the innovativeness of Polish economy. SOR predicts that expenditures for research and development in Poland will rise to the level of 1.7% of GDP in 2020 and up to 2.5% of GDP until 2030. The government already initiated various activities fostering the growth of innovativeness, however the 2020 goal might be difficult to reach and the effects will be visible only after a few years.

In September 2016, the Ministry of Science and Higher Education published the Innovation White Paper. This document identifies 58 legal and organisational solutions required to prepare regulations promoting innovativeness. Some of the regulations have already been adopted or are on the stage of preparation.

2016 saw the adoption of **an act defining the framework for innovative business activities** (first act on innovativeness), while 2017 – an amendment of some acts, improving the legal environment of conducting innovative business activities (second act on innovativeness). This new law implements the possibility to deduct even 100% (150% in case of R&D centers) of deductibles related to research and development activities (qualified costs) from the tax basis. The option of deducting costs for R&D activities was extended from three to six years.

Entrepreneurs with a research and development center status are exempt from property taxes, as well as the agricultural and forestry tax. New regulations extended the exemption of double taxation for limited companies and partnerships limited by shares engaged in R&D activities till 2023. According to new regulations, contributions of intellectual and industrial property to the company is no longer subject to income tax.

The act on supporting new investments, in force from mid-2018, lowered the income threshold for public aid (such as tax exemptions) for investments in research and development centers.

The act on higher education and science in turn, in force since October 2018, has introduced a number of changes into the functioning of higher education. The goal of new regulations is to streamline the functioning of universities. The Ministry prioritises closer cooperation of education and business, using the "implementation doctorates", among others.

January 2019 saw **the amendment of acts on PIT and CIT**, introducing the IP Box (Innovation Box). This is a type of tax incentive, aimed at potentially increasing the attractiveness of conducting R&D activities. Thanks to IP Box, company income gained from intellectual property rights, through R&D activities or R&D services purchased from other entities (patented by the company) will be subject to a preferential 5% tax rate.

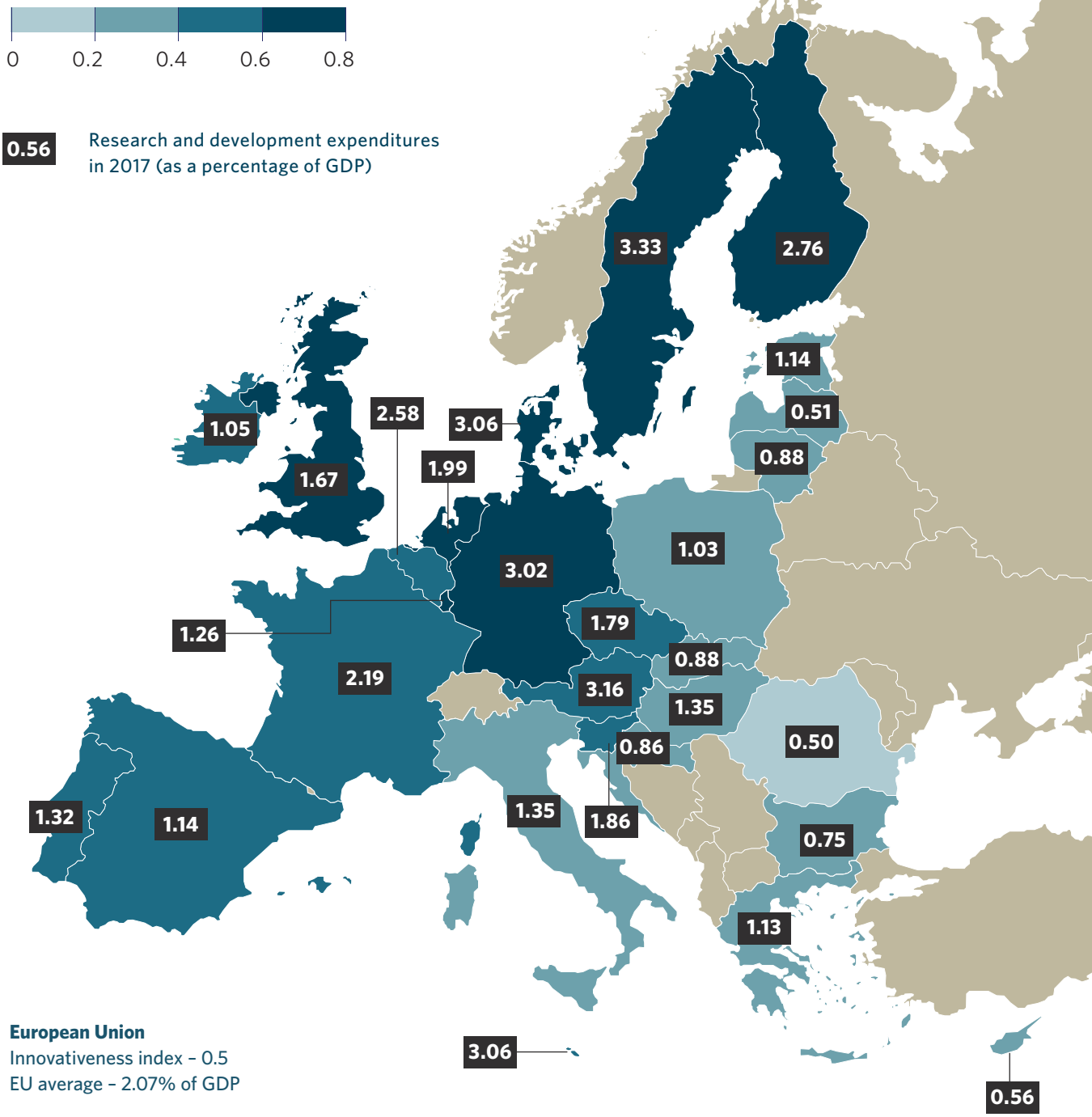
The act on Łukasiewicz Research Network should come into force in 2019. This network, composed of dozens of scientific institutions, will conduct research of major importance to national economic policies and will support commercialisation of results of R&D activities. In January, Piotr Dardziński, the Deputy Minister of Higher Education and Science, became the government plenipotentiary for the research institutes reform.

The Polish Patent Office (*Urząd Patentowy RP*) is considering a creation of **a single electronic database**, gathering information regarding technologies and patent owners (National Intellectual Property Bank). It would be free to use for all interested parties and facilitate finding a technology partner. The bank would contain, among others, information about copyright, patents, trademarks and domestic technologies. The bank would probably be managed by the Patent Office; it would also requires introducing regulations requiring the companies to share data regarding new solutions and intellectual property rights. The Polish Patent Office would also like to provide to SMEs a service of identification of intellectual property present in the company (IP audit). Employees and external experts of the Patent Office are going to visit enterprises, study their activity profile and R&D activities; this will be followed by presenting a report to the owners. The objective of this proposal is to induce the companies to protect new technology solutions better. Due to the complexity of the idea the National Intellectual Property Bank can be created only after 2019.

Poland would also like to introduce **a simple joint-stock company** concept into its legal system; it could be used widely by startups due to its simplified structure and easy establishment. The Ministry of Entrepreneurship and Technology hopes to implement this concept in the first quarter of 2020. Additionally, establishment of specialised intellectual property courts is considered.

Innovativeness in the European Union

The "European Innovation Scoreboard" index is based on 27 indicators from 10 sectors. It can assume values from the 0-1 range.



SOURCE: EUROPEAN COMMISSION, EUROSTAT

Recommendations

In recent years, Poland conducted a series of actions necessary to increase innovativeness. New institutions, such as National Science Center (*Narodowe Centrum Nauki, NCN*), National Center for Research and Development (*Narodowe Centrum Badań i Rozwoju, NCBiR*) and Polish Development Fund (PFR), were established in order to support scientists and entrepreneurs in conducting research, as well as to fund programs strategic for the Polish economy. New financial incentives were introduced, e.g. tax exemptions with the aim to encourage companies to conduct R&D activities. The effects of these initiatives should become visible in the following years. However, the government and state institutions still have a lot to do – among the greatest challenges are: closing the gap between science and industry and increasing the reliance of the industry in the government.

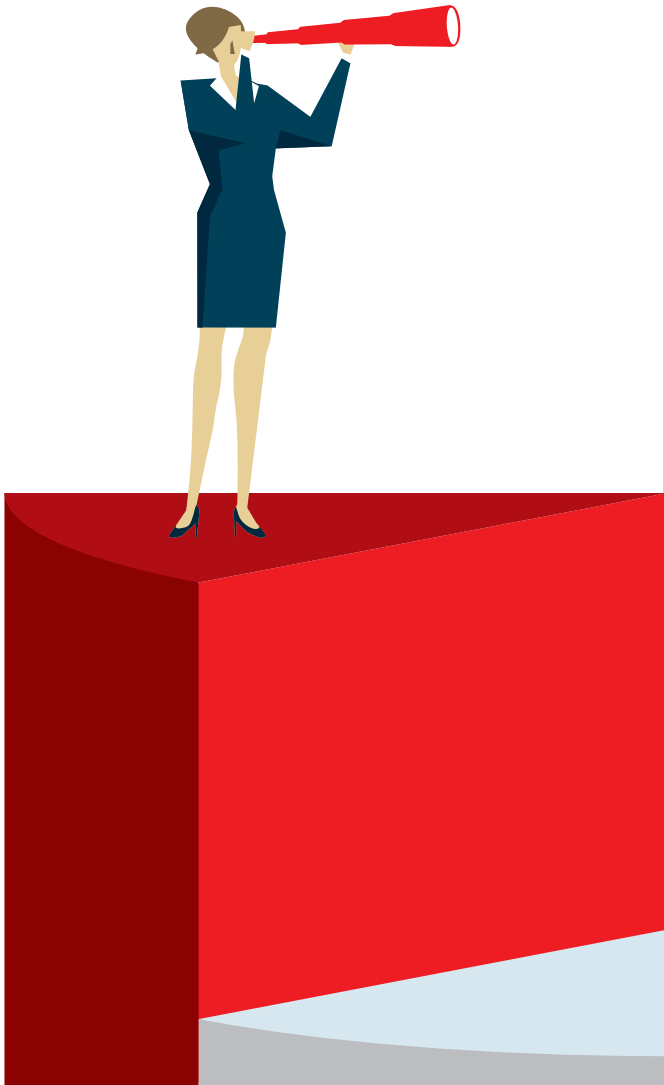
Areas requiring improvement:

Cooperation of science and business:

Rapprochement of universities and enterprises. A change in mentality of researchers and business representatives, as well as mutual understanding of needs and abilities of the other party is crucial in that case. Both parties often have contradictory interests: researchers would like to conduct their studies (including non-commercial ones) and disseminate knowledge; companies, on the other hand, prioritise innovative solutions that are potentially profitable. Instead of sharing secrets to their competitors, they prefer to patent them. Increased professionalisation of Technology Transfer Centers, as well as establishment of an interactive database, connecting scientific projects and needs of enterprise, would help closing the gap between these groups.

Decreased university bureaucracy. Poland needs to increase the quality of administrative support for scientists. Currently it differs significantly from the Western standards, where researchers can focus on their scientific work, without wasting time and energy on administrative tasks (e.g. filling out paper applications, requests and reports). University administration should also be more active in supporting researchers in searching for international projects within their area of expertise, as well as in creating grant applications.

Increased exchange of personnel between science and industry. More and more companies suffer from lack of specialists. Young scientists are not eager to develop their careers in Poland due to the lack of stability and development potential, as well as low wages. More flexible approach of universities and enterprises to joint scientific and business careers could be a solution to this problem. One should consider introducing internships for scientists operating in certain sectors, as well as in professional education. This could help to eliminate certain issues reported by young researchers, such as lack of appropriate skills and experiences required to work in the non-academic sector.



Regulations:

Stability of regulatory framework. R&D projects are inherently linked to high expenditures and risk. They are conducted with a long-term perspective – it takes years to implement their outcomes. Enterprises would be much more willing to take risk, should they have trust in the stability of their environment and regulations.

