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RESEARCH

National Champions

How They Foster Human Capital

2020 Edition



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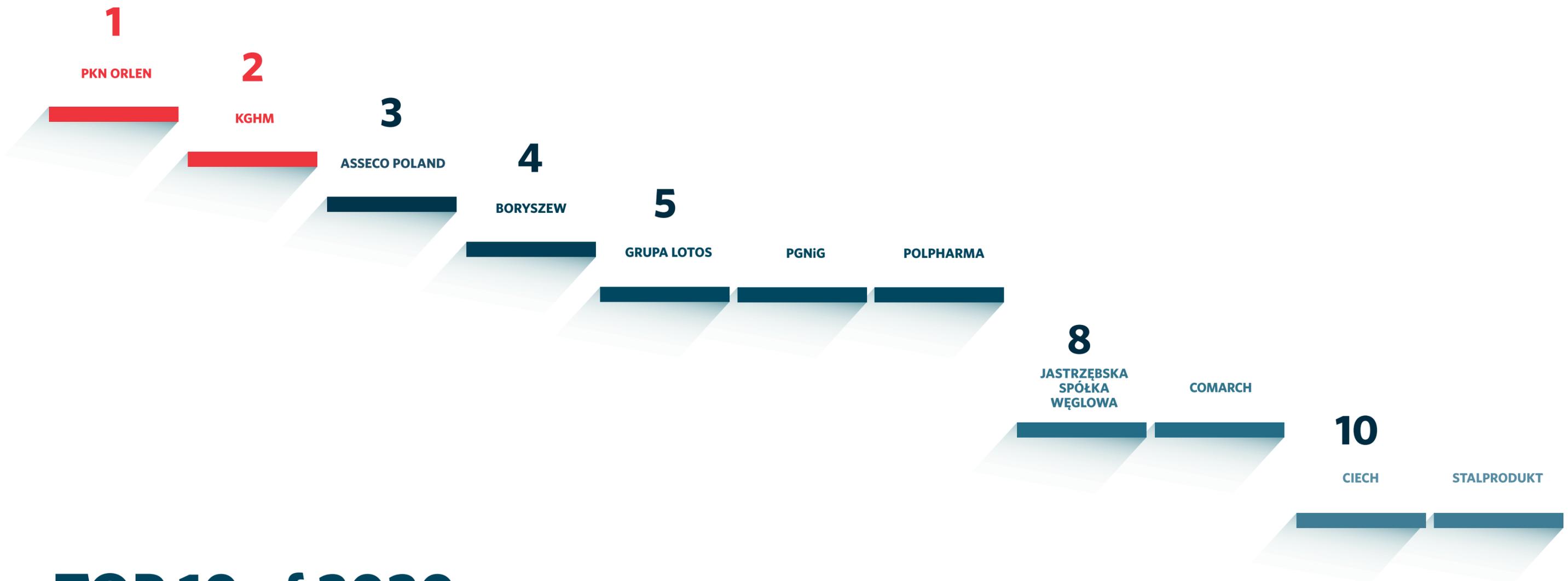
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TOP 10 of 2020 National Champions

	PKN ORLEN	KGHM	ASSECO POLAND	BORYSZEW	GRUPA LOTOS
●	Daniel Obajtek	Marcin Chludziński	Adam Góral	Piotr Lisiecki	Paweł Jan Majewski
○	Płock	Lubin	Rzeszów	Warsaw	Gdańsk
✕	21,282	33,568	24,302	9,520	5,045
◆	10,244	10,000	3,968	3,451	2,800
○	8.7	4.5	4.5	3.3	7.1
★	56%	74%	87%	64%	23%
●	Manufacture of refined petroleum products	Mining of other non-ferrous metal ores	Computer programming activities	Aluminium production	Manufacture of refined petroleum products
⬡	2	1	4	7	18

	POLPHARMA	PGNiG	COMARCH	JASTRZĘBSKA SPÓŁKA WĘGLOWA	CIECH	STALPRODUKT
●	Markus Sieger	Jerzy Kwieciński	Janusz Filipiak	Włodzimierz Hereźniak	Dawid Jakubowicz	Piotr Janeczek
○	Starogard Gdański	Warsaw	Kraków	Jastrzębie-Zdrój	Warsaw	Bochnia
✕	6,250	24,800	6,091	28,268	3,871	6,462
◆	874	11,048	591	9,388	841	678
○	11.9	6.0	1.9	12.8	2.3	6.5
★	22%	13%	54%	53%	59%	44%
●	Manufacture of pharmaceutical preparations	Trade of gas through mains	Computer programming activities	Mining of hard coal	Manufacture of other inorganic basic chemicals	Cold rolling of narrow strip
⬡	8	5	6	13	10	9

- President
- Headquartered in
- ✕ Number of employees
- ◆ Added value
- ROA
- ★ Share of exports in total sales
- Main sector of activity
- ⬡ 2019 ranking

What Is Human Capital

Human capital is one of the key resources of the modern economy. As OECD analyses show, expanding human capital across the entire population can contribute to an overall welfare growth and an increased sense of happiness. Simultaneously, higher human capital enables companies to increase their productive capacity. It is therefore hardly surprising that human capital is subject to numerous analyses while human capital studies have virtually become an academic subdiscipline on its own in the faculties of economy, sociology, and management. As a result, numerous definitions of the term have been coined, focussing on its various aspects such as cognitive skills, creative skills, or even social relations and health status.

To put it broadly, human capital comprises knowledge, skills, and abilities of an employee. It also includes their personality and life-long experiences. Altogether, these aspects determine not only one's identity, but also one's economic output and received salary. Human capital is a resource that determines an employee's value in a given company. As capital it can be expanded as well as invested in. The bigger the capital, the bigger the company's chance to grow and, consequently, to strengthen its market position.

We can talk about human capital in terms of economy. In order to assess its value, one needs to take into consideration multiple diverse factors such as enrolment ratio, unemployment rate, GDP or state's expenditure on healthcare and R&D. For employees' skills and abilities are not only influenced as a result of their education and physical condition. As employees co-shape the state's economy their human capital is reversely influenced by the current economic situation. Similarly, as employees are part of a society, a general societal condition is a factor influencing one's human capital as well. In this light, human capital should also be perceived as a subject of policymaking and change.

The efforts to foster human capital prove particularly efficient when focused on the following two aspects: education rate and innovation. The former consists in boosting skills and abilities of individuals while the latter means providing an environment where these skills and abilities are needed and can be put into use. The state and enterprises can play a major role in both.



Human Capital As Educated Workforce

Human capital is often considered to be virtually synonymous with one's level of education. The more people are educated, that is better equipped with knowledge and skills, the better they are suited for complex task completion. Education translates into higher earnings, more stable employment and a bigger satisfaction at work. And finally, human capital carries a symbolic value as it is an indicator of social prestige. Employees with a university degree are usually quicker in adapting to office and creative work. They are equally successful in an eventual career change.

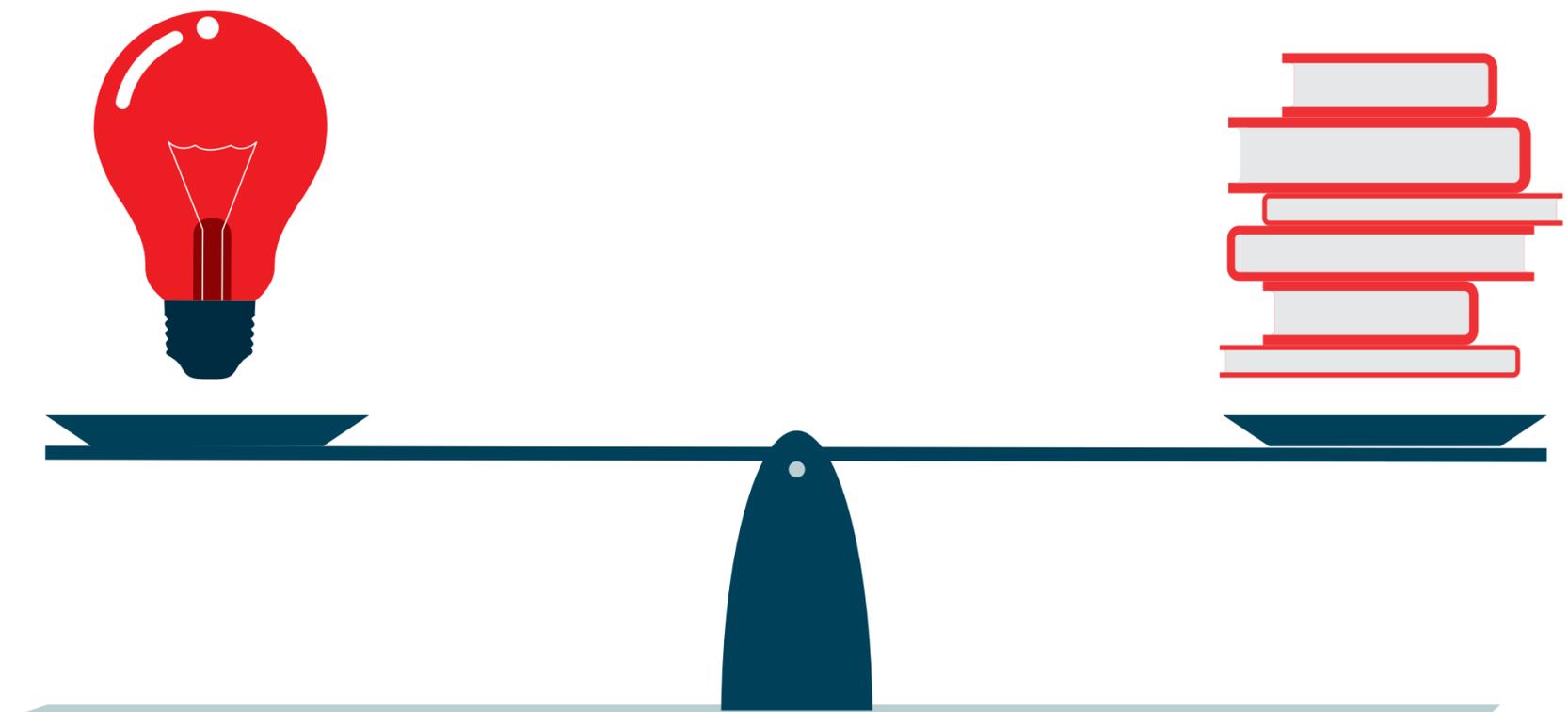
In Poland, the education rate has been on the rise since the early 2000s. In the last 30 years, the number of 19-24-year-olds with a degree has increased from 10% to 40%. Poland thus achieved its EU objectives set through the Bologna Process while thousands of young Poles gained access to knowledge and skills sources unavailable to their parents. This was offset by the so-called credential inflation of a university diploma. Tertiary education, by becoming a less elite commodity, has gradually lost its worth to the employers. To a vast extent, it is attributable to an aggressive expansion of private universities, uncontrolled neither by the state nor by the Academy. Often offering low-quality services, crippled by insufficient teaching staff