Public procurement promoting competitiveness. The public procurement law should encompass a model allowing mutual financing of two or three prototypes by the contracting entity. After technical verification, one of these solutions would be moved to small series production. Should the prototype fulfill the requirements of the contracting entity over a defined period, it would order a full series production. A similar mechanism is in force in the US, stimulating competition.

Investments in government officials supporting the regulatory environment. One of the weaknesses of the Polish innovation support system is a career path of a civil servant staff which is not attractive to the best specialists. Wages of civil servants responsible for preparation and implementation of support programs for innovative companies, as well as for creating regulations aimed at promoting entrepreneurship should be higher. Such officials could form a separate, specialised staff. Poland should also enhance cooperation with the Observatory of Public Sector Innovation, an agency of OECD, in the aspect of promoting innovations in the public sector.

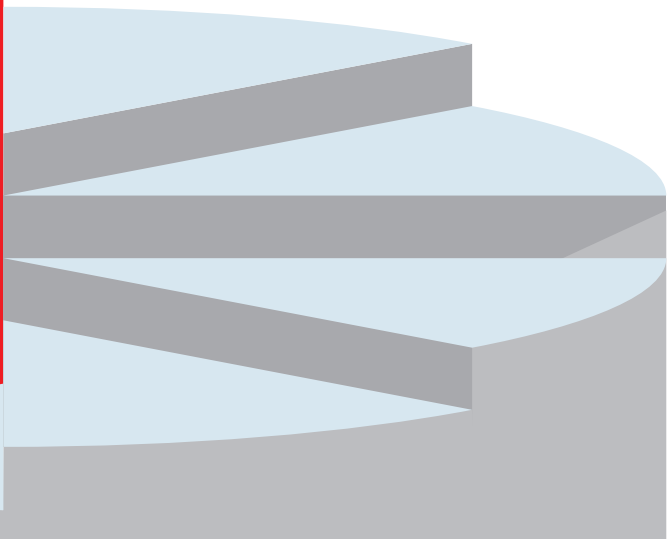
Finances:

Increased R&D expenditures of enterprises. Tax exemptions are a good starting point for increasing research and development expenditures of private companies. The attitude of public authorities is crucial here – over-restrictive controls related to the qualification of expenditures can discourage business from investing. In this context, training of government officials is required. Thus, they could gain a better understanding of a changing business environment.

Increased attractiveness of the capital market. In Poland and Europe – contrary to the US – financing of company development by the capital market is much lower than bank financing. This does not foster innovative projects, characterised by higher risk. Hence, it is necessary to increase the role of capital market in the Polish economy and rebuild the trust in it. The capital market strategy published by the Ministry of Finance is definitely a step in the right direction. It should be followed by tangible legislative and educational actions, promoting investments in the capital market.

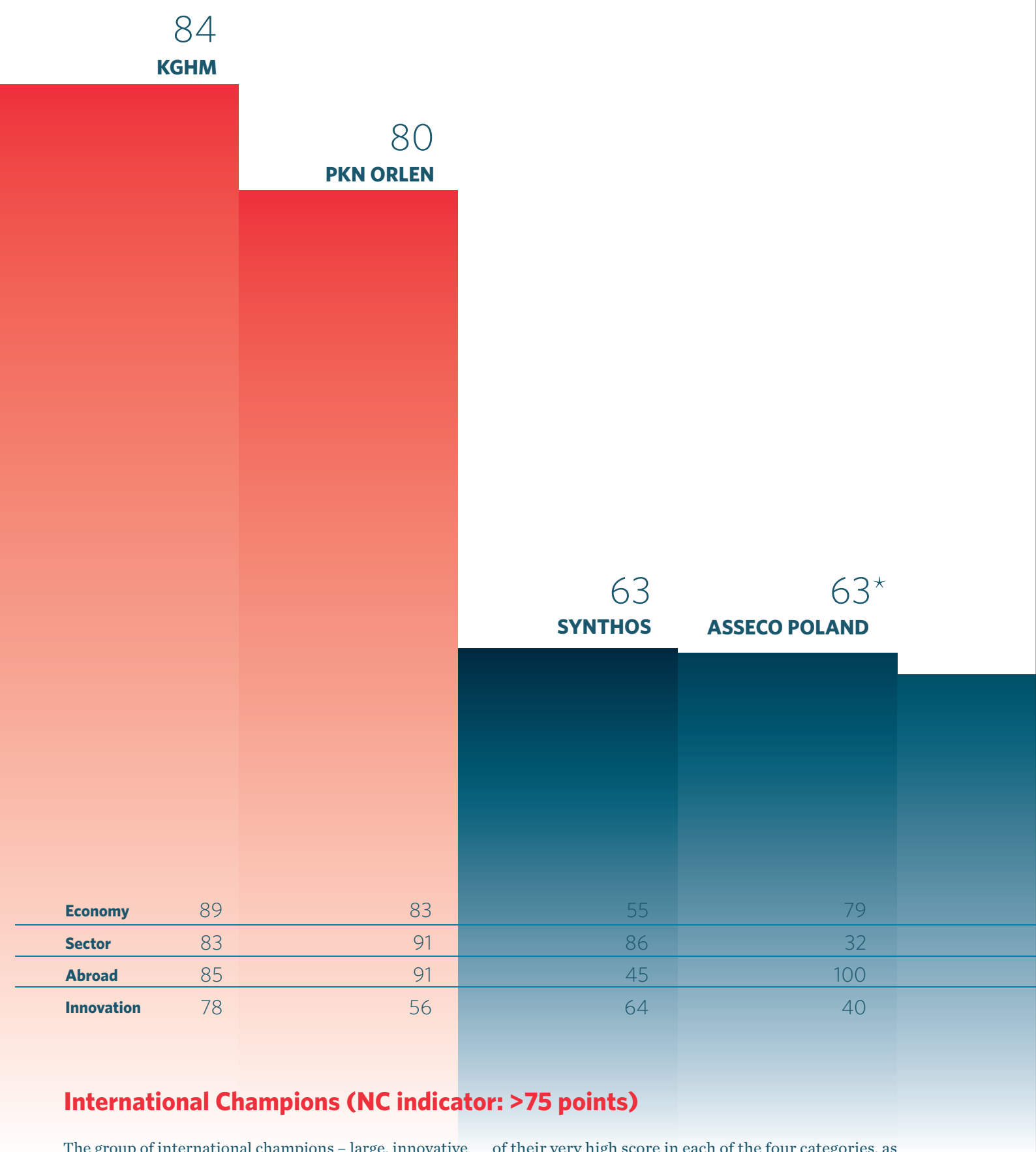
Investments in education. Fostering innovation requires creative thinking which is not taught by Polish schools. Hence it is necessary to invest in the education of the youngest Poles. It needs to be adapted to the future challenges and the changing job market. This requires changing the schooling model, which is obsolete – focused mostly on learning specific issues by heart, instead of improving critical thinking and cooperation of students. It is also necessary to increase the prestige of the teacher profession, e.g. through increasing wages and creating special motivational system in order to attract the most talented pedagogues.

More innovative public tenders. The Public Procurement Office (*Urząd Zamówień Publicznych, UZP*) data shows that in 2017 public procurement amounted to PLN 163.2 billion, over 8% of Polish GDP. It is a huge stream of money spent on new services and products. Increasing the significance of innovativeness in criteria and more frequent use of innovative partnerships could create a demand for modern solutions, promoting innovativeness in Poland.



Characteristics of a Polish national champion

Most company rankings prepared in Poland focuses solely on the size of a company or capital group, measured using basic macroeconomic indicators such as revenue, profit, export or staff. Yet this is just one of the dimensions emphasised in Polish public discourse on national champions. Apart from size, companies' productivity, role in the industry, presence on the international market and investment in development and innovation matters, too.



Economy	89	83	55	79
Sector	83	91	86	32
Abroad	85	91	45	100
Innovation	78	56	64	40

International Champions (NC indicator: >75 points)

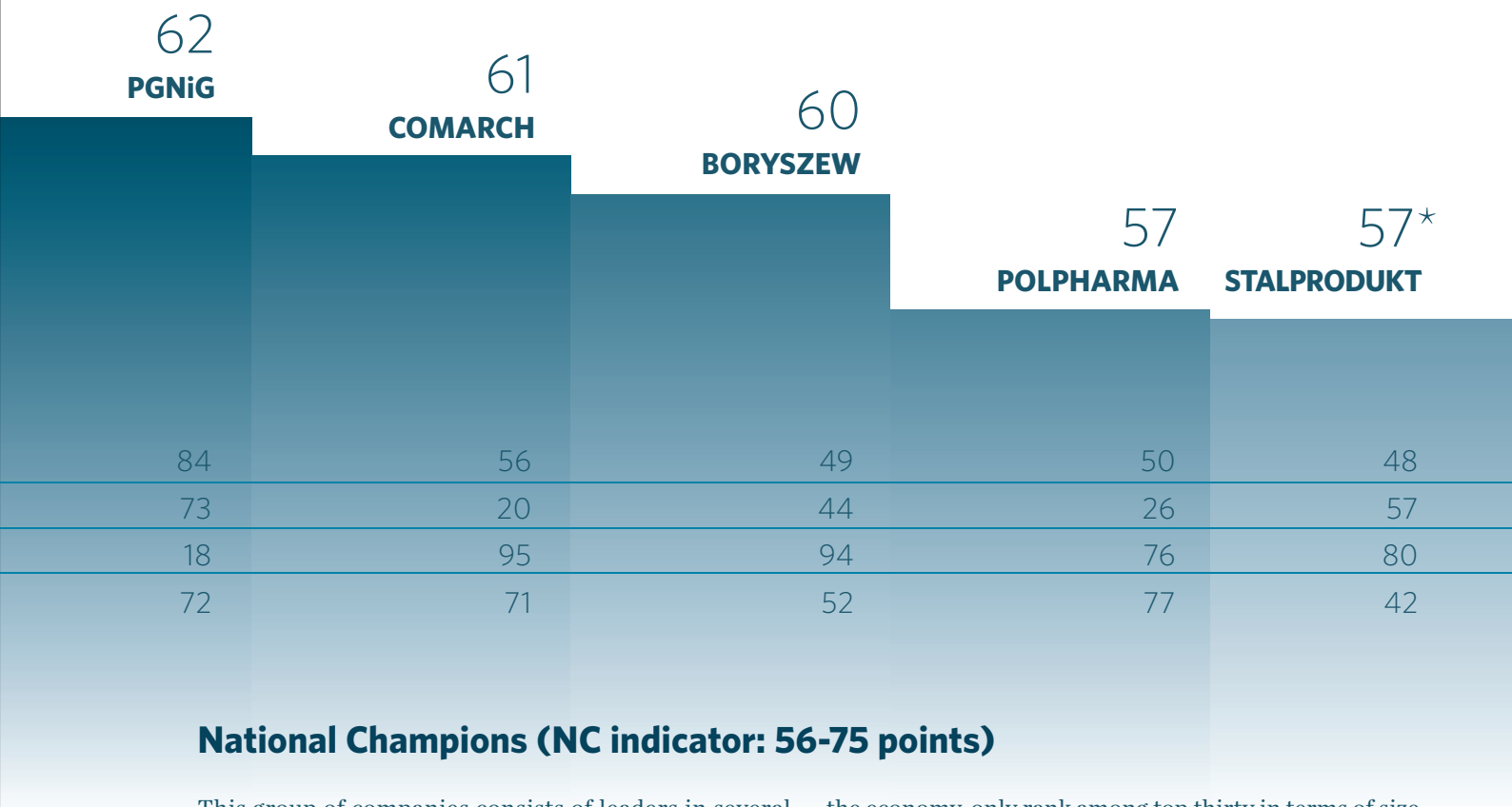
The group of international champions – large, innovative companies, active internationally and leading in their respective industry, both domestically and regionally, is the same as in the previous edition of the ranking. The winner is KGHM Polska Miedź, capital group, which received 84 out 100 points – slightly ahead of Polski Koncern Naftowy Orlen (80 points). The success of Orlen and KGHM is the result of their very high score in each of the four categories, as well as their importance to the Polish economy: their high value added, high salaries and significant investment and contributions to the budget. The slightly higher result of KGHM stems mostly from higher score in the Innovation category.