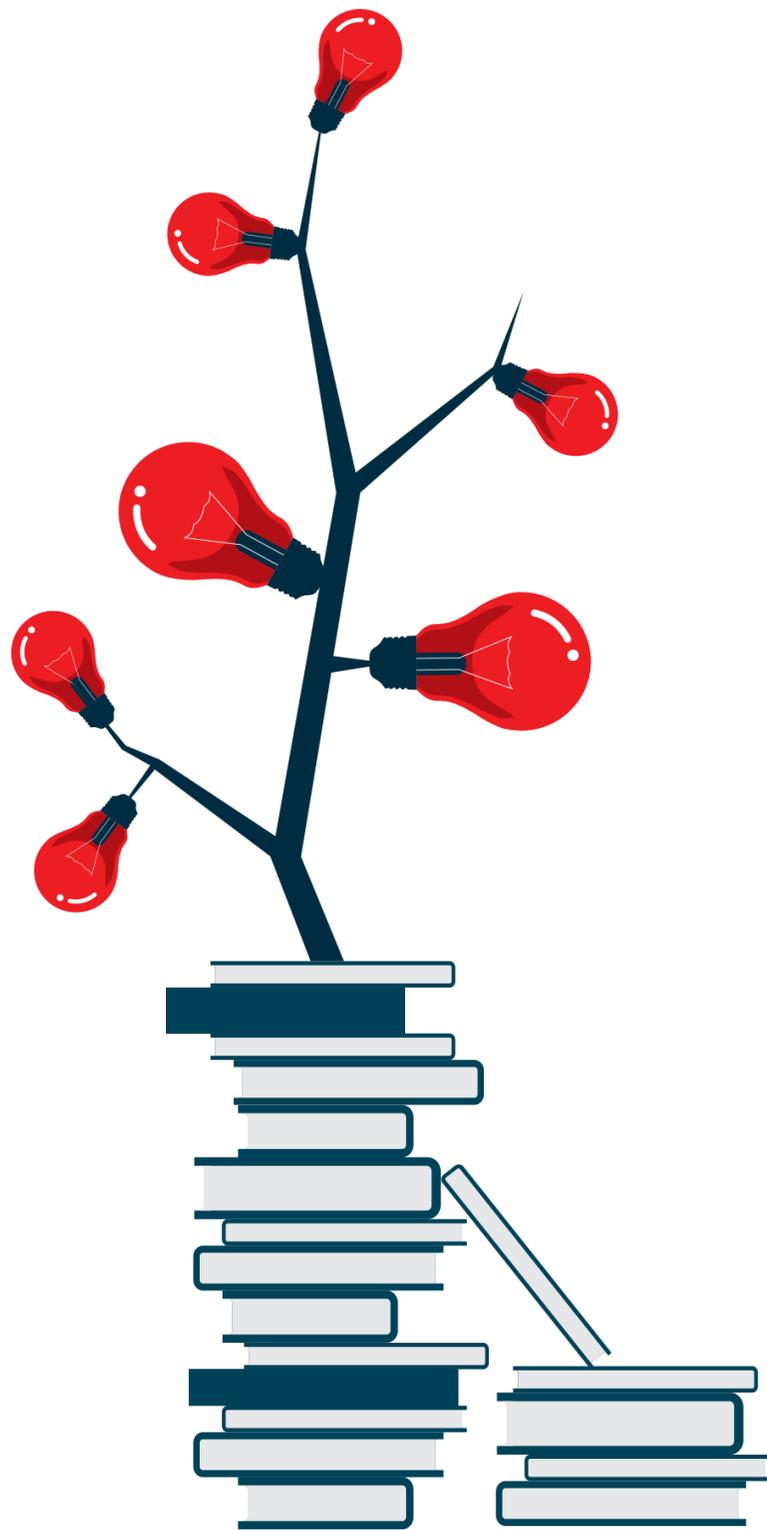
and student infrastructure shortcomings, such facilities were unable to efficiently respond to ever-growing educational ambitions soaring among young Poles nor to offer them good education.

At the same time, the apogee of the educational boom in Poland coincided with the peak of the 2008 economic crisis. This brought about a scarcity of high-skilled jobs just as the demand among the newly educated labour was soaring. In literature, this disparity is commonly referred to as a skills mismatch. That disparity translated into emigration of the unemployed towards the richer countries of the EU and brain drain – a mass exodus of well-educated Poles.

Currently, the skills mismatch continues to be an issue in Poland, but rather for employers than employees. The former, especially foreign-invested companies, are on a constant lookout for candidates with a degree. Polish applicants are rather high-skilled while their salary remains largely low, especially compared with Western Europe. Therefore, locating offices or industrial sites in Poland continues to be profitable to foreign investors.

Furthermore, due to an outflow of over 2 million Poles following the country's accession to the EU in 2004, Poland has seen the demand for skilled labourers soar. Professionals in the construction industry can expect a relatively high salary and stable employment.

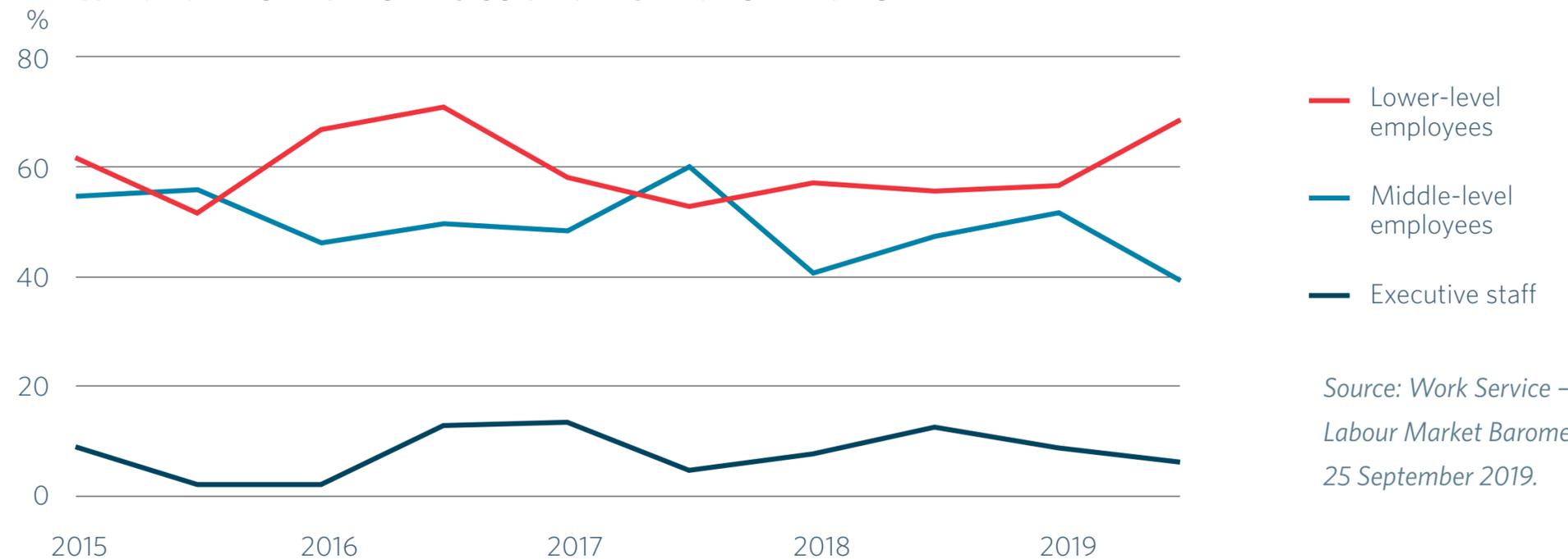




This is contrasted by the situation in the service sector. As Poland enjoys steady economic growth, the number of employees working in services continues to increase. This is manifested by a growing number of eateries, on-line transport platforms as well as the expansion of the entertainment industry in Poland. But the industry's workers are often hired on less preferential terms. Simultaneously, life-long learning is gaining popularity, especially among those who already finished their

formal education and are now seeking to change careers. Policymakers do not seem to devote much attention to life-long learning, though. This is best illustrated by the fact that it is Universities of the Third Age that are the most thriving life-long learning facilities in Poland. While they are important for the elderly as institutions fostering social and cultural life, they do not contribute to human capital accumulation in companies whatsoever.

WHAT KIND OF EMPLOYEES COMPANIES PLAN ON HIRING?



Source: Work Service - 12th Labour Market Barometer, 25 September 2019.

Innovation As a Driver For Human Capital Growth

Apart from education, human capital accumulation is also fuelled by innovation and R&D activity. Unfortunately, in contrast to other EU economies, especially compared to the EU15 countries, Polish companies are rather unsuccessful in this domain. They rarely file for patents while their employment rate in R&D remains largely low. This trend was already readily observable during the previous editions of the National Champions ranking, where we measured the influence of innovation and R&D on a company's human capital among other factors. We verified, for instance, the proportion of R&D workers to the overall staff count, the number of patents registered as well as their expenditure on research.

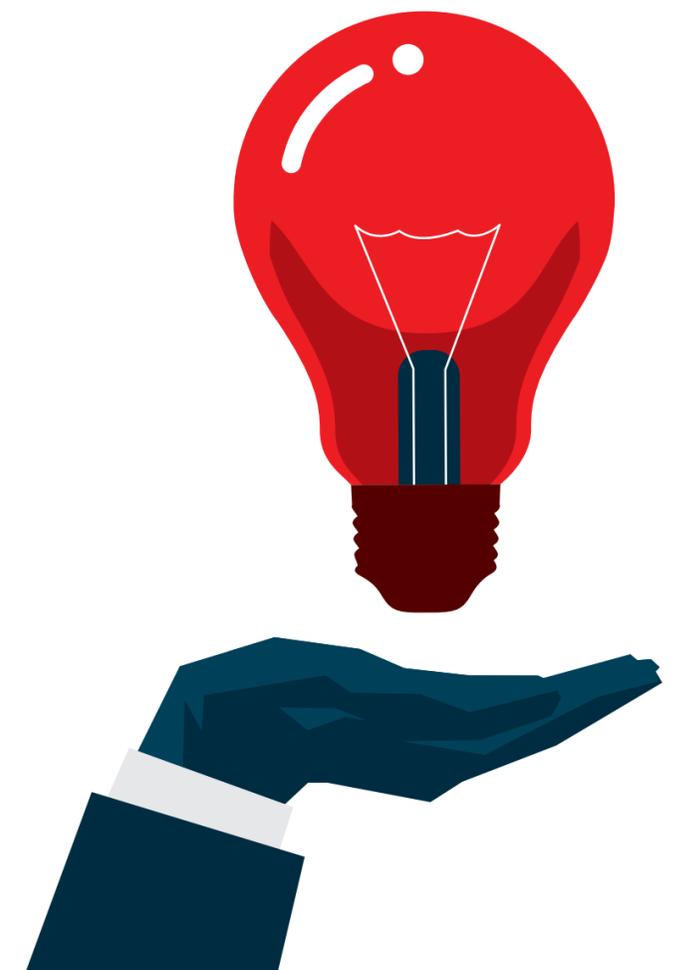
Innovation is usually associated with IT, which permeates other industries such as manufacturing, transport, telecommunication or media. While the IT industry is in constant need of engineers, it calls for numerous other professionals as well. In today's world, the competitive advantage can be built not only thanks to introducing an innovative tech solution. Their scaling up in a user-friendly form can prove equally profitable. E-commerce and ride-sharing platforms are a great example of this approach. They did not expand their market share by delivering a breakthrough tech innovation, but by merely offering simple interfaces available on smartphones. Such solutions are a result of an active collaboration between graphic and UX designers as well as social researchers. Each of these groups is characterised by a set

of relatively rare and complex skills. Importantly, fostering human capital as a driver for innovation is made possible through investment in both hard sciences and engineering, and human and social sciences.

The number of innovation-driven enterprises in the company pool in general is perhaps set to increase as reindustrialisation processes in the EU intensify. Pundits converge that industrial activity implies intensifying R&D processes for contemporary manufacturing in today's world ever more complex economy requires a constant inflow of new advanced technology. Having said this, as the economic crises of the late 20th century & early 21st century as well as the current COVID-19 pandemic have acutely demonstrated, the manufacturing industry is highly dependent on the global supply chain that has forced many plants to settle in developing countries. As state interventionism is expected to intensify globally, manufacturing plants might be welcome anew in European countries, which, in turn, would mean a revived demand for skilled professionals. This might be particularly true for sectors strategic to emergency management such as farming, water and energy supply or pharmaceutical manufacturing. Some of the Polish champions listed in our ranking represent precisely the aforementioned sectors. Therefore, if these predictions were to come true, their position would only strengthen. The particularities of the manufacturing industry such as tremendous investment costs, high risk, and necessity

to operate on a large scale may influence other sectors – for instance education – and bring about a reverse supply of skilled workers.

Co-dependency of state economies will not vanish, though. Consequently, manufacturers will continue to compete for the best candidates among the high-skilled and well-educated. Polish companies will not be any different. In order to lure workers, however, they will need to improve their workplace conditions.



The Labour Market In Poland

The role of the state in attracting human capital is two-fold: it can foster the development of high-skilled sectors as well as actively ameliorate workplace conditions. This is based on a pragmatic assumption that highly-skilled workers tend to have higher standards when it comes to employee perks and benefits. Their bargaining power is further strengthened by the current situation on the labour market, which stands in stark contrast to the recent economic history of Poland. Namely, the record-low unemployment rate coincides with a low economic activity rate. In 2019, the latter was estimated at 56%. This means that Poland has a substantial pool of potential workers, often in working age, who do not want to participate in the labour force. And that despite an accelerated surge in salaries. On top of that, an estimated 2.5 million Poles have emigrated, which further exacerbates the difficult situation. As a result, Poland is currently dealing with a labour gap, which by 2025 may stand at 1.5 million of missing workers, a PwC estimate says. This phenomenon may lead to the emergence or to further aggravation of adverse socio-economic phe-

nomena such as: a low propensity to innovation of Polish firms, middle-scale trap, limited access to high-quality public services or underqualification of staff assuming important public roles.

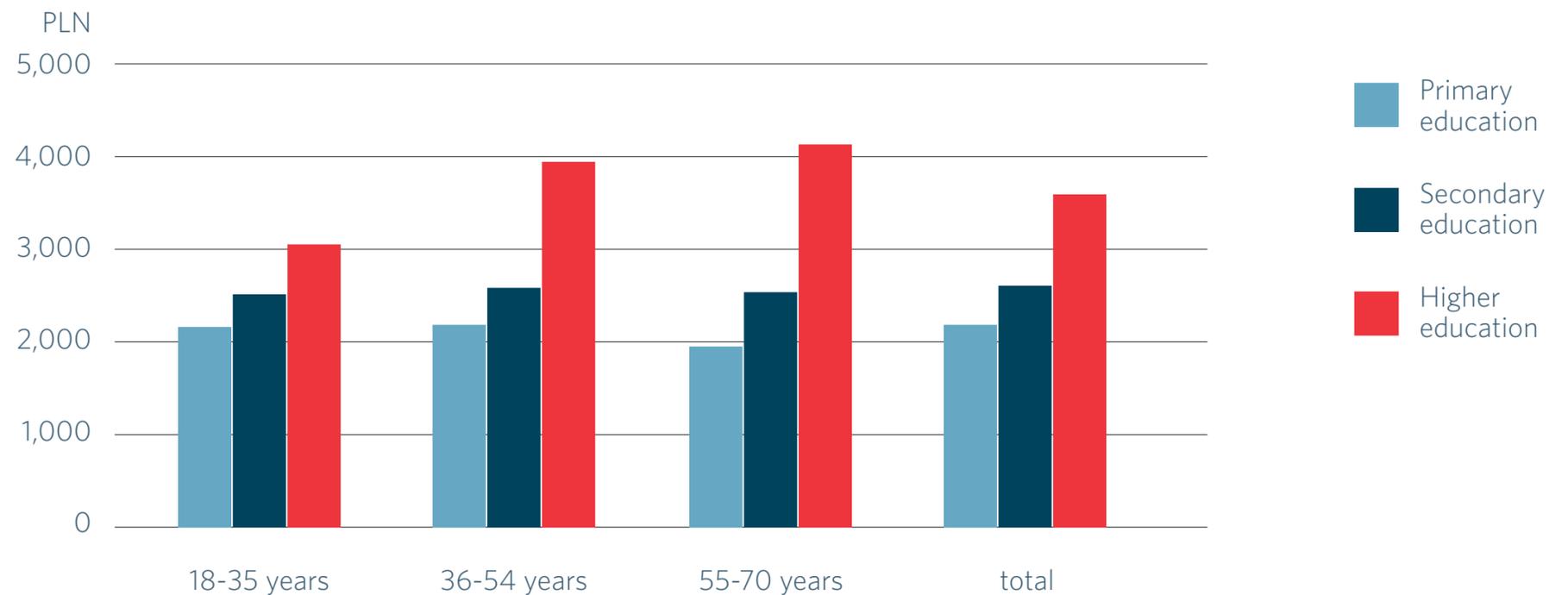
Those who do participate in the labour force in Poland might not be sufficiently motivated to stay here. For Polish workers are overall not satisfied with their employment. According to a survey 'Badanie kapitału ludzkiego' (eng. Human Capital Assessment) conducted in 2017, a staggering 40% of the surveyed say they would make changes in their career path if given a chance. This study reveals an overall negative evaluation of available jobs in Poland. Even though the public opinion has dubbed the Polish labour market 'candidate's market', in terms of quality of work Poland substantially underperforms when compared to other European countries. Poles are among the most hard-working nations in Europe logging an average of 1792 hours of work per year, OECD says, compared to a general average of 1,734 hours per year, while also being one of the worst-paid nations. According to Eu-

rostat estimates, total labour costs in Poland are lower than the European average by as much as €17.3 /hour. Furthermore, according to the latest data provided by Statistics Poland, the incidence of flexible employment increased between 2017 and 2018 despite the opposite trend in previous years. At the same time, the importance of enforcement bodies for employment rights diminishes continually. With only 9% of workers in unions, Poland ranks among the worst European countries in terms of trade union density rate. Polish Labour Inspectorate continues to see its budget slashed and its prerogative limited which further impairs its efficiency. Against this background, stand out several National Champions which agreed to answer our question regarding their workplace conditions. On average, 35% of their staff are unionised. It should be noted that the Polish labour market can differ greatly from region to region. This means that despite a positive national trend, there still exist Polish districts with a very high unemployment rate, even up to 23% as is the case in the Szydłowiecki district.

Employees largely confirm the aforementioned predicaments of our labour market. According to the 12th Labour Market Barometer conducted by Work Service, dissatisfactory salary and lack of professional fulfilment were the two main reasons that pushed employees to change jobs with respectively 44% and 41% of the surveyed pointing to them. The conclusions of the study clearly show that employers are not ready to meet the expectations of employees. Instead, they plan on hiring more lower-level staff. Many business owners hope to hire Ukrainians and Belarusians who speak enough Polish to complete basic tasks, and, importantly, are more willing to accept lower salaries and worse workplace conditions than Poles. It remains unclear whether workers from those countries are here to stay and, if so, for how long. Especially if more attractive markets, such as German, were to open for them. Even if Ukrainian and Belarusian workers do decide to settle in Poland, these sources of workforce will run out quickly as Ukraine faces similar demographic shortages as Poland.

It is noteworthy to underline that the aforementioned ills of the Polish labour market concern predominantly less prestigious and low-paid jobs such as basic services or physical work. Higher education diploma, despite its inflation, continues to be a source of advantages for candidates. According to the Educational Research Institute, a university degree still offers a chance for a more stable and better-paid job in improved conditions when compared with candidates having received secondary education only, even after we take into consideration the time and money spent throughout university years. In other

NET AVERAGE SALARY IN THE LAST 12 MONTHS IN 2017 BY EDUCATION LEVEL



Source: Human Capital Assessment 2017.

words, a personal investment into several years of university education continues to pay off. That is true at least as long as universities in Poland are free of charge and one does not have to move to a bigger city in order to enrol. National Champions, despite being in various industries, show a similarly high need for qualified staff as 38% of the employees of the companies surveyed have a degree. Candidates may perceive the companies listed in our ranking as particularly attractive in context of the Polish labour market. Statistically speaking, they offer much more than an average employer in Poland. One of their key advantages is high salary. In 2018, our 40 champions combined

(International Champions, National Champions, Aspiring National Champions, Local Champions) paid an average of 7,824 PLN of a per month salary before taxes that is 70% more than the national average monthly salary that year. Moreover, in contrast to many private firms, National Champions are in constant development, increasing their output, investing in research, and looking for new market prospects. Thus not only increasing their profits, but also enabling the development of their employees as they get an opportunity to face new challenges and acquire skills. In other words, they are environments driving creativity which, in itself, fosters human capital accumulation.

The Government And Businesses For Human Capital

Governments and businesses are the key actors with the power to foster human capital. As human capital is intrinsically related with prosperity, by luring labour force, especially skilled workers, both act in their best interest. In recent years, they have undertaken initiatives in this regard, some of which have proven fruitful.

Employee trainings along with a general strive to raise the level of education in society are often considered to be important human capital drivers. In Poland, the most lively debate on human capital stimulation took place in the era of the educational boom. At the time, much has been said about the arguable credential inflation. High unemployment rate and low salaries were then characterised as cumbersome yet inevitable ills of the Polish labour market. The subsequent mass emigration of Poles pushed the stakeholders to revisit their views. It was not until the scarcity of labour was felt that calls for a labour code reform were made. Issues such as increasing trade union density and creation of high-quality jobs were also included into the public debate as a recipe for human capital growth. Companies, on their end, started to raise salaries and took a bigger interest in new trends in management emphasising the role of employee empowerment.



What The Government Does

Along educational facilities, the Labour Code is governments' key instrument of influence when it comes to building human capital. The Polish labour code does not differ essentially from its European counterparts as it imposes several workplace standards widely accepted across Europe. For instance, Poles enjoy a rather high number of paid holiday days and bank holidays. Provided paid maternity, parental and child care leaves are among the longest in Europe. Furthermore, the government introduced a few minor yet seminal amendments. Firstly, it obliged employers to put employment agreements in writing. Secondly, it introduced a minimal hourly rate for mandate contracts. It strengthened candidates' negotiation power and contributed to an overall workplace conditions improvement. The initial idea was, however, much more daring. The comprehensive Labour Code reform was one of the key issues of the ruling party's election platform with plans to completely ban flexible work contracts, change hiring rules and enhance the role of enforcement bodies.

Yet the majority of these proposals have never been introduced. A much-needed reform should tackle the regulatory framework which currently enables the over-use of flexible forms of employment as well as deprives workers of their basic employees' rights such as notice

period, severance allowance or paid leave. According to the data collected by Statistics Poland in 2019, 2.6 million workers in Poland are hired under a contract other than employment contract, for half of them it remains to be their sole source of income. B2B contracts are another popular form of bypassing the labour law and therefore in need of regulatory intervention. It regards instances whereby workers acting as sole traders provide services for bigger companies while in practice they fulfil responsibilities of salaried employees (as they are banned from working for competition, and their regular-hour work in a defined workplace is supervised by their superiors). Flexible employment contracts and self-employment are especially prevalent among specialists (28.4% and 24.8% respectively according to the Human Capital Assessment study), particularly among the most inexperienced. Instability, embedded in these forms of employment, may, however, hamper gathering experience as it favours frequent periods of professional inactivity. Furthermore, it strips workers of certain rightful work guarantees and virtually makes it impossible for them to formally confirm their qualifying years for the state pension. The situation of freelancers seems to be equally difficult as the Polish labour law does not provide a separate legal framework for freelance work and

retirement insurance benefits arising from it (except for private plans). Some freelancers act as sole traders, but due to liquidity issues and high insurance benefits costs after two initial years of activity, many opt for flexible work contracts instead. As the current regulatory framework enables the bypassing of the labour law, it is possible that the Ministry of Family, Labour and Social Policy tries to tackle this issue once more.

Having said this, the government did manage to introduce two employee-friendly reforms. That is, a Sunday trading ban and an annual increase of the minimal wage substantially above the inflation rate. Beginning in 2017 with a gradually increasing number of Sundays with shops closed per month until the eventual total ban on trading on Sunday, the law was warmly welcomed by trade union representatives that had been calling for Sundays off for long. The employees seem to be similarly satisfied with roughly 90% saying they appreciate the law. Raising the minimum wage has had a positive effect on a general increase of wages in sectors based on cheap labour force.

While initially stirring up a lot of controversy, both introduced laws a posteriori are not necessarily frowned upon even by hitherto sceptic entrepreneurs. For instance, in our survey, commissioned by the Polish Busi-

ness Roundtable, for early 2019, 38% of the entrepreneurs surveyed said they perceive the Sunday trading ban as good or very good (against 33% of critical voices). While over 50% said so about the minimal wage increase (against solely 15% saying the contrary). It seems highly likely that such a high level of appreciation for the measures will contribute to their further maintaining in force.

Although both the Sunday ban and the increase of minimal wage are perceived by employees as positive changes, they do not necessarily translate into human capital growth. Workers doing physical work or providing basic services can now count on a higher salary, but not on seeing their skills develop. Similarly, specialists do not work in improved workplace conditions, especially in the public sector, which responds to the economic growth with much delay and offers salaries below average.



What Businesses Do

In contrast to governments, businesses can influence the growth and the quality of human capital much faster and in a much more flexible manner. In industries where companies have to compete for applicants, they often try to lure workers by offering veritably attractive workplace conditions. In this regard, it is especially big multinational corporations that stand out the most. For a lot of young specialists they are virtually synonymous with a good workplace. Furthermore, attractive salary and friendly employment terms are awaiting IT specialists in particular.

A wage increase in other sectors, however, remains an unattained challenge. Low salary is the most quoted reason for job dissatisfaction, especially in periods when the unemployment rate decreases. This is confirmed by studies conducted by Work Service, Statistics Poland and Polish Agency for Enterprise Development to name but a few. They demonstrate clearly that it is financial reasons that are predominantly behind eventual job change or job dissatisfaction. According to the research by Eurostat from 2019, the share of salaries to Poland's GDP is estimated at 34%, that is over 4 per-

centage points below the EU average and as much as 10 percentage points below Germany. This means that Polish enjoy the yields of economic growth to a lesser extent than their counterparts in other countries.