* The number of tenths of the NC indicator determined the order of places.

Ranking of Polish National Champions

Below we present the results of our company ranking based – as in the previous edition – on the National Champion indicator (hereinafter: NC indicator) – an average of four key categories: **the economy, the sector, activity abroad and innovation.** For our calculations we used public data for 2017 on the business activity of Polish non-financial capital group, employing at least 100 people and over PLN 1 billion in revenue. Additionally, for the company rankings we also used surveys specially prepared for this study, filled out by parent companies. The technical details of calculation are described in the methodological appendix.

Based on our calculations we have identified 40 Polish companies that can be considered national champions. We grouped them into four categories: **International Champions, National Champions, Aspiring National Champions** and **Local Champions**.



National Champions (NC indicator: 56-75 points)

This group of companies consists of leaders in several categories that rank well in the others. Some of them, such as PGNiG and Asseco Poland, are very big, however this is not a necessary condition for this category. Similarly to the first edition, the National Champions group includes only one state-controlled company. Only PGNiG is managed by the government, other companies are privately-owned, mostly by major Polish tycoons. What is important, several National Champions, despite their significant impact on the economy, only rank among top thirty in terms of size (e.g. Stalprodukt, Boryszew, Polpharma). It means that these companies satisfy most of the conditions to qualify as National Champion, but there is scope for improvement, to become International Champions. The leaders of the Economy category need to improve their investments or international activity, while smaller companies should continue investing in their development, building new production plants and winning new contracts.

Aspiring National Champions (NC indicator: 36-55 points)

This a growing group of Polish companies. They are very efficient and display many characteristics of the National Champions, but need to improve their indicators in several aspects in order to join the group above. Most of them have little impact on the economy – with few employees, low capital or low salaries. On the other hand, they are characterised by high shares of export in sales, they are active in the area of innovations and generally do better in their respective sectors than local champions. Two energy sector companies (Tauron Polska Energia and Jastrzębska Spółka Węglowa) are an exception to this rule – they have a significant impact on the economy, but their international activity is very low.

Aspiring National Champions have a big chance of becoming full National Champions in the following years. They may achieve this through vertical integration – possible especially through vertical integration – acquisition of smaller companies with a higher position in the added value chain. They should also invest in innovation, which will boost their productivity, improve their position in their sector and let them be more competitive internationally.

Position in ranking		NC indicator	Economy	Sector	Abroad	Innovation
10	CIECH S.A.	**54**	43	66	92	15
11	GRUPA AZOTY S.A.	**54**	66	54	33	61
12	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	**53**	44	38	99	32
13	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	**53**	81	49	30	51
14	FAMUR SA (GRUPA TDJ)	**52**	43	42	64	59
15	GRUPA KĘTY S.A.	**50**	44	43	86	26
16	AMICA S.A.	**49**	43	30	87	36
17	SELENA FM S.A.	**48**	38	62	80	14
18	GRUPA LOTOS S.A.	**47**	69	28	29	63
19	MLEKOVITA	**44**	41	7	80	49
20	CERSANIT S.A.	**44**	43	47	73	13
21	CCC S.A.	**43**	48	43	72	9
22	TAURON POLSKA ENERGIA S.A.	**42**	86	34	1	47
23	POLSKA GRUPA ZBROJENIOWA S.A.	**40**	55	74	N/A	31
24	LPP S.A.	**37**	52	34	51	12

Local Champions (NC indicator: 25-35 points)

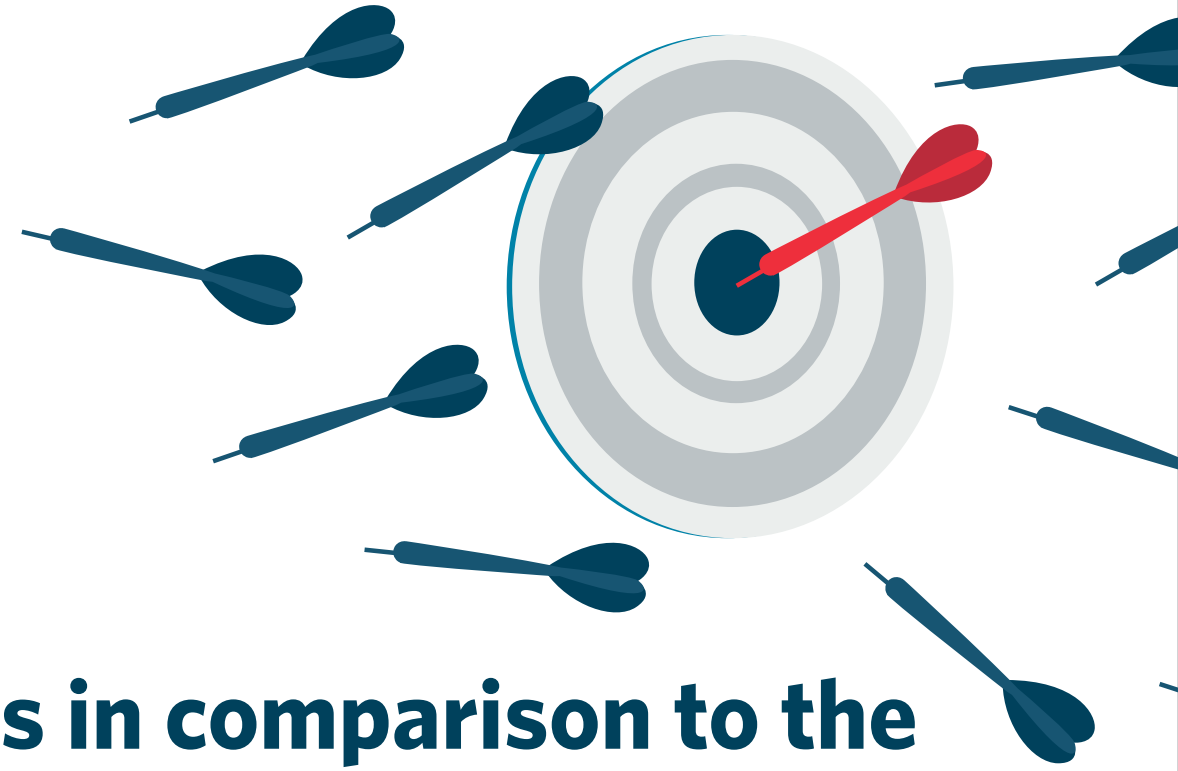
This is the most numerous group in the ranking. Local Champions are usually leaders of their sector and have a significant impact on the economy. However, in most cases, they are focused exclusively on the domestic market and their situation depends on the business climate in their sector. As a result, they score close to zero in the innovation and abroad categories. To this group belong most large state-controlled companies, from energy sector enterprises to transport companies; it also includes a few private service companies, mostly from the media sector.

Local Champions rarely aspire to the position of full National Champions, as they focus on their core business. Should they wish to be promoted, they would have to leave their market niches or become global leaders of their industries. Energy companies and media group would have to acquire foreign companies, while transport enterprises would have to operate outside Poland.

Position in ranking		NC indicator	Economy	Sector	Abroad	Innovation
25	POCZTA POLSKA S.A.	35	63	47	17	14
26	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ - SYSTEM S.A.	35	52	41	0	48
27	CYFROWY POLSAT S.A.	34	66	41	3	26
28	PKP POLSKIE LINIE KOLEJOWE S.A.	34	65	39	N/A	31
29	PKP CARGO S.A.	34	59	45	23	8
30	PGE POLSKA GRUPA ENERGETYCZNA S.A.	33	87	33	1	12
31	ENERGA S.A.	33	68	20	0	43
32	ENEA S.A.	29	74	23	0	19
33	POLSKIE LINIE LOTNICZE LOT S.A.	28	44	40	N/A	28
34	POLSKA GRUPA GÓRNICZA S.A.	27	72	24	N/A	13
35	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	27	62	13	N/A	33
36	AGORA S.A.	26	48	43	2	13
37	PKP INTERCITY S.A.	26	46	44	N/A	13
38	POLIMEX - MOSTOSTAL S.A.	26	45	16	17	25
39	IMPEL S.A.	25	50	41	1	6
40	AB S.A.	25	39	25	15	20
41	TELEWIZJA POLSKA S.A.	21	48	12	N/A	22
42	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	20	39	11	N/A	30
43	PBG S.A.	19	39	12	8	18
44	PELION S.A.	19	42	16	4	14
45	POLENERGIA S.A.	18	40	2	10	22
46	DINO POLSKA S.A.	18	46	17	0	7
47	ERBUD S.A.	17	41	8	6	13
48	PRZEWOZY REGIONALNE	17	42	23	N/A	4
49	WĘGLOKOKS S.A.	17	46	9	N/A	12
50	ELEKTRIM S.A.	15	47	5	1	8

Other big companies (NC indicator: <25 points)

These over 60 companies also have over PLN 1 billion in revenue and over 100 employees, but lack the potential to have a major influence on the economy. Nevertheless, some of them have found a niche and become hidden champions – known under other brands or the brand of their products, often as monopolists for European retail chains.



Changes in comparison to the previous edition of the ranking

In 2019 we introduced only small changes in the indicator calculation methodology, as we aimed to increase the calculation accuracy and to supplement our estimates with data from additional sources. Also the number of companies participating actively in our ranking by filling out and sending back our survey increased, leading to higher precision of the NC indicator. Most significant changes were introduced in the Sector category, where we changed analysis of companies on the division level for analysis on the activity class level (according to PKD 2007), as well as in the Innovation category, which has been supplemented by the data related to research and development expenditures, as well as official information regarding company cooperation with universities as a part of NCBiR projects. The description of improved calculation methodology can be found in the annex.

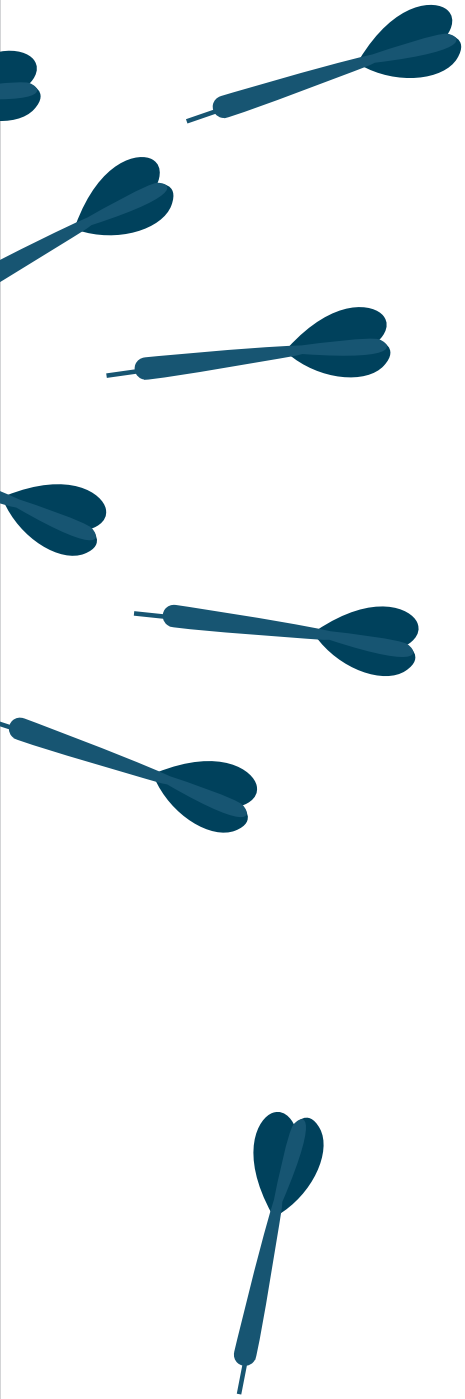
Despite the changes described above, overall results of the study remain comparable to the previous edition of the ranking, especially in terms of company positions based on the NC indicator. The average index score is slightly lower, due to the methodological changes and higher scores of leaders in individual subcategories (the indicator is calculated based on the distance from the category leader).