As the consequences of the economic and environmental crises ensue, further exacerbated by the pandemic, employment stability is becoming increasingly important. Next to the salary, it is the second most important factor that keeps employees at their current workplace. It favours a sustainable employer-employee relationship creation as well as knowledge and experience accumulation, which can in turn translate into increased profits of a company. This is not overlooked by the employers themselves. For instance, The Responsible Business Forum and Employers of Poland underscore the value (and profitability) of loyalty of the employees with long-term contracts. Building and sustaining a long-term employer-employee relationship reduces the costs borne by the company as it does need to seek services from outsourcing providers.

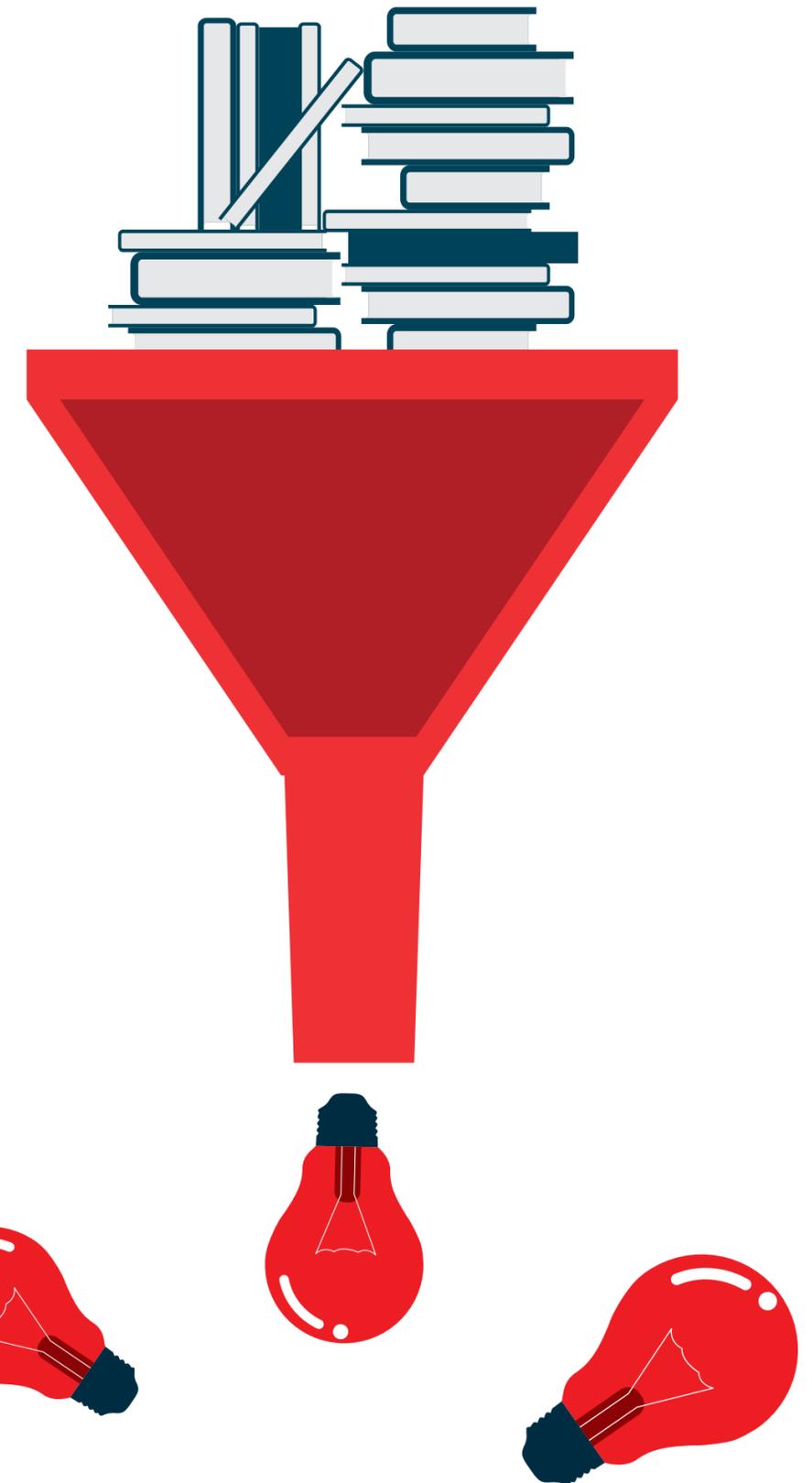
Employees appreciate modern management methods such as agile techniques, flat organisation or feedback culture, fostering information flow across hierarchical levels. New solutions increase employee independence

in work planning, but impose more responsibility on them in return. Companies are facilitating communication across their organisation, including their employees in recruitment processes and actively working towards equal pay (in order to keep their female employees). In exchange, they require high efficiency.

IKEA, for instance, thanks to a continuous gender gap pay audit, narrowed down the gap to below 1%. In other examples, for 13 years now, the aforementioned Responsible Business Forum in Poland has been surveying over 200 companies annually under the framework of Responsible Company Ranking. A part of the survey is devoted to ethical management. In its latest, twelfth edition, the following Polish Champions are the top performers: Polpharma, CCC, Lotos, PGE, Grupa Azoty, Polskie Sieci Energetyczne, Orlen, Energa, Fabryka Mebli Forte and LPP.

Nevertheless, many solutions need not be invented anew. Human capital can be expanded through collaboration with one of the oldest workers institutions – the trade unions. Interestingly, in Western European economies (in Sweden or in Germany), enjoying a high quality of life and income, associations of workers and collective agreements play an important role both on the company level as well as on the industry level. They

take an active part in decision processes regarding wages, but also regarding training model and promotion eligibility. In Poland, trade unions are mostly active in the public sector (as in education) and in state-owned companies. In the private sector, the trade union density rate remains relatively low with 13 to 25% of unionised workers, depending on estimates. It is the case despite a rather positive overall assessment of trade union activity in Poland (38% against 21% saying the contrary according to a poll by Public Opinion Research Center) and deem it needed. One of the reasons behind this situation are current regulations inhibiting workers self-organisation. The minimum threshold of unionised workers and convoluted procedures make it easy for an unwilling employer to intervene and to prevent a union from being established. Despite a favourable 2015 verdict of the Polish Constitutional Tribunal, recognising their right to associate, employees hired on flexible work contracts may not unionise due to a lack of implementing measures. As a result, many workers in Poland are deprived of the possibility to ameliorate their working conditions through union participation.



The Labour Market And Human Capital After The COVID-19 Pandemic



Although its full consequences are yet to unfold, the COVID-19 pandemic has already taken a toll on many national labour markets. Social distancing, crowd avoidance, and enhanced hygiene rules have prevented many businesses from running effectively, resulting in their liquidity disruption and deteriorating working conditions. In early April 2020, the International Labour Organisation estimated that nearly 25 million jobs can be lost as an indirect consequence of the COVID-19 pandemic. The Polish Chamber of Commerce expected as many as 1.28 million dismissals in Poland in its bleakest forecast. This notwithstanding, as the situation is changing rapidly, forecasts are quickly being amended. The damage to the economy depends as much on the incidence of cases as it does on the efficiency of protections offered by the government. Unquestionably, the pandemic has had the most acute impact on precarious workers from industries which have seen their activity radically reduced, that is, for instance, catering, entertainment, and tourism. This will adversely affect human capital accumulation as many specialists, especially young, will be forced out of employment, and, perhaps, eventually, into underemployment.

In a survey conducted by Responsible Business Forum in Poland, in March 2020, regarding the impact of COVID-19 on business, as many as 70% of the surveyed say they appreciate their employer's efforts to implement the new sanitary protocol. Meanwhile solely 8% experienced layoffs in their company. The early data from April collected by local employment offices does not reveal a substantial year-to-year surge in the number of the unemployed nor dismissed. Having said this, in a survey by Public Opinion Research Center for late April a staggering quarter of the surveyed claims that they either lost their job themselves or have relatives who did. This might mean that the adverse effects of the pandemic are yet to be felt. It should be noted that even with booming economy many Polish enterprises, especially SMEs, struggle to maintain liquidity. The final job loss count depends, in part, on the employers as well, as they sometimes tend to overreact calling for staff layoffs prematurely, before they are actually hit by the crisis. One of the positive counterexamples of this approach is the declaration made by 4F CEO (4F is a sportswear and sports gear manufacturer) who pledged to keep all of the staff and made it his utmost priority.

How Can Poland's Human Capital Be Fostered?

Fostering human capital in the times of the COVID-19-induced great uncertainty is a tremendous challenge, especially for such an economy like the Polish one. Among substantial threats there are, not surprisingly, job losses, shifting away from knowledge-based economy and lack of time and motivation to invest in education among the employees themselves. Employers will face potential lay-offs even if it might not pay off in the long-term. Those laid-off, in turn, will focus on securing livelihood rather than on further skills development. The situation of young graduates is particularly pivotal as research shows that entering the job market in a crisis has a long-lasting adverse effect on their career opportunities throughout their work life, regardless of subsequent economic booms.

Therefore, concerted efforts by governments and businesses take on an ever more important role. What is at stake is firstly not letting the unquestionable post-1989 achievements in the field of human capital expansion in Poland go to waste while at the same time capital-

izing on the crisis' turning tide in order to make Polish labour market friendlier. In uncertain times, the ability to respond quickly cannot be underappreciated. This is true for both employers and employees and might in this case mean supplementary education and training or even career change. Which is why it is equally important to invest both in workers with high intellectual capital and in workers doing simple, routine work. Commonly they are often referred to as the white and blue collars respectively.

The aforementioned solutions implemented by businesses concern essentially workers with high intellectual capital. What is more, in many cases the capital they bring to the company as they are hired is rarely amplified later on. Businesses can act to change the status quo through training programmes, for instance. As our research, commissioned by Polish Business Roundtable, shows, 90% of big companies want to train their employees and earmark a portion of their budgets for this purpose. Among medium-sized enterprises, however, only 58% business owners think alike, thus investing in trainings much less. At the same time, the majority of salaried workers in Poland work in SMEs (roughly 57.5% of the employed), which are the least keen to invest in employee training programmes.

As it turns out, employees themselves are often equally unkeen to participate in training and life-long learning initiatives. As demonstrated by the report by Grant

Thorton from 2018, as many as 58% do not undertake any efforts in this regard. Those who do, however, do it on their own and at their own expense, which might explain why Polish workers are not keen on seeking self-learning opportunities. As we have mentioned before, Polish workers are substantially overworked, which further reduces the amount of free time they can devote to supplementary education. Therefore, the key lies in financial and time resources earmarked by the employer for further training of its employees. This should be paired with a management mindset change and inclusion of trainings in employees' working time.