There are no significant changes in the order of companies in the ranking. Two state-controlled International Champions – KGHM and PKN Orlen – remain in the lead. The number of National Champions dropped from eight to seven, mostly due to weaker results of Ciech Group, which moved to the leading position in the Aspiring National Champions category. The number of companies in that group did not change significantly, however the number of the Local Champions is much lower – 16 instead of 21. This is mainly a result of mostly arbitrary exclusion of five financial companies from the ranking, as majority of data for them were incomparable with entities from other sectors.

In comparison to 2018, seven companies dropped from the National Champions category, including three banks and one insurance company (all financial institutions were excluded from this year's ranking); the same happened to two Aspiring National Champions. It is worth noting that lack of the latter two companies in the ranking (instead of moving them to the Local Champions group) is a result of the renewed methodology – the group of 50 national champions is based solely on the results in the Economy subcategory, where the Aspiring National Champions usually gained fewer points than the Local Champions.

At the same time, seven new companies were included on the top 50 national champions list, three in the Aspiring National Champions category. An interesting company in this group is Toruńskie Zakłady Materiałów Opatrunkowych – it was placed on the 12nd position in the ranking due to sharing detailed data regarding international activities and innovation. Polska Grupa Zbrojeniowa and clothing distributor LPP were placed on the list thank to their higher income in 2017.

The analysis of NC indicator in the Sector category shows that IT companies were the ones to improve their positions, due to faster growth than other sectors in recent years, continuous expansion of their international activities and investments in innovative technologies. Companies operating in the broader energy sector (that recovered from its collapse in 2016) also performed better than in the previous year. What's interesting, expenditures related to research and development of new energy technologies allowed Tauron Polska Energia group to be promoted from the Local Champion to the Aspiring National Champion.



1	◆	KGHM POLSKA MIEDŹ S.A.
2	◆	PKN Orlen
3	▲	SYNTHOS S.A.
4	▲	ASSECO POLAND S.A.
5	▼	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.
6	▲	COMARCH S.A.
7	▲	BORYSZEW S.A.
8	▼	POLPHARMA S.A.
9	▲	STALPRODUKT S.A.
10	▼	CIECH S.A.
11	▼	GRUPA AZOTY S.A.
12	✸	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.
13	▲	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.
14	▲	Famur SA (Grupa TDJ)
15	▼	GRUPA KĘTY S.A.
16	▼	AMICA S.A.
17	▲	SELENA FM S.A.
18	▼	GRUPA LOTOS S.A.
19	▼	MLEKOVITA
20	▲	CERSANIT S.A.
21	▼	CCC S.A.
22	▲	Tauron Polska Energia S.A.
23	✸	POLSKA GRUPA ZBROJENIOWA S.A.
24	✸	LPP S.A.
25	▲	POCZTA POLSKA S.A.
26	✸	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ - SYSTEM S.A.
27	✸	CYFROWY POLSAT S.A.
28	▲	PKP POLSKIE LINIE KOLEJOWE S.A.
29	▲	PKP CARGO S.A.
30	▼	PGE POLSKA GRUPA ENERGETYCZNA S.A.
31	▼	ENERGA S.A.
32	▼	ENEA S.A.
33	▲	POLSKIE LINIE LOTNICZE LOT S.A.
34	▲	POLSKA GRUPA GÓRNICZA S.A.
35	▲	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.
36	▲	AGORA S.A.
37	✸	PKP INTERCITY S.A.
38	◆	POLIMEX - MOSTOSTAL S.A.
39	▲	IMPEL S.A.
40	▼	AB S.A.

International Champions
National Champions
Aspiring National Champions
Local Champions
▲ increase
✸ first appearance
▼ decrease
◆ the same position in the ranking

Classification of champions in individual categories

Economy

KGHM is the leader of the Economy category, measuring a company's contribution to the Poland's economic development, as well as the overall ranking. This enterprise narrowly outran the last year's leader, Polska Grupa Energetyczna, and four other energy sector companies (Tauron, PGNiG, PKN Orlen, JSW). Success of this group is the result of a very high position in all the subcategories. This stems from high economies of scale in this sector, leading to a relatively large scale of activities of individual enterprises, as well as highly capital-intensive nature of the energy sector – from coal mines to power distributors.

Companies belonging to the Local Champions group reached relatively high positions in the Economy ranking, which is the result of a large scale of their activities, as well as high entry thresholds defined by the state – giving those companies quasi-monopolies in their respective sectors. This leads to a clear domination of state-controlled companies, especially from the energy sector. The only privately-owned company in the top ten of the Economy category is Asseco Poland. Lower positions in the ranking of 50 companies with the most significant impact on the economy are taken mostly by the Aspiring National Champions, which is the result of the specificity of their business activities – these are smaller, innovative companies, operating in highly competitive sectors.

1	KGHM POLSKA MIEDŹ S.A.
2	PGE POLSKA GRUPA ENERGETYCZNA S.A.
3	TAURON POLSKA ENERGIA S.A.
4	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.
5	PKN ORLEN
6	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.
7	ASSECO POLAND S.A.
8	ENEA S.A.
9	POLSKA GRUPA GÓRNICZA S.A.
10	GRUPA LOTOS S.A.
11	ENERGA S.A.
12	GRUPA AZOTY S.A.
13	CYFROWY POLSAT S.A.
14	PKP POLSKIE LINIE KOLEJOWE S.A.
15	POCZTA POLSKA S.A.

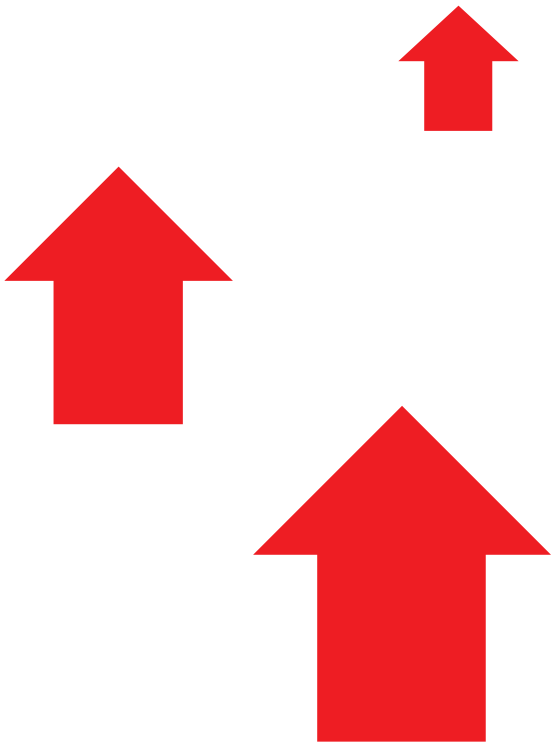
Economy	Value added	Number of employees	Average salary	Wage fund	Liquidity and solvency	Contribution to state budget	Investments and fixed assets	Capitalisation
89	100	86	100	49	53	100	93	100
87	89	89	65	72	64	100	100	100
86	83	81	100	75	67	100	95	100
84	99	81	66	29	88	100	96	100
83	100	78	69	22	67	100	95	100
81	94	82	97	46	59	100	58	72
79	77	81	100	100	73	72	37	100
74	74	75	39	48	92	100	83	100
72	88	89	63	79	52	50	44	23
69	70	57	100	30	63	100	57	100
68	72	67	43	32	100	84	76	92
66	68	73	49	60	95	64	51	78
66	81	57	84	13	70	50	70	100
65	66	88	0	100	19	57	73	75
63	76	100	0	100	3	100	2	0

International Champions

National Champions

Aspiring National Champions

Local Champions



Sector

The Sector ranking is highly diversified in terms of operating sectors and ownership. It is led by companies with monopolistic positions in their industries, often due to the entry thresholds created by the states (e.g. Polska Grupa Zbrojeniowa). However, some private companies, such as Synthos and Selena FM, despite lacking public support, are also able to become monopolists or leaders of their sectors.

The relatively low positions of Local Champions is worth noting. In many cases, this results from an unfavorable comparison of their results to the average profitability and earning power of other companies in the sector. This is not exceptional, though, as big state-controlled companies usually suffer from lower earning power than small private companies operating in the same sector.

A number of companies operating in highly competitive sectors, such as IT and trade, also reached rather low positions. At the same time, energy generating companies operate on an oligopolistic market, which lower their position in the Sector category. What is interesting, should the production and distribution of electricity be concentrated in one or two capital groups (especially since all Local Champions from this sector are state-owned), such entity would automatically have a much greater chance of becoming a leader in the Sector category and move from the Local Champion to the National Champion category. This kind of company could even become an International Champion in the future, if it embarked on international acquisitions.

1	PKN Orlen
2	SYNTHOS S.A.
3	KGHM POLSKA MIEDŹ S.A.
4	POLSKA GRUPA ZBROJENIOWA S.A.
5	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.
6	CIECH S.A.
7	SELENA FM S.A.
8	STALPRODUKT S.A.
9	GRUPA AZOTY S.A.
10	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.
11	POCZTA POLSKA S.A.
12	CERSANIT S.A.
13	PKP CARGO S.A.
14	PKP INTERCITY S.A.
15	BORYSZEW S.A.

International Champions

Aspiring National Champions

National Champions

Local Champions

Sector	Share in the value added of all sectors and in the employment of the main sector	Profitability and earning power in the main sector	Name of main PKD class (number)	Number of other important sections of the business
91	100	66	Production and processing of refined petroleum products (19.20)	4
86	100	46	Production of synthetic rubber in primary forms (20.17)	4
83	100	32	Mining of non-ferrous metal ores (07.29)	0
74	99	0	Manufacture of weapons and ammunition (25.40)	2
73	77	61	Trade of gas through mains (35.23)	1
66	71	50	Production of other basic inorganic chemicals (20.13)	2
62	66	50	Production of glues (20.52)	2
57	63	40	Cold rolling of narrow strip (24.32)	2
54	61	36	Production of fertilizers and nitrogen compounds (20.15)	2
49	32	100	Extraction of hard coal (05.10)	1
47	63	0	Postal activities under universal service obligation (53.10)	0
47	46	50	Production of ceramic tiles and plates (23.31)	2
45	43	50	Freight rail transport (49.20)	1
44	57	8	Passenger rail transport, interurban (49.10)	0
44	58	4	Production of aluminium (24.42)	4

Abroad

Asseco capital group, is the leader of the Abroad category, as it provides services on every continent, both through foreign subsidiaries and by exporting services to countries where it is not present. As a result, it scored the maximum number of points in both subcategories: foreign activity and export. Toruńskie Zakłady Materiałów Opatrunkowych company is ranked just below Asseco – the owner of brands such as Optus, Bella, Seni and Matopat debuts in the ranking. These brands are present in over 80 countries all over the world. A significant part of them is manufactured in factories outside Poland. Other highly ranked companies are Comarch, Boryszew and Ciech.

The Abroad category is closed mostly by Local Champions. In fact, their low rank in this category gives them their name. They are mostly enterprises focused on the local market. Neither they own subsidiaries abroad, nor they export their products outside Poland. Many companies in our ranking do not provide data on the export of goods or services at all, as they are usually marginal for company activities. Hence they received zero points in this category.

		Abroad	Foreign activity	Export
1	ASSECO POLAND S.A.	**100**	100	100
2	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	**99**	96	100
3	COMARCH S.A.	**95**	76	100
4	BORYSZEW S.A.	**94**	69	100
5	CIECH S.A.	**92**	62	100
6	PKN ORLEN	**91**	55	100
7	AMICA S.A.	**87**	35	100
8	GRUPA KĘTY S.A.	**86**	30	100
9	KGHM POLSKA MIEDŹ S.A.	**85**	27	100
10	STALPRODUKT S.A.	**80**	2	100
11	MLEKOVITA	**80**	0	100
12	SELENA FM S.A.	**80**	86	78
13	POLPHARMA S.A.	**76**	65	79
14	CERSANIT S.A.	**73**	0	92
15	CCC S.A.	**72**	72	72

International Champions
National Champions
Aspiring National Champions
Local Champions

Innovation

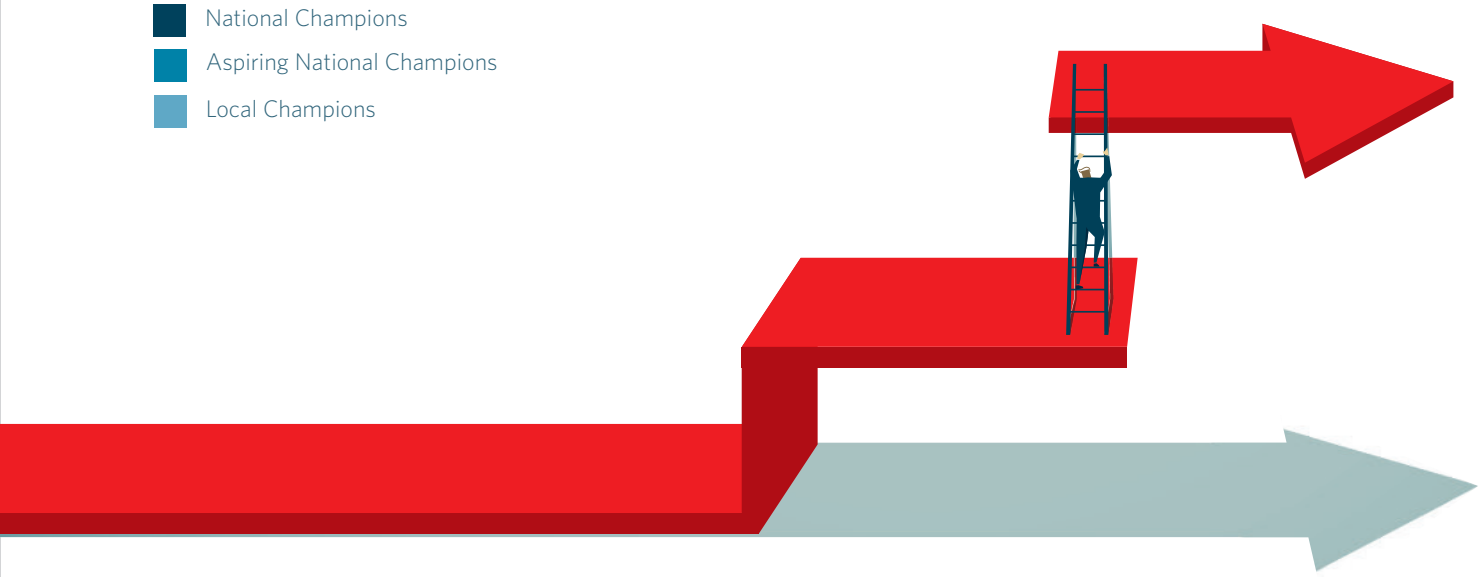
KGHM capital group achieved the best result in the Innovation category. It is characterised by one of the highest value added per worker, relatively high R&D expenditures, close cooperation with educational institutions and many registered patents. Only Orlen, Azoty, PGNiG and Polpharma, which are also ranked among the top ten companies in the Innovation category, have more patents and trademarks.

Asseco, Comarch and Polpharma spend the most on research and development. Many companies do not publish or collect data on this subject, often lacking information regarding the number of employees involved in developing of innovative products. Thus, this ranking shows that only few big Polish companies emphasise innovation and are interested in development of new technologies. This is one the weaknesses of Polish champions. They should not only display high productivity per worker, but also constantly invest in developing their productivity. The companies that do not collect and publish this type of data therefore received zero points in the R&D subcategory.

Mediocre level of champions' engagement in the development of innovative solutions is also shown by a new subindex in the Innovations category – Cooperation with science sector. Based on the NCBiR data we checked, which capital groups are involved in consortiums with universities aimed at developing new technologies that could be commercialised at a later time. Only 12 out of 50 national champions conduct such activities, with only five involved in more than one consortium. PGNiG is the leader of this new subcategory by taking part in 15 different NCBiR research projects.

		Innovation	Intellectual property	R&D activity	Cooperation with science sector	Labour productivity
1	KGHM POLSKA MIEDŹ S.A.	**78**	88	26	99	100
2	POLPHARMA S.A.	**77**	92	90	67	53
3	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	**72**	92	N/A	100	100
4	COMARCH S.A.	**71**	52	98	100	31
5	SYNTHOS S.A.	**64**	65	N/A	100	100
6	GRUPA LOTOS S.A.	**63**	59	N/A	100	100
7	GRUPA AZOTY S.A.	**61**	97	N/A	83	56
8	FAMUR SA (GRUPA TDJ)	**59**	75	41	83	26
9	PKN Orlen	**56**	100	25	0	100
10	BORYSZEW S.A.	**52**	21	46	100	47
11	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	**51**	44	6	65	98
12	MLEKOVITA	**49**	41	N/A	83	78
13	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ - SYSTEM S.A.	**48**	38	N/A	83	81
14	TAURON POLSKA ENERGIA S.A.	**47**	46	N/A	83	64
15	ENERGA S.A.	**43**	77	N/A	0	100

International Champions
National Champions
Aspiring National Champions
Local Champions



Classification of champions **according to key sectors**

The top 50 national champion ranking includes 17 industrial processing companies – two more than in the last year. This number includes one International Champion, four National Champions and 11 Aspiring National Champions. Their average NC indicator is 51; in the Abroad category they achieved a very high average score of 74 points. This shows that the Polish economy's competitive advantage is based on industry, which is highly oriented towards foreign activity.

The highest average score (55 points) was obtained by mining and extraction companies, which resulted from KGHM being classified in this category. The other two mining companies in the top 50, Jastrzębska Spółka Węglowa and Polska Grupa Górnicza, scored much less and were classified as an Aspiring National Champion and a Local Champion respectively. Capital groups working in mining and extraction topped the economy category, even scoring better than the energy champions.

Capital groups operating mostly in construction and assembly production did worse. They are characterised by lowest scores in practically all categories – from impact on the economy to foreign activities. Only in the Innovation category they received a slightly higher score than trading and real estate companies, which is a result of a slightly higher productivity per employee of construction companies.

Retail companies, which generate the largest part of Polish PKB are well represented among the top 50 national champions. It includes six capital groups operating in the retail (Dino, CCC, LPP), wholesale (Węglokoks, AB) or both (Pelion). These companies sell wide range of goods – from FMCGs to coal and electronics. However, their average score was relatively low – they received only 28 out of 100 points. Transport companies (pipelines, airlines, postal services, etc.) also scored rather average. What is more, none of these companies was classified as the Aspiring National Champion or higher.

Ranking in the key sectors of the economy

	Number of companies	NC indicator	Economy	Sector	Abroad	Innovation
INDUSTRIAL PROCESSING	17	**51**	50	47	74	42
ENERGY	8	**32**	68	25	5	32
TRANSPORT	7	**30**	53	40	13	21
RETAIL	6	**28**	46	26	34	12
INFORMATION & TELECOMMUNICATIONS	5	**41**	59	30	50	34
MINING AND EXTRACTION	3	**55**	81	52	58	47
CONSTRUCTION	3	**21**	42	12	10	19
PROPERTY SERVICES	1	**25**	50	41	1	6

Processing and construction

		NC indicator	Economy	Sector	Abroad	Innovation
1	PKN Orlen	**80**	83	91	91	56
2	SYNTHOS S.A.	**63**	55	86	45	64
3	BORYSZEW S.A.	**60**	49	44	94	52
4	POLPHARMA S.A.	**57**	50	26	76	77
5	STALPRODUKT S.A.	**57**	48	57	80	42
6	CIECH S.A.	**54**	43	66	92	15
7	GRUPA AZOTY S.A.	**54**	66	54	33	61
8	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	**53**	44	38	99	32
9	FAMUR SA (GRUPA TDJ)	**52**	43	42	64	59
10	GRUPA KĘTY S.A.	**50**	44	43	86	26
11	AMICA S.A.	**49**	43	30	87	36
12	SELENA FM S.A.	**48**	38	62	80	14
13	GRUPA LOTOS S.A.	**47**	69	28	29	63
14	MLEKOVITA	**44**	41	7	80	49
15	CERSANIT S.A.	**44**	43	47	73	13
16	POLSKA GRUPA ZBROJENIOWA S.A.	**40**	55	74	N/A	31
17	POLIMEX - MOSTOSTAL S.A.	**26**	45	16	17	25
18	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	**20**	39	11	N/A	30
19	PBG S.A.	**19**	39	12	8	18
20	ERBUD S.A.	**17**	41	8	6	13
		47				

International Champions
National Champions
Other big companies
Aspiring National Champions
Local Champions

Mining and energy

		NC indicator	Economy	Sector	Abroad	Innovation
1	KGHM POLSKA MIEDŹ S.A.	**84**	89	83	85	78
2	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	**62**	84	73	18	72
3	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	**53**	81	49	30	51
4	Tauron Polska Energia S.A.	**42**	86	34	1	47
5	PGE POLSKA GRUPA ENERGETYCZNA S.A.	**33**	87	33	1	12
6	ENERGA S.A.	**33**	68	20	0	43
7	ENEA S.A.	**29**	74	23	0	19
8	POLSKA GRUPA GÓRNICZA S.A.	**27**	72	24	N/A	13
9	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	**27**	62	13	N/A	33
10	POLENERGIA S.A.	**18**	40	2	10	22
11	ELEKTRIM S.A.	**15**	47	5	1	8
		38				

Retail and transport

		NC indicator	Economy	Sector	Abroad	Innovation
1	CCC S.A.	**43**	48	43	72	9
2	LPP S.A.	**37**	52	34	51	12
3	POCZTA POLSKA S.A.	**35**	63	47	17	14
4	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ -	**35**	52	41	0	48
5	PKP POLSKIE LINIE KOLEJOWE S.A.	**34**	65	39	N/A	31
6	PKP CARGO S.A.	**34**	59	45	23	8
7	POLSKIE LINIE LOTNICZE LOT S.A.	**28**	44	40	N/A	28
8	PKP INTERCITY S.A.	**26**	46	44	N/A	13
9	AB S.A.	**25**	39	25	15	20
10	PELION S.A.	**19**	42	16	4	14
11	DINO POLSKA S.A.	**18**	46	17	0	7
12	PRZEWOZY REGIONALNE	**17**	42	23	N/A	4
13	WĘGLOKOKS S.A.	**17**	46	9	N/A	12
		28				

Professional services

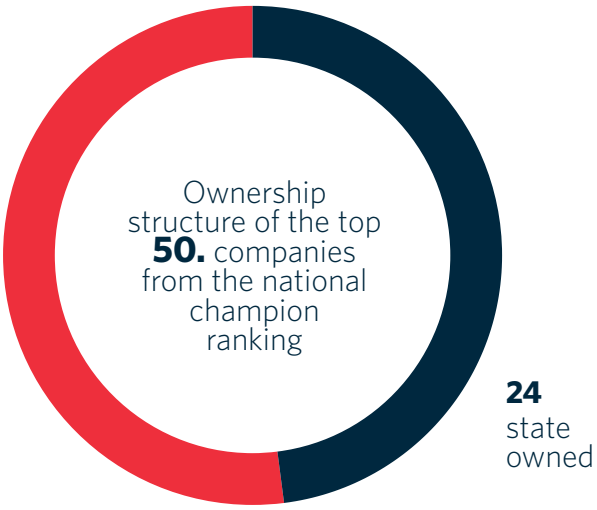
		NC indicator	Economy	Sector	Abroad	Innovation
1	ASSECO POLAND S.A.	**63**	79	32	100	40
2	COMARCH S.A.	**61**	56	20	95	71
3	CYFROWY POLSAT S.A.	**34**	66	41	3	26
4	AGORA S.A.	**26**	48	43	2	13
5	IMPEL S.A.	**25**	50	41	1	6
6	TELEWIZJA POLSKA S.A.	**21**	48	12	N/A	22
		41				

International Champions
National Champions
Aspiring National Champions
Local Champions
Other big companies

Classification of champions according **to ownership**

In terms of company ownership structure, the companies in the ranking of the top 50 National Champions are almost evenly split – 26 are privately owned and 24 are state-controlled (directly or indirectly, via a consortium of other companies with state capital). Interestingly, this ratio was identical in the previous edition of the ranking, despite the fact that the list of analysed companies changed.

ownership	state owned	privately owned
International Champions	**2**	**0**
National Champions	**1**	**6**
Aspiring National Champions	**6**	**9**
Local Champions	**12**	**4**



The division between private and state-owned company was not equal in specific champion categories. Only state-controlled companies were awarded the International Champion status, but private enterprises dominated in the lower categories. Only among Local Champions state-controlled companies are in the majority again, with their number being three times higher than private ones.