While initially costly, dual education programmes prove profitable in the long-term. Especially popular in Germany, they include direct apprenticeships in companies into their curriculum. As a result, students can count on finding employment immediately after getting their diploma while companies rest assured that their newly-hired employees possess required skills. Such programmes, on a much smaller scale, however, exist in Poland as several small companies from food industry and manufacturing set up partnerships with local vocational schools and co-create their curricula. Practitioners-turned-professors have been much sought after by universities as well. This is particularly true for high-skilled specialists working in the IT sector. Nevertheless, in both cases, these are singular initiatives, dependent solely on the good will of company owners and head-

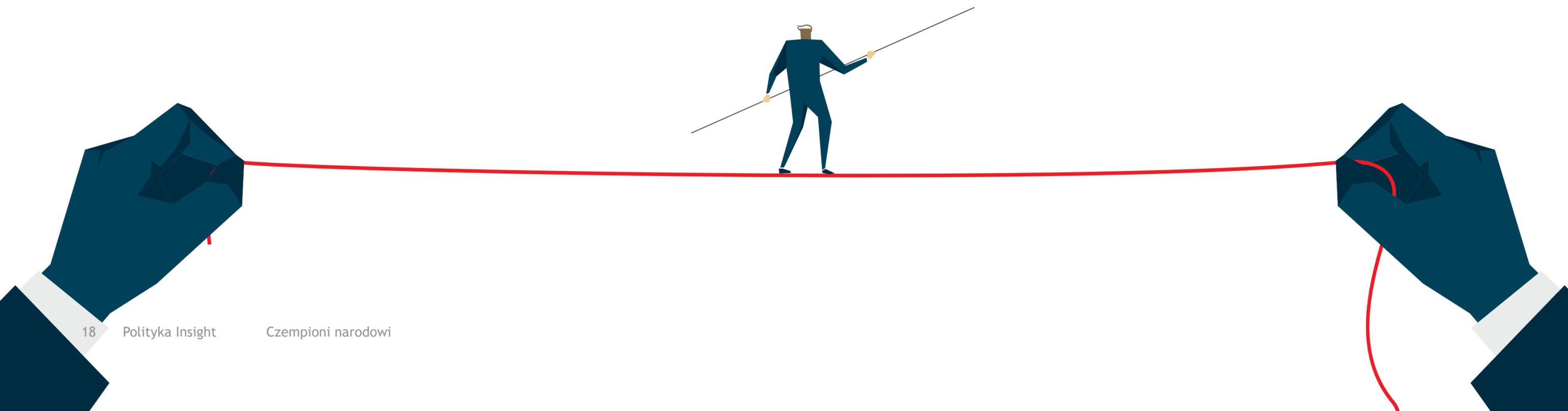
masters. The state could facilitate such partnerships through appropriate budget policy (for instance, by co-financing relevant vocational programmes) and assistance in networking between schools seeking business partners and enterprises willing to allocate necessary resources. This might prove particularly attractive for economically underperforming regions facing youth emigration on the one hand, and a shortage of potential investors on the other.

In addition, the state could address the issue by subsidizing employee trainings. To a certain extent, Polish Employment Offices do so under the framework of the National Training Fund. The programme is widely appreciated for its liberal eligibility criteria and a friendly and efficient application process. It is, however, mostly targeted at short-term, ad hoc training initiatives, while the term of continuing education includes long-term education programmes targeted at employees with

varying work experience as well. Losing an employee during their training, however, is a detriment to the employer. Hence the importance of the state which could subsidise employee skills development, especially in the SME sector.

Workplace conditions can be improved without costly investments, though. Companies can tackle the adverse effects of the skills mismatch through changes in management strategies. This may mean, for instance, an enhanced understanding of needs and abilities of their employees, trying out different task distribution strategies or researching work efficiency. If the government managed to introduce a reliable evaluation system in cooperation with social partners, it could evaluate employers on the basis of their employee-friendly policies and reward those who perform well by granting them additional points in tenders or by introducing tax reliefs on their human capital investment.

Professional activation interventions are another field where both governments and businesses have much to improve. Overall, in Poland little is done in this respect as many professional groups are forced out of the labour market while their counterparts in other countries keep on participating in the workforce. Among them young women, seniors, and migrants. On the top of that, workers coming to Poland are often underemployed. All of these groups can be a source of a so-far untapped human capital. The state could actively influence hiring policies of companies by facilitating residence permit application procedures as well as by supporting applicants in their care duties. Enterprises, on their end, could reshape their recruitment policies in order to build 'team diversity', as it is called, in the long-term. Diverse teams not only have a positive societal impact as they counteract discrimination in the labour market, but also enrich companies with various perspectives and problem-solving methods.



Recommendations

For The State

Institutional Action For Workplace Conditions Improvement In Poland. The state could become an advocate for a better employee-friendly labour market through a Labour Code reform. In particular, such reform should tackle conditions of employment and labour taxation. It should be paired with an enhanced enforcement of the existing regulations, especially thanks to an increased funding of the Polish Work Inspectorate and thus a restoration of its agency.

Enhancing Employee Voice. Through participation employees can actively ameliorate their workplace conditions. Participation increases their responsibility and creates a stronger bond with their workplace, which, in turn, favours knowledge and experience accumulation. The state can encourage employee participation through simplification of procedures and dissemination of workers associations, including trade union creation.

Building A Comprehensive Life-Long Learning Programmes Offer. Currently, the majority of the available employee trainings are ad-hoc programmes and depend solely on the initiative of either the employer or the employee. The state could encourage workers to seek further professional development by subsidizing their training programmes and including their time into their working hours. Such a policy change would undoubtedly contribute to creation of efficient dual education programmes in Poland.

Valuing Fair Employers. Imposed conditions of employment and unfavourable tax policies have made instability of employment and high employee turnover profitable for businesses, leaving fair and socially responsible employers at a disadvantage. The state should seek to reverse this trend by treating fair employers on preferential terms, for instance, through granting tax reliefs and a stricter control of workplace conditions.

For Businesses

Dissemination Of Training Opportunities. Employers should consider earmarking more of their budget and time for further skills development of their employees. This is especially recommended for SMEs.

Flexible Work Distribution and Agile Management. By temporarily allocating tasks going beyond the routine responsibilities of their employees, companies can tap into their potential and skills of as well as expand them on a daily basis. Thus they encourage their workers to face new challenges. For employees, flexible work distribution makes work more interesting and less daunting, for employers, it is a way of expanding human capital while performing day-to-day operations.

Inclusive Hiring Policies. Employers could internally audit their transparency level and reliability of their recruitment processes as well as outsource preliminary screening of applications, and deliberately target their job ads at groups hitherto underrepresented among their staff. This will lead to establishment of diverse teams as well as will help to fight inadvertent discrimination in the workplace.

Fostering Employee Involvement in Decision Making. Socially responsible employers highlight the change of communication channels and shifting away from the times when employers were always better-informed than their employees. In this context, the inclusion of employees as co-decision makers whether it comes to strategy planning or work organisation can bring about a surge in staff knowledge impossible to obtain under any other circumstances

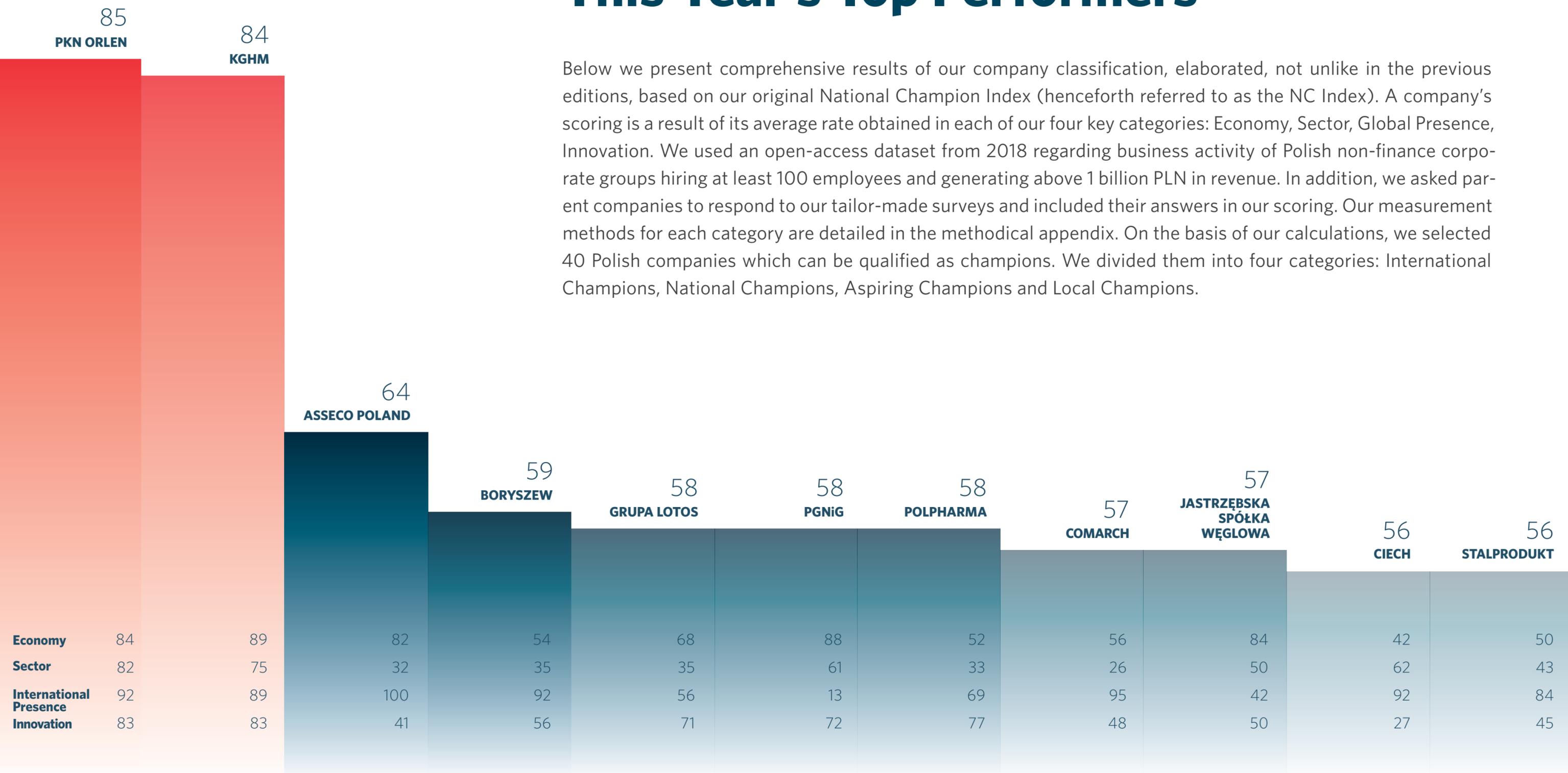
The Marks of a National Champion

The majority of company listings published in Poland focus solely on the size of a company or of a corporate group, measured by basic macroeconomic indicators such as income, profits, exports or number of employees. This is, however, but one of the many aspects on which the public puts an emphasis when talking about national champions. Next to the size, what matters is a company's efficiency, its position in the industry, international presence, and innovation and development investments.



This Year's Top Performers

Below we present comprehensive results of our company classification, elaborated, not unlike in the previous editions, based on our original National Champion Index (henceforth referred to as the NC Index). A company's scoring is a result of its average rate obtained in each of our four key categories: Economy, Sector, Global Presence, Innovation. We used an open-access dataset from 2018 regarding business activity of Polish non-finance corporate groups hiring at least 100 employees and generating above 1 billion PLN in revenue. In addition, we asked parent companies to respond to our tailor-made surveys and included their answers in our scoring. Our measurement methods for each category are detailed in the methodical appendix. On the basis of our calculations, we selected 40 Polish companies which can be qualified as champions. We divided them into four categories: International Champions, National Champions, Aspiring Champions and Local Champions.





International Champions (NC Index: >75 points)

International Champions are large innovative enterprises, active internationally, and leading their respective industries both nationally and regionally. This year's roster is identical with the last year's selection. This time, however, it is PKN Orlen which arrives on top only one point ahead of the KGHM Polska Miedź corporate group. The latter scored 84 out of 100 points, matching its last year's result. PKN Orlen's success is chiefly attributable to its improved score in innovation, especially thanks to its increased R&D activity. Both mentioned International Champions rank very high in all four categories. With their tremendous added value, high salaries, sizeable investment and national budget contributions, both are equally important to the Polish economy.

National Champions (NC Index: 56-75 points)

National Champions are leading in several categories while ranking substantially high in others. While among them there are a few large enterprises such as PGNiG or Asseco Poland, it is not a prerequisite to be listed in this group. Many among the National Champions provide essential contributions to the economy even though in terms of size they rank below 20th place of the listed firms (Ciech, Stalprodukt, Polpharma). This means that they meet the majority of the criteria for championship, but there are nonetheless areas where improvement is key before they can be classified as International Champions. Leaders in the Economy category, that is big contributors, will need to seek to increase their R&D activity or dare to operate more internationally. Smaller firms should continue to invest in their growth by building new plants and acquiring new contracts. In this year's edition, we have welcomed three new comers into this category: the state-owned Lotos and Jastrzębska Spółka Węglowa as well as Ciech representing the private sector, which has seen a slight increase of its NC score from 54 to 56 points.

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

Aspiring National Champions operate very efficiently and incorporate quite a few features of National Champions, but they still need to improve their performance in many areas to join this category. Most of them have little impact on the economy – with few employees, low capital, or low wages. These companies have a high percentage of export sales and are active in the area of innovation. They usually do better in their sector than Local Champions. In this year's classification, Aspiring National Champions have been joined by a few companies with a significant impact on the economy, which had previously been ranked only as Local Champions (Poczta Polska, Cyfrowy Polsat). Aspiring National Champions have a high chance of becoming fully-fledged National Champions in the coming years. They may achieve this through vertical integration involving the acquisition of smaller companies higher up the value-added chain. They should also invest in innovation to improve their performance, develop their position in the industry, and become more competitive on the international market.