The ranking shows that the government decided to foster a few international champions with particular political support. Fortunately though – private companies, which are often handicapped when it comes to competing with state-controlled companies, dominated the National Champions and the Aspiring National Champions categories.

Complete results of the study

		NC indicator	Economy	Sector	Abroad	Innovation
1	KGHM POLSKA MIEDŹ S.A.	**84**	89	83	85	78
2	PKN ORLEN	**80**	83	91	91	56
3	SYNTHOS S.A.	**63**	55	86	45	64
4	ASSECO POLAND S.A.	**63**	79	32	100	40
5	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	**62**	84	73	18	72
6	COMARCH S.A.	**61**	56	20	95	71
7	BORYSZEW S.A.	**60**	49	44	94	52
8	POLPHARMA S.A.	**57**	50	26	76	77
9	STALPRODUKT S.A.	**57**	48	57	80	42
10	CIECH S.A.	**54**	43	66	92	15
11	GRUPA AZOTY S.A.	**54**	66	54	33	61
12	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	**53**	44	38	99	32
13	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	**53**	81	49	30	51
14	FAMUR SA (GRUPA TDJ)	**52**	43	42	64	59
15	GRUPA KĘTY S.A.	**50**	44	43	86	26
16	AMICA S.A.	**49**	43	30	87	36
17	SELENA FM S.A.	**48**	38	62	80	14
18	GRUPA LOTOS S.A.	**47**	69	28	29	63
19	MLEKOVITA	**44**	41	7	80	49
20	CERSANIT S.A.	**44**	43	47	73	13
21	CCC S.A.	**43**	48	43	72	9
22	TAURON POLSKA ENERGIA S.A.	**42**	86	34	1	47
23	POLSKA GRUPA ZBROJENIOWA S.A.	**40**	55	74	N/A	31
24	LPP S.A.	**37**	52	34	51	12
25	POCZTA POLSKA S.A.	**35**	63	47	17	14
26	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ - SYSTEM S.A.	**35**	52	41	0	48
27	CYFROWY POLSAT S.A.	**34**	66	41	3	26
28	PKP POLSKIE LINIE KOLEJOWE S.A.	**34**	65	39	N/A	31
29	PKP CARGO S.A.	**34**	59	45	23	8
30	PGE POLSKA GRUPA ENERGETYCZNA S.A.	**33**	87	33	1	12
31	ENERGA S.A.	**33**	68	20	0	43
32	ENEA S.A.	**29**	74	23	0	19
33	POLSKIE LINIE LOTNICZE LOT S.A.	**28**	44	40	N/A	28
34	POLSKA GRUPA GÓRNICZA S.A.	**27**	72	24	N/A	13
35	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	**27**	62	13	N/A	33
36	AGORA S.A.	**26**	48	43	2	13
37	PKP INTERCITY S.A.	**26**	46	44	N/A	13
38	POLIMEX - MOSTOSTAL S.A.	**26**	45	16	17	25
39	IMPEL S.A.	**25**	50	41	1	6
40	AB S.A.	**25**	39	25	15	20
41	TELEWIZJA POLSKA S.A.	**21**	48	12	N/A	22
42	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	**20**	39	11	N/A	30
43	PBG S.A.	**19**	39	12	8	18
44	PELION S.A.	**19**	42	16	4	14

International Champions National Champions Aspiring National Champions

Local Champions Other big companies

		NC indicator	Economy	Sector	Abroad	Innovation
45	POLENERGIA S.A.	18	40	2	10	22
46	DINO POLSKA S.A.	18	46	17	0	7
47	ERBUD S.A.	17	41	8	6	13
48	PRZEWOZY REGIONALNE	17	42	23	N/A	4
49	WĘGLOKOKS S.A.	17	46	9	N/A	12
50	ELEKTRIM S.A.	15	47	5	1	8

Positions 51-75

(alphabetical order)

ABC DATA S.A.
CEDROB
COGNOR HOLDING S.A.
EURO-NET SP. Z O.O.
FABRYKI MEBLI FORTE S.A.
FARMACOL S.A.
FERMY DROBIU WOŹNIAK SP. Z O.O.
GRAAL S.A.
GRUPA MASPEX SP. Z O.O.
INTER CARS S.A.
KRAJOWA SPÓŁKA CUKROWA S.A.
MENNICA POLSKA S.A.
MLEKPOL
NEONET SA
NEUCA S.A.
P P H U SPECJAŁ SP. Z O.O.
PESA HOLDING SP. Z O.O.
TELE-FONIKA KABLE S. A.
TERG S.A.
WIELTON S.A.
WIPASZ S.A.
WORK SERVICE SA
ZAKŁAD FARMACEUTYCZNY ADAMED PHARMA S.A.
ZARMEN SP. Z O.O.
ZESPÓŁ ELEKTROCIEPŁOWNI WROCŁAWSKICH KOGENERACJA S.A.

Positions 76-105

(alphabetical order)

AMPOL-MEROL SP. Z O.O.
DBK SP. Z O.O.
FIDELTRONIK POLAND SP. Z O.O.
FRAPO - DYSTRYBUCJA SP. Z O.O.
GRUPA PIOTR I PAWEŁ SP. Z O.O.
GRUPA PSB HANDEL S.A.
HURTAP S.A.
INDYKPOL S.A.
KOLPORTER SP. Z O.O.
KOMPUTRONIK S.A.
KONSORCJUM STALI S.A.
NOVA TRADING S.A.
NOWA ITAKA SP. Z O.O.
OKRĘGOWA SPÓŁDZIELNIA MLECZARSKA W ŁOWICZU
OSADKOWSKI S.A.
PHUP GNIEZNO SP. Z O.O. HURTOWANIA SP. K.
POLINDUS SP. Z O.O.
POLMAX S.A. S.K.A.
POLMLEK SP. Z O.O.
POLOMARKET SP. Z O.O.
PRUSZYŃSKI SP. Z O.O.
PRZEDSIĘBIORSTWO DYSTRYBUCJI FARMACEUTYCZNEJ SLAWEX SP. Z O.O.
PT DYSTRYBUCJA S.A.
PUH CHEMIROL SP. Z O.O.
SUPERDROB S.A.
TOTALIZATOR SPORTOWY SP. Z O.O.
UNIBEP S.A.
UNIMOT S.A.
X-KOM SP. Z O.O.

Economy

- International Champions
- National Champions
- Aspiring National Champions
- Local Champions
- Other big companies

1	KGHM POLSKA MIEDŹ S.A.
2	PGE POLSKA GRUPA ENERGETYCZNA S.A.
3	TAURON POLSKA ENERGIA S.A.
4	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.
5	PKN ORLEN
6	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.
7	ASSECO POLAND S.A.
8	ENEA S.A.
9	POLSKA GRUPA GÓRNICZA S.A.
10	GRUPA LOTOS S.A.
11	ENERGA S.A.
12	GRUPA AZOTY S.A.
13	CYFROWY POLSAT S.A.
14	PKP POLSKIE LINIE KOLEJOWE S.A.
15	POCZTA POLSKA S.A.
16	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.
17	PKP CARGO S.A.
18	COMARCH S.A.
19	SYNTHOS S.A.
20	POLSKA GRUPA ZBROJENIOWA S.A.
21	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ - SYSTEM S.A.
22	LPP S.A.
23	IMPEL S.A.
24	POLPHARMA S.A.
25	BORYSZEW S.A.
26	CCC S.A.
27	TELEWIZJA POLSKA S.A.
28	AGORA S.A.
29	STALPRODUKT S.A.
30	ELEKTRIM S.A.
31	DINO POLSKA S.A.
32	PKP INTERCITY S.A.
33	WĘGLOKOKS S.A.
34	POLIMEX - MOSTOSTAL S.A.
35	GRUPA KĘTY S.A.
36	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.
37	POLSKIE LINIE LOTNICZE LOT S.A.
38	AMICA S.A.
39	CIECH S.A.
40	FAMUR SA (GRUPA TDJ)
41	CERSANIT S.A.
42	PELION S.A.
43	PRZEWOZY REGIONALNE
44	ERBUD S.A.
45	MLEKOVITA
46	POLENERGIA S.A.
47	PBG S.A.
48	AB S.A.
49	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.
50	SELENA FM S.A.

Economy	Value added	Number of employees	Average salary	Wage fund	Liquidity and solvency	Contribution to state budget	Investments and fixed assets	Capitalisation
89	100	86	100	49	53	100	93	100
87	89	89	65	72	64	100	100	100
86	83	81	100	75	67	100	95	100
84	99	81	66	29	88	100	96	100
83	100	78	69	22	67	100	95	100
81	94	82	97	46	59	100	58	72
79	77	81	100	100	73	72	37	100
74	74	75	39	48	92	100	83	100
72	88	89	63	79	52	50	44	23
69	70	57	100	30	63	100	57	100
68	72	67	43	32	100	84	76	92
66	68	73	49	60	95	64	51	78
66	81	57	84	13	70	50	70	100
65	66	88	0	100	19	57	73	75
63	76	100	0	100	3	100	2	0
62	69	45	90	11	96	69	70	75
59	56	80	0	100	92	56	39	49
56	35	59	93	100	99	60	18	31
55	62	50	70	19	100	73	38	38
55	60	76	0	69	68	58	40	39
52	41	49	82	51	52	70	40	48
52	49	75	0	74	53	69	27	42
50	51	75	0	85	83	51	11	27
50	48	60	81	76	52	15	30	10
49	57	68	7	52	54	80	1	33
48	38	72	0	100	65	56	21	33
48	44	48	100	50	58	51	21	3
48	32	50	78	73	93	51	19	32
48	44	61	11	58	78	69	27	41
47	42	61	44	85	55	14	41	15
46	39	72	0	78	51	58	25	31
46	46	64	1	60	54	59	37	16
46	27	60	13	100	100	56	27	20
45	39	55	28	58	96	55	18	30
44	38	57	22	65	57	59	24	35
44	41	62	0	61	100	60	25	0
44	59	41	68	11	7	66	34	3
43	36	51	51	59	64	50	17	30
43	47	54	34	39	74	19	33	40
43	31	59	0	75	86	64	21	37
43	38	63	0	60	95	54	26	9
42	48	67	0	57	21	56	14	3
42	29	63	0	100	61	50	19	3
41	26	46	55	72	96	51	5	27
41	45	52	17	34	92	50	20	6
40	43	12	100	4	75	53	33	33
39	33	46	45	47	51	56	16	27
39	46	37	51	14	65	53	8	30
39	28	28	100	54	62	54	7	2
38	28	42	50	48	66	51	11	28