		NC Index	Economy	Sector	International Presence	Innovation
12	ADAMED PHARMA S.A.	54	40	36	63	77
13	SELENA FM S.A.	53	39	60	100	11
14	LPP S.A.	51	69	30	74	29
15	GRUPA AZOTY S.A.	50	62	44	31	66
15	GRUPA KĘTY S.A.	50	47	41	86	25
17	FAMUR S.A. (GRUPA TDJ)	49	46	44	51	56
18	AMICA S.A.	46	40	19	89	37
18	MLEKOVITA	46	42	6	80	57
18	PRZEDSIĘBIORSTWO PAŃSTWOWE PORTY LOTNICZE	46	54	24	80	25
18	SYNTHOS S.A.	46	46	73	N/A	66
22	CCC S.A.	43	52	42	59	18
23	TAURON POLSKA ENERGIA S.A.	42	82	34	1	53
24	CYFROWY POLSAT S.A.	39	72	56	2	25
25	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ-SYSTEM S.A.	38	53	44	0	53
26	POCZTA POLSKA S.A.	36	63	49	15	15

Local Champions (NC Index: 25-35 points)

This category is usually represented by sector leaders with a significant impact on the economy. However, in most cases, these companies are focused solely on the domestic market, and their business situation depends on the economic circumstances in their sector. As a result, they score close to zero in the Innovation and International Presence categories. Most Local Champions are large state-owned companies, from energy companies to transport companies as well as several private service companies (e.g., IMPEL). Companies representing this category do not usually aspire to become National Champions because they focus on their core business. To advance they would have to leave their market niche or take the lead in their sector at a global level. The energy companies, in turn, would have to make foreign acquisitions, and carriers would have to start to operate outside Poland.

		NC Index	Economy	Sector	International Presence	Innovation
27	INTER CARS S.A.	35	45	24	48	23
27	PKP POLSKIE LINIE KOLEJOWE S.A.	35	65	40	1	35
29	ENERGA S.A.	34	69	22	0	44
29	PGE POLSKA GRUPA ENERGETYCZNA S.A.	34	92	30	1	14
31	ENEA S.A.	33	77	34	0	20
31	ŻEGLUGA POLSKA S.A.	33	37	61	23	11
33	PKP CARGO S.A.	32	61	42	18	8
33	POLSKA GRUPA GÓRNICZA S.A.	32	76	29	7	17
35	IMPEL S.A.	30	51	62	2	7
36	POLSKIE LINIE LOTNICZE LOT S.A.	29	47	41	N/A	27
37	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	28	44	34	N/A	33
38	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	27	61	15	0	33
39	POLIMEX-MOSTOSTAL S.A.	26	46	16	20	22
40	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	25	40	31	N/A	30

Other large companies (NC Index: <25 points)

This category lists over 70 companies having over PLN 1 billion in revenue and over 100 employees, but too little potential to have a significant impact on the economy. However, some of them have managed to find a niche and become hidden champions, known under foreign brands or brand names of their products, and often functioning as monopolies for European retail chains. Importantly, this category of companies grew by as much as 10% in 2018 due to the excellent economic situation of Poland and its most important foreign partners.

		NC Index	Economy	Sector	International Presence	Innovation
41	ERBUD S.A.	23	47	13	14	16
41	PKP INTERCITY S.A.	23	46	33	1	12
43	POLENERGIA S.A.	22	42	14	9	22
43	TELEWIZJA POLSKA S.A.	22	49	17	0	22
43	WĘGLOKOKS S.A.	22	41	8	28	11
46	UNIBEP S.A.	21	39	13	17	15
47	COGNOR HOLDING S.A.	19	36	12	15	12
47	DINO POLSKA S.A.	19	52	17	0	7
47	PELION S.A.	19	42	17	4	14
50	POLREGIO SP. Z O.O.	16	41	17	0	4

Changes Since The Previous Edition

The average NC Index value in the 2020 ranking was 40 points compared to 39 points in the previous edition. This demonstrates a slight decrease in the gap between the established leaders, KGHM and PKN Orlen, and other companies – mainly from the National Champions category, which has grown from seven to nine companies this year. They were joined by two companies with a majority share of the Polish State Treasury – Jastrzębska Spółka Węglowa and Grupa Lotos. This change mirrors the effects of the increased government support for state-owned companies since 2015. This support is also visible in the advancement to the Aspiring National Champions category of two other state-owned companies previously ranked as Local Champions – Poczta Polska and Gaz-System, the operator of Polish gas pipelines.

In comparison to 2019, six entities were excluded from the list of 50 companies with the strongest impact on the economy. One of them is Polska Grupa Zbrojeniowa, which, due to a change in the method of its revenue consolidation, no longer qualifies as a large corporate group. The remaining companies that fell out of the main classification were previously in the top ten and not included in any of the main National Champions categories. The only exception is Agora, which, due to the downturn in the media industry, is gradually

increasing its distance to the ranking leaders of companies with the greatest impact on the economy.

The list of top 50 National Champions includes five newcomers and Inter Cars, the latter returning to the forefront after a year of poor results. Among the newcomers, the position of Adamed Pharma is a positive surprise. This is an entity that had not been classified in the previous ranking as a large Polish corporate group due to its insufficient revenues. In the 2020 edition, however, it advanced to the 12th place in the category of Aspiring National Champions. This is mainly attributable to the company's high innovativeness and a significant share of revenues from the sale of its products abroad. Another company that made its first appearance in a relatively high position was Żegluga Polska – the undisputed leader of sea freight transport in Poland and some foreign markets; and Przedsiębiorstwo Państwowe Porty Lotnicze – a monopolist in providing services to Polish airports. Both companies are state-owned, which is yet another example of the clear expansion of public entities in the ranking of Champions.

In 2020, we made only one change in the index calculation methodology to attenuate the differences resulting from the specificity inherent to each sector. Our previous rankings promoted corporate groups usually integrating several PKD codes [Polish Classification of Business

Activity codes; equivalent of NACE], for instance, production and distribution of electricity, or aluminium production and production of aluminium goods. Additionally, to increase the transparency of the ranking, we also decided to include equal places. Companies with the same number of points rounded to the nearest integer tied for the same place. This applies both to the NC ranking and the rankings in individual categories. In previous years, the difference between scores of two contenders was sometimes as little as one-tenth or even one-hundredth of a point. No information about it was presented in the reports, however, which could have been misleading to the reader. A description of the improved methodology is included in the Appendix. Despite the introduced changes, the overall results of the survey remained comparable to the previous rankings both in terms of the order of companies and the NC Index values.

It is also worth noting the apparent rank deterioration of two companies – Synthos and Toruńskie Zakłady Materiałów Opatunkowych. The significant decrease in the NC Index value in their case was purely statistical and resulted from the lack of available data for 2018. For this reason, they were not awarded any points in several categories. Similarly, Cersanit, which no longer provides any data on its activities, fell off the list of National Champions.

Changes since the previous edition

1	▲	PKN ORLEN S.A.
2	▼	KGHM POLSKA MIEDŹ S.A.
3	▲	ASSECO POLAND S.A.
4	▲	BORYSZEW S.A.
5	▲	GRUPA LOTOS S.A.
5	◆	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.
5	▲	POLPHARMA S.A.
8	▼	COMARCH S.A.
8	▲	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.
10	◆	CIECH S.A.
10	▼	STALPRODUKT S.A.
12	★	ADAMED PHARMA S.A.
13	▲	SELENA FM S.A.
14	▲	LPP S.A.
15	▼	GRUPA AZOTY S.A.
15	◆	GRUPA KĘTY S.A.
17	▼	FAMUR S.A. (GRUPA TDJ)
18	▼	AMICA S.A.
18	▲	MLEKOVITA
18	★	PRZEDSIĘBIORSTWO PAŃSTWOWE PORTY LOTNICZE
18	▼	SYNTHOS S.A.
22	▼	CCC S.A.
23	▼	TAURON POLSKA ENERGIA S.A.
24	▲	CYFROWY POLSAT S.A.
25	▲	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ - SYSTEM S.A.
26	▼	POCZTA POLSKA S.A.

27	★	INTER CARS S.A.
27	▲	PKP POLSKIE LINIE KOLEJOWE S.A.
29	▲	ENERGA S.A.
29	▲	PGE POLSKA GRUPA ENERGETYCZNA S.A.
31	▲	ENEA S.A.
31	★	ŻEGLUGA POLSKA S.A.
33	▼	PKP CARGO S.A.
33	▲	POLSKA GRUPA GÓRNICZA S.A.
35	▲	IMPEL S.A.
36	▼	POLSKIE LINIE LOTNICZE LOT S.A.
37	▼	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.
38	▼	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.
39	▼	POLIMEX-MOSTOSTAL S.A.
40	▲	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.
41	▲	ERBUD S.A.
41	▼	PKP INTERCITY S.A.
43	▲	POENERGIA S.A.
43	▼	TELEWIZJA POLSKA S.A.
43	▲	WĘGLOKOKS S.A.
46	★	UNIBEP S.A.
47	★	COGNOR HOLDING S.A.
47	▼	DINO POLSKA S.A.
47	▼	PELION S.A.
50	▼	POLREGIO SP. Z O.O.

■ International Champions

■ National Champions

■ Aspiring National Champions

■ Local Champions

■ Other large companies

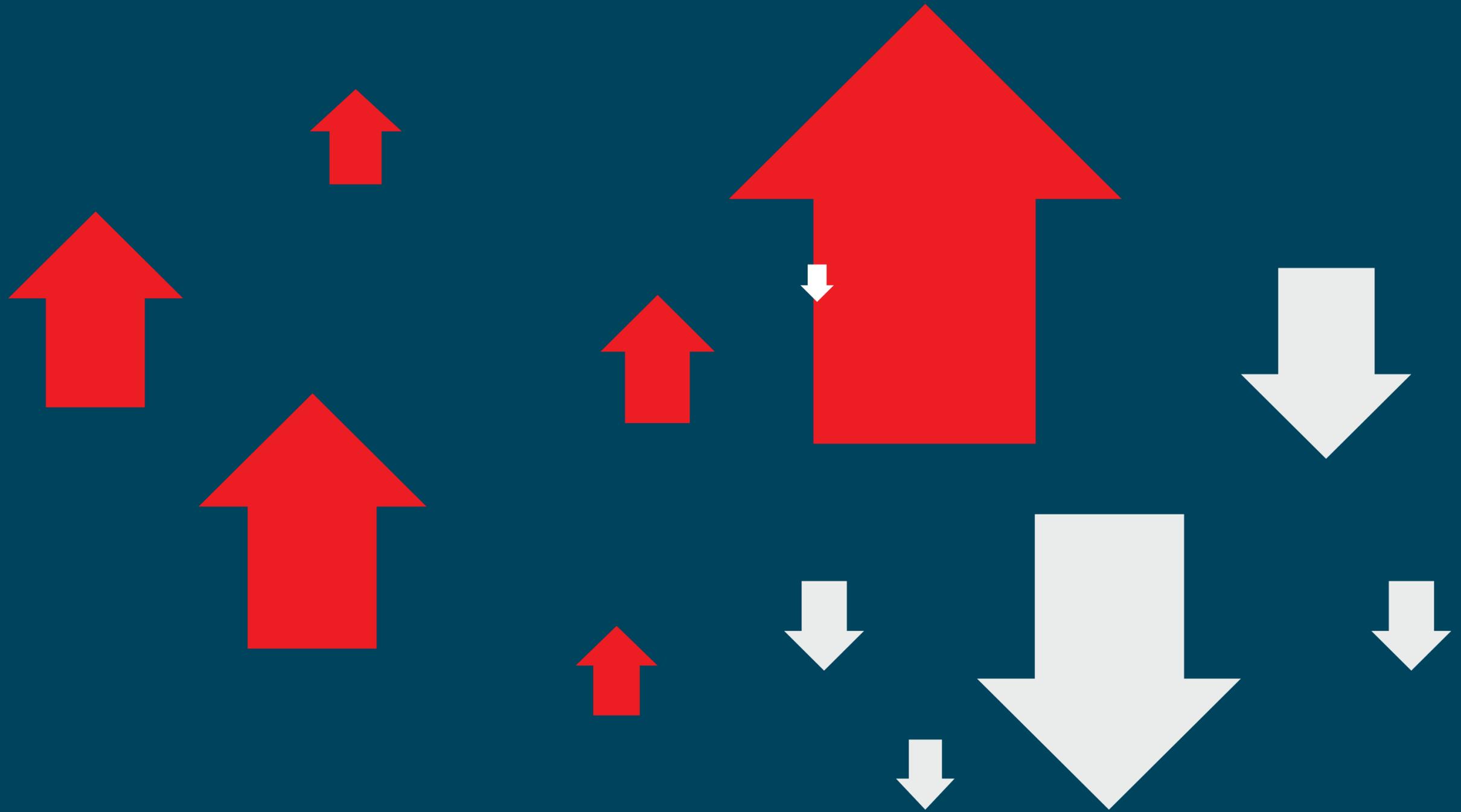
▲ Rank improvement

▼ Rank deterioration

◆ No changes in rank

★ First appearance

Classifications of Champions In Individual Categories



Economy

PGE opens this year's Economy category reflecting the company's contribution to Poland's economic development. This time, it came slightly ahead of last year's leader KGHM and four other companies from the energy and fuel industry (Tauron, PGNiG, PKN Orlen, JSW). These companies have been top performers in this category since the very first edition of the ranking. Their success is due to their very high position in all subcategories. This is a result of their position in

the sector, the considerable size of a single enterprise, as well as the high capital intensity of the energy sector resulting in substantial fixed assets, and massive investments.

Local Champions rank relatively high in this category due to their large-scale operations and high barriers to entry imposed by the state, which gives them a quasi-monopolistic position in their sectors. The dominance of state-owned companies, especially in the energy sector,

is therefore clearly visible, with only two private companies making it to the top ten in this category. These are, namely, Polish IT services leader, Asseco Poland, and the largest media and communications tycoon, Cyfrowy Polsat. At the final positions on the list of top 50 companies with the greatest influence on the economy are Aspiring National Champions and newcomers in the ranking – Cognor, Żegluga Polska, and UNIBEP.

		Economy	Value-Added	Employment	Average salary	Payroll budget	Liquidity and solvency	Contribution to the state budget	Investments and fixed assets	Capitalisation
1	PGE POLSKA GRUPA ENERGETYCZNA S.A.	92	90	90	100	94	52	100	100	100
2	KGHM POLSKA MIEDŹ S.A.	89	98	87	100	51	52	100	92	100
3	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	88	100	83	94	29	87	100	96	100
4	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	84	97	85	100	43	60	100	83	41
4	PKN ORLEN S.A.	84	98	80	71	23	100	100	95	100
6	ASSECO POLAND S.A.	82	78	82	100	100	98	100	37	62
6	TAURON POLSKA ENERGIA S.A.	82	83	83	80	62	53	97	94	100
8	ENEA S.A.	77	75	76	57	50	87	100	92	98
9	POLSKA GRUPA GÓRNICZA S.A.	76	93	90	55	56	56	71	85	20
10	CYFROWY POLSAT S.A.	72	80	62	100	21	75	100	70	68
11	ENERGA S.A.	69	71	69	63	38	99	83	71	75
11	LPP S.A.	69	52	83	77	100	59	100	47	39
13	GRUPA LOTOS S.A.	68	71	59	90	22	57	100	66	84
14	PKP POLSKIE LINIE KOLEJOWE S.A.	65	66	90	0	100	13	61	75	61
15	POCZTA POLSKA S.A.	63	78	100	0	98	2	54	38	6

■ International Champions
 ■ National Champions
 ■ Aspiring National Champions
 ■ Local Champions

Sector

The top companies in this category differ substantially in terms of sectors and types of ownership. Among its leaders are companies with monopoly power in their industry, often owing it to state support. However, even private companies with no public support may become monopolists or leaders in their sectors. The examples of such companies are Synthos and Selena FM.

It is important to note that the Local Champions rank relatively low in this category. It is so as they are often outperformed in terms of average earning capacity and

profitability of other companies operating in the sector. Unsurprisingly so, as it is not unusual for large state-owned companies to have lower profitability than small private companies from the same sector. This is countered, however, by positive examples, such as this year's newcomer – Żegluga Polska, which has a solid position both in passenger transport on the Baltic Sea and trans-oceanic freight transport.

Energy, trade, and transport companies also perform quite poorly in the Sector category, as they operate on

markets with a high number of large companies. Interestingly, if the production and distribution of electricity were concentrated within one or two corporate groups (especially since all the Local Champions from this industry are state-owned), such an entity would automatically have a much better chance to become the leader of the Sector category and ascend from the Local Champion to the National Champion category. In the future, such a company might even develop into an International Champion provided it starts international acquisition.

		Sector	Share in the value-added of all sectors and in the employment of the main sector	Profitability and earning power against the main industry	Main sector of activity (PKD/NACE code)	Other important business sections
1	PKN ORLEN S.A.	82	100	27	C19.2.0 – Manufacture of refined petroleum products	5
2	KGHM POLSKA MIEDŹ S.A.	75	100	0	B7.2.9 – Mining of other non-ferrous metal ores	1
3	SYNTHOS S.A.	73	79	56	C20.1.7 – Manufacture of synthetic rubber in primary forms	4
4	CIECH S.A.	62	69	42	C20.1.3 – Manufacture of other inorganic basic chemicals	4
4	IMPEL S.A.	62	66	50	N81.2.2 – Other building and industrial cleaning activities	5
6	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	61	71	32	D35.2.3 – Trade of gas through mains	1
6	ŻEGLUGA POLSKA S.A.	61	82	0	H50.2.0 – Sea and coastal freight water transport	1
8	SELENA FM S.A.	60	63	50	C20.5.2 – Manufacture of glues	7
9	CYFROWY POLSAT S.A.	56	43	95	J60.2.0 – Television programming and broadcasting activities	3
10	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	50	50	50	B5.1.0 – Mining of hard coal	4
11	POCZTA POLSKA S.A.	49	66	0	H53.1.0 – Postal activities under universal service obligation	0
12	FAMUR S.A. (GRUPA TDJ)	44	42	52	C28.9.2 – Manufacture of machinery for mining, quarrying and construction	2
12	GRUPA AZOTY S.A.	44	55	10	C20.1.5 – Manufacture of fertilisers and nitrogen compounds	2
12	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ-SYSTEM S.A.	44	43	50	H49.5.0 – Transport via pipeline	0
15	STALPRODUKT S.A.	43	48	29	C24.4.3 – Lead, zinc and tin production	2

International Presence

The Asseco Group remains the leader of the ranking in the International Presence category. This year, however, it shares its top position with Selena FM, which also achieved the maximum possible score of 100 points. Both companies sell their products and services on all continents and have foreign subsidiaries generating a substantial part of their revenues.

These companies are followed in the ranking by another IT company, Comarch, two International Champions as well as Boryszew and Ciech. The International Presence category is mainly concluded with companies called Local Champions – the name of which originates in their poor performance in this category. These entities are mostly focused on the local market – they have no branches abroad and do not sell their

products to customers outside Poland. Many companies in our ranking do not provide any data on the export of goods or services as they are usually of minimal importance for the group's operations. Therefore, they were assigned zero points in this category. The Local Champion that scored the highest in this category is Inter Cars, which is successively increasing its activity in foreign markets.

		International presence	International activity	Export
1	ASSECO POLAND S.A.	100	100	100
1	SELENA FM S.A.	100	100	100
3	COMARCH S.A.	95	74	100
4	BORYSZEW S.A.	92	59	100
4	CIECH S.A.	92	58	100
4	PKN ORLEN S.A.	92	59	100
7	AMICA S.A.	89	44	100
7	KGHM POLSKA MIEDŹ S.A.	89	46	100
9	GRUPA KĘTY S.A.	86	31	100
10	STALPRODUKT S.A.	84	20	100
11	MLEKOVITA	80	0	100
12	PRZEDSIĘBIORSTWO PAŃSTWOWE PORTY LOTNICZE	80	0	100
13	LPP S.A.	74	78	74
14	POLPHARMA S.A.	69	39	77
15	ADAMED PHARMA S.A.	63	67	62

- International Champions
- National Champions
- Aspiring National Champions

Innovation

Last year's winner in the Innovation category, KGHM, improved its previous score from 78 to 83 points. This, however, was not enough to maintain its position as an independent leader. PKN Orlen also scored 83 points (against 56 points last year) thanks to a significant increase in spending on research and development, especially on financing research in independent research units. This result allowed this corporate group to win the overall ranking of the Champions. Both International Champions achieved their excellent results not only due to their high R&D spending and employment of many researchers but also due to a high number of registered patents and very high labour efficiency (added value generated by one employee).

Two Polish pharmaceutical companies – Polpharma and Adamed Pharma were ranked joint third on the list. Both scored only slightly worse than the leaders (77 points) mainly due to a very large number of patents and high expenditures on research and development activities. The Mlekovita dairy cooperative was also ranked in the top ten in the Innovation category, with 57 points. Such a good result indicates that industries not necessarily considered to be the most innovative, such as food processing, may be leaders in research and development.

Like in the previous years, many companies do not report or collect data in this category and often do not have information on how many employees are involved

in developing innovative products as part of their activity. Therefore, the ranking shows that only a few Polish large companies put emphasis on innovation and are interested in developing new technologies. This is one of the shortcomings of Polish champions, which should not only focus on high productivity per employee but also continuously invest in developing their own productivity. Companies that do not collect or publish this type of data, therefore, received zero points in the R&D subcategory.

		Innovation	Intellectual property	R&D activities	Business & science cooperation	Work efficiency
1	KGHM POLSKA MIEDŹ S.A.	83	87	49	97	100
1	PKN ORLEN S.A.	83	100	52	81	100
3	ADAMED PHARMA S.A.	77	86	77	84	56
3	POLPHARMA S.A.	77	91	90	69	49
5	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	72	91	N/A	100	100
6	GRUPA LOTOS S.A.	71	55	38	100	100
7	GRUPA AZOTY S.A.	66	100	N/A	100	53
7	SYNTHOS S.A.	66	69	N/A	100	100
9	MLEKOVITA	57	41	22	100	70
10	BORYSZEW S.A.	56	21	68	100	39
10	FAMUR S.A. (GRUPA TDJ)	56	75	N/A	100	44
12	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ-SYSTEM S.A.	53	37	N/A	100	85
12	TAURON POLSKA ENERGIA S.A.	53	46	N/A	100	68
14	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	50	45	N/A	68	100
15	COMARCH S.A.	48	55	99	0	34

- International Champions
- National Champions
- Aspiring National Champions

Classification of Champions By Key Sectors

The top 50 companies in the ranking of National Champions include 17 industrial processing companies – the same number as in the previous year. Among them, there is one International Champion, five National Champions, and eight Aspiring National Champions. Their average NC Index is 49, and only mining and quarrying companies have scored better in the sector ranking. This shows that the competitive advantage of the Polish economy is industry-based, which is in turn, highly focused on foreign activities – industry processing companies have an average index of 71 points in the International Presence category.

On average, the highest score (58 points) was achieved by mining and quarrying companies, which was due to the very good result of KGHM and Jastrzębska Spółka Węglowa ranked in the top 10. Only Polska Grupa Górnicza achieved a much lower score and was awarded the title of a Local Champion. Corporate groups involved in mining and quarrying had the best result in the Economy category, even ahead of the energy champions.

For a consecutive year, corporate groups involved in construction and assembly production perform

the poorest. They obtained the worst results in the categories of Economy and Industry, and in the International Presence category, only energy and real estate companies had worse results. In the Innovation category, they performed only slightly better than retail and property service groups. This was a result of somewhat higher per-employee efficiency of construction companies.

Retail companies, which generate the largest part of the Polish GDP, are numerous in the top 50 of the National Champions list. Six corporate re-

tail groups (Dino, LPP, CCC), wholesale (Węglokoks) or wholesale-retail companies (Pelion, Inter Cars) appear in this year's top 50. They sell various goods, from FMCG goods to coal and car parts. However, the average score of these companies was relatively low – they score 31 out of 100 possible points, which is still 10% better than last year. The average score was similar for transport companies – from pipeline transport through rail to air transport, and postal services. Most of them were given the status of Local Champions as they rarely invest in international development or R&D.