Sector

		Sector	Share in the value added of all sectors and in the employment of the main sector	Profitability and earning power in the main sector
1	PKN ORLEN	91	100	66
2	SYNTHOS S.A.	86	100	46
3	KGHM POLSKA MIEDŹ S.A.	83	100	32
4	POLSKA GRUPA ZBROJENIOWA S.A.	74	99	0
5	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	73	77	61
6	CIECH S.A.	66	71	50
7	SELENA FM S.A.	62	66	50
8	STALPRODUKT S.A.	57	63	40
9	GRUPA AZOTY S.A.	54	61	36
10	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	49	32	100
11	POCZTA POLSKA S.A.	47	63	0
12	CERSANIT S.A.	47	46	50
13	PKP CARGO S.A.	45	43	50
14	PKP INTERCITY S.A.	44	57	8
15	BORYSZEW S.A.	44	58	4
16	GRUPA KĘTY S.A.	43	26	93
17	CCC S.A.	43	35	66
18	AGORA S.A.	43	40	50
19	FAMUR SA (GRUPA TDJ)	42	40	50
20	CYFROWY POLSAT S.A.	41	54	3
21	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ - SYSTEM S.A.	41	39	48
22	IMPEL S.A.	41	38	50
23	POLSKIE LINIE LOTNICZE LOT S.A.	40	53	0
24	PKP POLSKIE LINIE KOLEJOWE S.A.	39	52	0
25	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	38	30	62
26	LPP S.A.	34	18	82
27	TAURON POLSKA ENERGIA S.A.	34	44	2
28	PGE POLSKA GRUPA ENERGETYCZNA S.A.	33	36	24
29	ASSECO POLAND S.A.	32	35	22
30	AMICA S.A.	30	8	95
31	GRUPA LOTOS S.A.	28	24	39
32	POLPHARMA S.A.	26	35	0
33	AB S.A.	25	33	0
34	POLSKA GRUPA GÓRNICZA S.A.	24	31	0
35	PRZEWOZY REGIONALNE	23	29	7
36	ENEA S.A.	23	29	4
37	ENERGA S.A.	20	27	1
38	COMARCH S.A.	20	13	42
39	DINO POLSKA S.A.	17	2	64
40	PELION S.A.	16	9	37
41	POLIMEX - MOSTOSTAL S.A.	16	22	0
42	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	13	17	0
43	TELEWIZJA POLSKA S.A.	12	16	0
44	PBG S.A.	12	13	7
45	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	11	14	0
46	WĘGLOKOKS S.A.	9	12	0
47	ERBUD S.A.	8	11	0
48	MLEKOVITA	7	10	0
49	ELEKTRIM S.A.	5	6	1
50	POLENERGIA S.A.	2	2	0

Name of main PKD class (number)	Number of other important sections of the business
Manufacture of refined petroleum products (19.20)	4
Manufacture of synthetic rubber in primary forms (20.17)	4
Mining of other non-ferrous metal ores (07.29)	0
Manufacture of weapons and ammunition (25.40)	2
Trade of gas through mains (35.23)	1
Manufacture of other inorganic basic chemicals (20.13)	2
Manufacture of glues (20.52)	2
Cold rolling of narrow strip (24.32)	2
Manufacture of fertilisers and nitrogen compounds (20.15)	2
Mining of hard coal (05.10)	1
Postal activities under universal service obligation (53.10)	0
Manufacture of ceramic tiles and flags (23.31)	2
Freight rail transport (49.20)	1
Passenger rail transport, interurban (49.10)	0
Aluminium production (24.42)	4
Aluminium production (24.42)	0
Retail sale of footwear and leather goods in specialised stores (47.72)	0
Publishing of newspapers (58.13)	3
Manufacture of machinery for mining, quarrying and construction (28.92)	2
Television programming and broadcasting activities (60.20)	3
Transport via pipeline (49.50)	0
Other building and industrial cleaning activities (81.22)	1
Passenger air transport (51.10)	0
Service activities incidental to land transportation (52.21)	0
Manufacture of household and sanitary goods and of toilet requisites (17.22)	0
Retail sale of clothing in specialised stores (47.71)	0
Trade of electricity (35.14)	3
Trade of electricity (35.14)	2
Computer programming activities (62.01)	2
Manufacture of electric domestic appliances (27.51)	0
Manufacture of refined petroleum products (19.20)	0
Manufacture of pharmaceutical preparations (21.20)	2
Wholesale of computers, computer peripheral equipment and software (46.51)	2
Mining of hard coal (05.10)	0
Passenger rail transport, interurban (49.10)	0
Trade of electricity (35.14)	2
Trade of electricity (35.14)	2
Computer programming activities (62.01)	1
Retail sale in non-specialised stores with food, beverages or tobacco predominating (47.11)	0
Wholesale of pharmaceutical goods (46.46)	0
Construction of utility projects for electricity and telecommunications (42.22)	1
Transmission of electricity (35.12)	0
Television programming and broadcasting activities (60.20)	0
Construction of utility projects for electricity and telecommunications (42.22)	0
Repair and maintenance of ships and boats (33.15)	1
Wholesale of solid, liquid and gaseous fuels and related products (46.71)	1
Construction of residential and non-residential buildings (41.20)	1
Operation of dairies and cheese making (10.51)	0
Production of electricity (35.11)	0
Trade of electricity (35.14)	0

International Champions

National Champions

Aspiring National Champions

Local Champions

Other big companies

Abroad

		Abroad	Foreign activity	Export
1	ASSECO POLAND S.A.	**100**	100	100
2	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	**99**	96	100
3	COMARCH S.A.	**95**	76	100
4	BORYSZEW S.A.	**94**	69	100
5	CIECH S.A.	**92**	62	100
6	PKN ORLEN	**91**	55	100
7	AMICA S.A.	**87**	35	100
8	GRUPA KĘTY S.A.	**86**	30	100
9	KGHM POLSKA MIEDŹ S.A.	**85**	27	100
10	STALPRODUKT S.A.	**80**	2	100
11	MLEKOVITA	**80**	0	100
12	SELENA FM S.A.	**80**	86	78
13	POLPHARMA S.A.	**76**	65	79
14	CERSANIT S.A.	**73**	0	92
15	CCC S.A.	**72**	72	72
16	FAMUR SA (GRUPA TDJ)	**64**	47	68
17	LPP S.A.	**51**	69	46
18	SYNTHOS S.A.	**45**	73	37
19	GRUPA AZOTY S.A.	**33**	1	40
20	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	**30**	0	37
21	GRUPA LOTOS S.A.	**29**	35	27
22	PKP CARGO S.A.	**23**	0	29
23	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	**18**	8	20
24	POCZTA POLSKA S.A.	**17**	0	21
25	POLIMEX - MOSTOSTAL S.A.	**17**	25	15
26	AB S.A.	**15**	75	0
27	POLENERGIA S.A.	**10**	0	13
28	PBG S.A.	**8**	18	6
29	ERBUD S.A.	**6**	25	2
30	PELION S.A.	**4**	0	5
31	CYFROWY POLSAT S.A.	**3**	13	1
32	AGORA S.A.	**2**	0	3
33	IMPEL S.A.	**1**	2	1
34	PGE POLSKA GRUPA ENERGETYCZNA S.A.	**1**	2	1
35	TAURON POLSKA ENERGIA S.A.	**1**	1	1
36	ELEKTRIM S.A.	**1**	0	1
37	ENERGA S.A.	**0**	0	1
38	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ - SYSTEM S.A.	**0**	0	0
39	ENEA S.A.	**0**	0	0
40	DINO POLSKA S.A.	**0**	0	0

International Champions
National Champions
Aspiring National Champions
Local Champions
Other big companies

Innovation

		Innovation	Intellectual property	R&D activity	Cooperation with science sector	Labour productivity
1	KGHM POLSKA MIEDŹ S.A.	78	88	26	99	100
2	POLPHARMA S.A.	77	92	90	67	53
3	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	72	92	N/A	100	100
4	COMARCH S.A.	71	52	98	100	31
5	SYNTHOS S.A.	64	65	N/A	100	100
6	GRUPA LOTOS S.A.	63	59	N/A	100	100
7	GRUPA AZOTY S.A.	61	97	N/A	83	56
8	FAMUR SA (GRUPA TDJ)	59	75	41	83	26
9	PKN ORLEN	56	100	25	0	100
10	BORYSZEW S.A.	52	21	46	100	47
11	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	51	44	6	65	98
12	MLEKOVITA	49	41	N/A	83	78
13	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ - SYSTEM S.A.	48	38	N/A	83	81
14	TAURON POLSKA ENERGIA S.A.	47	46	N/A	83	64
15	ENERGA S.A.	43	77	N/A	0	100
16	STALPRODUKT S.A.	42	42	N/A	83	44
17	ASSECO POLAND S.A.	40	17	100	0	51
18	AMICA S.A.	36	81	N/A	0	58
19	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	33	45	N/A	0	100
20	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	32	83	N/A	0	34
21	POLSKA GRUPA ZBROJENIOWA S.A.	31	0	N/A	100	31
22	PKP POLSKIE LINIE KOLEJOWE S.A.	31	21	N/A	83	19
23	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	30	33	N/A	0	100
24	POLSKIE LINIE LOTNICZE LOT S.A.	28	25	N/A	0	100
25	GRUPA KĘTY S.A.	26	58	N/A	0	43
26	CYFROWY POLSAT S.A.	26	20	N/A	0	100
27	POLIMEX - MOSTOSTAL S.A.	25	50	N/A	0	50
28	TELEWIZJA POLSKA S.A.	22	6	N/A	0	100
29	POLENERGIA S.A.	22	6	N/A	0	100
30	AB S.A.	20	0	0	0	100
31	ENEA S.A.	19	20	N/A	0	66
32	PBG S.A.	18	13	N/A	0	70
33	CIECH S.A.	15	0	N/A	0	77
34	POCZTA POLSKA S.A.	14	39	0	0	13
35	SELENA FM S.A.	14	0	N/A	0	71
36	PELION S.A.	14	23	0	0	34
37	POLSKA GRUPA GÓRNICZA S.A.	13	13	N/A	0	47
38	PKP INTERCITY S.A.	13	18	N/A	0	38
39	ERBUD S.A.	13	10	N/A	0	48
40	AGORA S.A.	13	6	N/A	0	54
41	CERSANIT S.A.	13	23	N/A	0	28
42	WĘGLOKOKS S.A.	12	28	N/A	0	20
43	PGE POLSKA GRUPA ENERGETYCZNA S.A.	12	6	N/A	0	52
44	LPP S.A.	12	25	N/A	0	20
45	CCC S.A.	9	20	N/A	0	15
46	ELEKTRIM S.A.	8	0	N/A	0	39
47	PKP CARGO S.A.	8	13	N/A	0	19
48	DINO POLSKA S.A.	7	13	N/A	0	16
49	IMPEL S.A.	6	6	N/A	0	21
50	PRZEWOZY REGIONALNE	4	0	N/A	0	19

Methodological Annex

The national champion indicator (NC indicator) is an arithmetic average of points obtained in four categories: the economy, the sector, activity abroad and innovation. The NC indicator was calculated for the top 50 capital groups (or "companies") in the economy category. That indicator had been calculated for 105 groups controlled by Polish capital that had over PLN 1 billion in revenue in 2017, over 100 employees and over PLN 100 million in capital. We used data consolidated for the entire capital group. For each company, the NC indicator was rounded up or down to an integer.

Index: the Economy

The indicator is calculated based on eight subindexes, each representing another mechanism in which the company influences the economy:

The value added generated by the company in 2017 is calculated based on consolidated data from the company or – in case of lack of such data – as the product of the sum of added value quotients and the income of the main PKD class of a given company's activity and its income. The value of the subindex is then calculated using the formula:

$$G_i^1 = 100 * \frac{\log(10*VA_i)}{\log(10*VA_{MAX})}$$

where VA_i is the added value of i-th company, and VA_{MAX} is the highest added value from all companies surveyed (in PLN billion). Additionally, in all cases where a logarithm is referenced in this document, it means base 10 logarithm.

Number of employees is the total number of people employed at a given company at the end of 2017, in full-time equivalents from its annual report. Then, the value of the subindex is calculated using the formula:

$$G_i^2 = 100 * \frac{\log(10*E_i)}{\log(10*E_{MAX})}$$

where E_i is the employment in i-th company, and E_{MAX} to is the highest employment at all companies surveyed (in thousands of employees).

Average salary is calculated based on the average annual gross remuneration at the company, provided in the survey filled out by companies. If a company provides data regarding expenditures on employees, we calculate the quotient of such data and the number of employees. In the absence of data, we use the average remuneration in the main PKD class. Then, the value of the subindex is calculated using the formula:

$$G_i^3 = \begin{cases} 100 & jeżeli\ w_i \geq 2\overline{w} \\ 100 * \frac{w_i - \overline{w}}{\overline{w}} & jeżeli\ w_i \in (\overline{w}; 2\overline{w}) \\ 0 & jeżeli\ w_i \leq \overline{w} \end{cases}$$

where w_i is the average salary in i-th company, and $\overline{w}_i$ the average annual salary in the Polish enterprise sector in 2017..

The Wage fund is calculated based on data obtained for points 1-3, using the following formula:

$$G_i^4 = Min\left\{100 * \frac{E_i * w_i}{VA_i}; 100\right\}$$

Contribution to the state budget is calculated based on data on tax paid by the given company in 2016, obtained from surveys sent to companies or – in case of lack of response – according to consolidated financial reports for 2017, as the difference between gross and net profit (without tax) plus sectoral taxes paid by the company. Then, the subindex is calculated using the formula:

$$G_i^5 = 50 * Min\left\{10^3 * \frac{Tax_i}{BTAX}; 1\right\} + 50 * 1_{PL}(Reg_i)$$

where TAX_i is the amount of taxes paid by i-th company, B_{TAX} is the state budget's total tax revenue in 2017 (in thousands PLN), 1_{PL} is the indicator of a one-element set consisting of Poland, and Reg_i

is the registration country of the entity dominating in the i capital group. and Reg_i is the registration country of the entity dominating in the i capital group.

Fixed assets are calculated based on data at the end of 2017, according to the consolidated financial report for 2017, and investments on the basis of gross expenditures on fixed assets in 2017 according to the results of a survey sent to companies or – in case of lack of response to the survey – on the basis of an estimation similar to that in point 2. Then, the subindex is calculated using the formula:

$$G_i^6 = 0{,}5 * Min\left\{10^4 * \frac{GFCF_i}{GFCF}; 100\right\} + 0{,}5 * Min\left\{100 * \frac{\log(10 * K_i)}{\log(10 * K_{MAX})}; 100\right\}$$

where $GFCF_i$ is the value of expenditures on fixed assets of i-th company, GFCF is the value of fixed assets expenditures in the domestic economy, K_i are the fixed assets of i company, K_{MAX} is the highest K among all companies involved.

Solvency and liquidity are calculated based on the solvency ratio and liquidity ratio data (calculated according to guidelines for Polish financial reporting) according to consolidated financial reports for 2017. Then, the subindex is calculated using the formula:

$$G_i^7 = 50 * \mathrm{F}(x = SR_i, \mu = 20, s = 2) + 50 * \mathrm{F}(x = LR_i, \mu = 1, s = \frac{1}{6})$$

where SR_i is the solvency ratio of i-th company, LR_i is the liquidity ratio of i-th company, and F(x,u,s) is the cumulative distribution function of a logistic distribution with argument x and parameters u and s.

Capitalisation is calculated based on the nominal value of equity (PLN million) at the end of 2017, according to company financial report and information, whether the company was a listed company at the end of 2018. Then, the subindex value is calculated using the formula:

$$G_i^8 = Min\left\{75 * \frac{Funds_i}{Funds_{10}}; 75\right\} + 25 * \mathbf{1}_{GPW}(i)$$

where $Funds_i$ is the equity value of i-th company, $Funds_{10}$ is the lower limit of 10^{th} decile of the $Funds_i$ distribution among all companies studied, GPW is the set of all companies listed on the WarsawStock Exchange's main stock market and 1_{GPW} is the indicator for that set.

Total Economy index is calculated as a weighted average of all components listed above, using the formula:

$$G_i = 0{,}3 * G_i^1 + 0{,}2 * G_i^2 + 0{,}1 * G_i^3 + 0{,}1 * G_i^4 + 0{,}1 * G_i^5 + 0{,}1 * G_i^6 + 0{,}05 * G_i^7 + 0{,}05 * G_i^8$$

Index: Industry

This index is calculated based on two subindexes, one reflecting the company's position in its sector and other significant sectors and the other shows its productivity and profitability in comparison to other companies in the same sector:

Share in the sector is calculated on the basis of data on revenue, employment and investment expenditures according to consolidated financial report for 2017, as well as data regarding business activity sectors according to surveys received or estimated on the basis of annual reports and public information. Then, the subindex value is calculated using the formula:

$$B_i^1 = Min\left\{60 * \frac{GO_i}{GO_k} + 20 * \frac{E_i}{E_k} + 10 * \frac{GFCF_i}{GFCF_k} + 10 * \sum_{j \in N} \mathbf{1}_{1\%}\left(\frac{GO_{ij}}{GO_j}\right) \;\; ; \;\; 100\right\}$$

where GO_i is the value of income of i-th company achieved due to its main activity according to PKD classes, GO_k is the value of income in k-th PKD class being the main activity of i-th company, E_i is the employment in i-th company, E_k is the employment in k-th PKD division being the main activity of i-th company, $GFCF_i$ is the value of gross expenditures on fixed assets of i-th company, $GFCF_k$ is the value of gross expenditures on fixed assets in k-th PKD division, being the main activity of i-th company, N is the set of all other PKD classes giving the company at least 3% of its income, 1% is the set of all natural number higher or equal to 1%, GO_{ij} is the value of income of i-th company in j-th PKD class, and GO_j is the value of income in j-th PKD class. All data above was collected for 2017.

Profitability index in the context of the sector is calculated based on data on ROA indicator (percentage ratio of net profit to asset value) and gross margin, according to surveys received from the companies or consolidated financial report for 2017. Then, the subindex value is calculated using the formula:

$$B_i^2 = Min\{Max\{10 * (ROA_i - ROA_k) \;\; ; \;\; 0\} \;\; ; \;\; 50\} + Min\{Max\{5 * (GM_i - GM_k) \;\; ; \;\; 0\} \;\; ; \;\; 50\}$$

where ROA_i is the ROA indicator of i-th company, ROA_k is the ROA indicator in k-th PKD class being the main activity of i-th company, GM_i is the gross margin of i-th company, and GM_k is the gross margin in k-th PKD class being the main activity of i-th company.

Total industry index is calculated as a weighted average of all components listed above, using the following formula:

$$B_i = 0{,}75 * B_i^1 + 0{,}25 * B_i^2$$

Index: Abroad

This index is calculated on the basis of two subindexes, with the first one showing the scope of international activity of the company, and the second one – role of export in the company size:

International activity is calculated on the basis of data regarding the number of entities in the capital group registered outside Poland, as well as the share of income generated by foreign entities in the total amount of income, according to surveys received from the companies or, if such information was not shared, according to own estimates based on financial reports for 2017, as well as information available publicly. Then, the subindex value is calculated using the formula:

$$Z_i^1 = 100 * \frac{\log(A_i + 1)}{\log(A_{Max})}$$

where A_{Max} is the highest A_i value for the companies in top 50 of the national champion ranking, with Ai calculated as follows:

$$A_i = 100 * FE_i * FR_i$$

where FE_i is the percentage of capital group entities registered abroad, and FR_i is the share of revenue from foreign subsidiaries in the total income of the capital group.

Export subindex is calculated on the basis of data regarding the number of countries being export targets of products and services of the company, according to surveys received from the companies or, if such information was not shared, from public sources, including annual reports. It also includes data regarding the share of revenues from export sales in the total revenue, based on financial reports for 2017, surveys or publicly available data. Then, the subindex value is calculated using the formula:

$$Z_i^2 = Min\left\{100 * \frac{x_i + \bar{x}}{2\bar{x}} * ER_i \quad ; \quad 100\right\}$$

where x_i is the number of countries being the export targets of i-th company, $\bar{x}$ is the median of the number of countries where top 50 companies of the national champion ranking sell their products and services, and ER_i is the share of export sales in the income of i company.

Total International Presence index is calculated as the weighted average of components listed above, using the following formula:

$$Z_i = 0{,}2 * Z_i^1 + 0{,}8 * Z_i^2$$

Index: innovativeness

The indicator is calculated on the basis of four subindexes, each one depicting a different dimension of the capital group innovativeness:

Intellectual property is calculated on the basis of data regarding the number of patents and trademarks currently in force, placed in the Espacenet database of the Polish Patent Office and owned by the capital group at the end of 2018. Then, the subindex value is calculated using the following formula:

$$I_i^1 = 0{,}75 * Min\left\{100 * \frac{\log(P_i + 1)}{\log(P_{10})} \quad ; \quad 100\right\} + 0{,}25 * Min\left\{100 * \frac{\log(ZT_i + 1)}{\log(ZT_{10})} \quad ; \quad 100\right\}$$

where P_i is the number of patents registered by i-th company, P_{10} is the lower bound of the 10th decile of the distribution of number of patents registered by top 50 companies of the national champion ranking, ZT_i is the number of trademarks registered by i-th company, ZT_{10} is the lower bound of the 10th decile of the distribution of number of trademarks registered by top 50 companies of the national champion ranking.

R&D activity is calculated on the basis of data regarding the number of research and development employees, as well as company R&D expenditures reported by companies in the survey. Missing data was collected on the basis of publicly available sources, including annual reports for 2017. In case of numerous capital groups such data was not available, leading to a conclusion that in further calculations the R&D activity subindex for the company should equal 0. In case of capital groups where such data was available, the subindex is calculated using the following formula:

$$I_i^2 = Min\left\{50 * \frac{\log(E_i^{BR} + 1)}{\log(E_{10}^{BR})}; 50\right\} + Min\left\{50 * \frac{\log(BR_i + 1)}{\log(BR_{10})}; 50\right\}$$

where E_i^{BR} is the number of R&D employees employed by i-th company, E_{10}^{BR} is the lower bound of the 10th decile of the distribution of the number of R&D employees employed by the top 50 companies of the national champion ranking, BR_i is he amount of R&D expenditures (in PLN million) of i company, BR_{10} is the lower bound of the 10th decile of the distribution of the amount of R&D expenditures (in PLN million) of the top 50 companies of the national champion ranking.

Cooperation with science sector is calculated on the basis of NCBiR data regarding the number of research projects conducted by any company belonging to the capital group as a part of NCBiR programs at the end of 2018, as well as on the basis of data regarding financing of research units by companies belonging to the capital group in 2017, declared in surveys sent by the companies. In case of companies that did not complete surveys this value is assumed to equal 0. The subindex value is calculated using the following formula:

$$I_i^3 = Max\left\{Min\left\{100 * \frac{NCBiR_i}{NCBiR_{10}}; 100\right\}; Min\left\{100 * \frac{\log(Fin_i + 1)}{\log(Fin_{10})}; 100\right\}\right\}$$

where $NCBiR_i$ is the number of research projects conducted by i-th company, $NCBiR_{10}$ is the lower bound of the 10th decile of the distribution of the number of research projects conducted by the top 50 companies of the national champion ranking, Fin_i is the amount of i-th company expenditures on financing research units (in PLN thousands), and Fin_{10} is the lower bound of the 10th decile of the distribution of expenditures on financing research units of the top 50 companies of the national champion ranking.

Labour productivity is calculated on the basis of data regarding added value and employment in the capital group, acquired in the Economy category. Then, the subindex value is calculated using the following formula:

$$I_i^4 = Min\left\{100 * \frac{va_i}{va_4} \quad ; \quad 100\right\}$$

Where va_i is the added value per employee of i-th company, va_4 is the lower bound of the fourth quartile of the distribution of added value per employee in top 50 companies of the national champion ranking.

The full index is calculated as the weighted average of components listed above, using the following formula:

$$I_i = 0{,}3 * I_i^1 + 0{,}25 * I_i^2 + 0{,}25 * I_i^3 + 0{,}2 * I_i^4$$

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