RANKING BY THE KEY SECTORS

	Number of companies	NC Index	Economy	Sector	International Presence	Innovation
Industrial processing	17	49	49	41	71	49
Transport	9	32	52	39	17	21
Energy	7	36	73	30	3	37
Retail	6	31	50	23	36	17
Information and telecommunications	4	45	65	33	49	34
Mining and extraction	3	58	83	51	46	50
Construction	3	23	44	14	17	18
Property services	1	30	51	62	2	7

Processing and construction

	NC Index	Economy	Sector	International Presence	Innovation
1 PKN ORLEN S.A.	85	84	82	92	83
2 BORYSZEW S.A.	59	54	35	92	56
3 GRUPA LOTOS S.A.	58	68	35	56	71
3 POLPHARMA S.A.	58	52	33	69	77
5 CIECH S.A.	56	42	62	92	27
5 STALPRODUKT S.A.	56	50	43	84	45
7 ADAMED PHARMA S.A.	54	40	36	63	77
8 SELENA FM S.A.	53	39	60	100	11
9 GRUPA AZOTY S.A.	50	62	44	31	66
9 GRUPA KĘTY S.A.	50	47	41	86	25
11 FAMUR S.A. (GRUPA TDJ)	49	46	44	51	56
12 AMICA S.A.	46	40	19	89	37
12 MLEKOVITA	46	42	6	80	57
12 SYNTHOS S.A.	46	46	73	N/A	66
15 TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	28	44	34	N/A	33
16 POLIMEX-MOSTOSTAL S.A.	26	46	16	20	22
17 GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	25	40	31	N/A	30
18 ERBUD S.A.	23	47	13	14	16
19 UNIBEP S.A.	21	39	13	17	15
20 COGNOR HOLDING S.A.	19	36	12	15	12

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

Trade and transport

	NC Index	Economy	Sector	International Presence	Innovation
1 LPP S.A.	51	69	30	74	29
2 PRZEDSIĘBIORSTWO PAŃSTWOWE PORTY LOTNICZE	46	54	24	80	25
3 CCC S.A.	43	52	42	59	18
4 OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ-SYSTEM S.A.	38	53	44	0	53
5 POCZTA POLSKA S.A.	36	63	49	15	15
6 INTER CARS S.A.	35	45	24	48	23
6 PKP POLSKIE LINIE KOLEJOWE S.A.	35	65	40	1	35
8 ŻEGLUGA POLSKA S.A.	33	37	61	23	11
9 PKP CARGO S.A.	32	61	42	18	8
10 POLSKIE LINIE LOTNICZE LOT S.A.	29	47	41	N/A	27
11 PKP INTERCITY S.A.	23	46	33	1	12
12 WĘGLOKOKS S.A.	22	41	8	28	11
13 DINO POLSKA S.A.	19	52	17	0	7
13 PELION S.A.	19	42	17	4	14

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

Mining and power generation

	NC Index	Economy	Sector	International Presence	Innovation
1 KGHM POLSKA MIEDŹ S.A.	84	89	75	89	83
2 POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	58	88	61	13	72
3 JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	57	84	50	42	50
4 TAURON POLSKA ENERGIA S.A.	42	82	34	1	53
5 ENERGA S.A.	34	69	22	0	44
5 PGE POLSKA GRUPA ENERGETYCZNA S.A.	34	92	30	1	14
7 ENEA S.A.	33	77	34	0	20
8 POLSKA GRUPA GÓRNICZA S.A.	32	76	29	7	17
9 POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	27	61	15	0	33
10 POLENERGIA S.A.	22	42	14	9	22

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

Professional services

	NC Index	Economy	Sector	International Presence	Innovation
1 ASSECO POLAND S.A.	64	82	32	100	41
2 COMARCH S.A.	57	56	26	95	48
3 CYFROWY POLSAT S.A.	39	72	56	2	25
4 IMPEL S.A.	30	51	62	2	7
5 TELEWIZJA POLSKA S.A.	22	49	17	0	22

Classification of Champions By Ownership

In terms of ownership structure, the companies listed in the top 50 are almost evenly split - 26 are privately-owned and 24 state-controlled companies (under the direct or indirect control of the State Treasury). Interestingly, these proportions were identical to those of the previous year and as they were two years ago, even though the list of surveyed companies changed.

Although some proportions have been balanced in the 2020 ranking owing to the advancement of some state-owned companies to the group of National Champions and Aspiring National Champions, the division into private and state-owned companies still remains uneven in the different categories of Champions. Much as in the two previous editions, the title of International Champions was awarded only to state-controlled companies.

Private companies had a double advantage in the categories of National Champions and Aspiring National Champions, whereas state-owned companies had the same advantage in the category of Local Champions. This year's results show that the state has decided to nurture several international champions enjoying special political support and strengthening their position in the ranking year after year. In the event of a possible merger of PKN Orlen with Grupa Lotos, an International Champion would come into being, the leading position of which will probably remain unthreatened for many years.



Ownership	State-owned	Private
International Champions	2	0
National Champions	3	6
Aspiring National Champions	5	10
Local Champions	10	4

Special Index – Human Capital

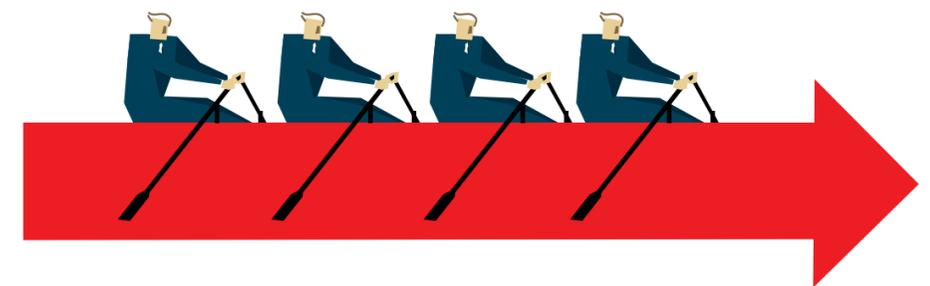
With regard to the leading theme of this year's edition, we decided to create a special category – Human Capital. For this reason, we asked all 113 capital groups categorised as potential Champions to answer additional questions, indirectly reflecting easily comparable measures of companies' involvement in building human capital. Based on the obtained answers, we constructed the Human Capital Index (HCI) consisting of four subcategories:

- The share of the payroll fund in the generated value-added.
- The number of employed specialists including the percentage of the staff with higher education, such as R&D employees.
- The scale of staff turnover measured by the percentage of people working for over 36 months in the company and reluctance to take sick leaves per one employee.
- Unionisation in the company indicating what percentage of the staff belongs to the trade union and whether there was a registered trade union in the company.

In order not to affect the comparability of our overall NC Index, this category had no impact on the overall ranking.

The winner of the HCI ranking is one of the Aspiring National Champions – the company Przedsiębiorstwo Państwowe Porty Lotnicze, which scored 93 out of 100 possible points and received very high scores in all four subcategories. It was followed by Ciech, and then PBG, the construction company, which this year fell out of the group of top 50 companies with the greatest impact on the economy. Just behind the top three were (on equal positions) KGHM Polska Miedź and Polpharma, which also scored a very high 86 points, with Polpharma being the leader in terms of remuneration paid and hiring of specialists, and KGHM in terms of staff retention and giving voice to the trade unions. The results of this special ranking demonstrate that champions are usually characterised by high care for their employees, thanks to which they can develop quickly and achieve good results in the Innovation category.

		HCI
1	PRZEDSIĘBIORSTWO PAŃSTWOWE PORTY LOTNICZE	93
2	CIECH S.A.	90
3	PBG S.A.	89
4	KGHM POLSKA MIEDŹ S.A.	86
4	POLPHARMA S.A.	86



Full Results

		NC Index	Economy	Sector	International Presence	Innovation
1	PKN ORLEN S.A.	85	84	82	92	83
2	KGHM POLSKA MIEDŹ S.A.	84	89	75	89	83
3	ASSECO POLAND S.A.	64	82	32	100	41
4	BORYSZEW S.A.	59	54	35	92	56
5	GRUPA LOTOS S.A.	58	68	35	56	71
5	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	58	88	61	13	72
5	POLPHARMA S.A.	58	52	33	69	77
8	COMARCH S.A.	57	56	26	95	48
8	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	57	84	50	42	50
10	CIECH S.A.	56	42	62	92	27
10	STALPRODUKT S.A.	56	50	43	84	45
12	ADAMED PHARMA S.A.	54	40	36	63	77
13	SELENA FM S.A.	53	39	60	100	11
14	LPP S.A.	51	69	30	74	29
15	GRUPA AZOTY S.A.	50	62	44	31	66
15	GRUPA KĘTY S.A.	50	47	41	86	25
17	FAMUR S.A. (GRUPA TDJ)	49	46	44	51	56
18	AMICA S.A.	46	40	19	89	37
18	MLEKOVITA	46	42	6	80	57
18	PRZEDSIĘBIORSTWO PAŃSTWOWE PORTY LOTNICZE	46	54	24	80	25
18	SYNTHOS S.A.	46	46	73	N/A	66
22	CCC S.A.	43	52	42	59	18
23	TAURON POLSKA ENERGIA S.A.	42	82	34	1	53
24	CYFROWY POLSAT S.A.	39	72	56	2	25
25	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ-SYSTEM S.A.	38	53	44	0	53
26	POCZTA POLSKA S.A.	36	63	49	15	15
27	INTER CARS S.A.	35	45	24	48	23
27	PKP POLSKIE LINIE KOLEJOWE S.A.	35	65	40	1	35
29	ENERGA S.A.	34	69	22	0	44
29	PGE POLSKA GRUPA ENERGETYCZNA S.A.	34	92	30	1	14
31	ENEA S.A.	33	77	34	0	20
31	ŻEGLUGA POLSKA S.A.	33	37	61	23	11
33	PKP CARGO S.A.	32	61	42	18	8
33	POLSKA GRUPA GÓRNICZA S.A.	32	76	29	7	17
35	IMPEL S.A.	30	51	62	2	7
36	POLSKIE LINIE LOTNICZE LOT S.A.	29	47	41	N/A	27
37	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	28	44	34	N/A	33
38	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	27	61	15	0	33
39	POLIMEX-MOSTOSTAL S.A.	26	46	16	20	22
40	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	25	40	31	N/A	30
41	ERBUD S.A.	23	47	13	14	16
41	PKP INTERCITY S.A.	23	46	33	1	12
43	POLENERGIA S.A.	22	42	14	9	22
43	TELEWIZJA POLSKA S.A.	22	49	17	0	22
43	WĘGŁOKOKS S.A.	22	41	8	28	11
46	UNIBEP S.A.	21	39	13	17	15
47	COGNOR HOLDING S.A.	19	36	12	15	12
47	DINO POLSKA S.A.	19	52	17	0	7
47	PELION S.A.	19	42	17	4	14
50	POLREGIO SP. Z O.O.	16	41	17	0	4

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

Full Results

Places 51-75

(alphabetical order)

AB S.A.
ABC DATA S.A.
AGORA S.A.
ALUMETAL S.A.
CEDROB S.A.
COLIAN HOLDING S.A.
ELEKTRIM S.A.
EURO-NET SP. Z O.O.
FABRYKI MEBLI FORTE S.A.
FARMACOL S.A.
MASPEX SP. Z O.O.
KRAJOWA SPÓŁKA CUKROWA S.A.
MENNICA POLSKA S.A.
MIRBUD S.A.
SPÓŁDZIELNIA MLECZARSKA MLEKPOL
NEUCA S.A.
NEWAG S.A.
OT LOGISTICS S.A.
PBG S.A.
PERN S.A.
POJAZDY SZYNOWE PESA BYDGOSZCZ S.A.
PRESS GLASS S.A.
TELE-FONIKA KABLE S. A.
TORPOL S.A.
WIELTON S.A.

Places 76-113

(alphabetical order)

AMPOL - MEROL SP. Z O.O.
ATAL S.A.
BIOAGRA - OIL S.A.
ENTER AIR S.A.
FERMY DROBIU WOŹNIAK SP. Z O.O.
FIDELTRONIK POLAND SP. Z O.O.
FRAPO - DYSTRYBUCJA SP. Z O.O.
GRAAL S.A.
GRUPA PSB HANDEL S.A.
HURTAP S.A.
IGLOTEX S.A.
INDYKPOL S.A.
KOLPORTER SP. Z O.O.
KOMPUTRONIK S.A.
KONSORCJUM STALI S.A.
LERG S.A.
MARTES SPORT SP. Z O.O.
MOTO-PROFIL SP. Z O.O.
NEONET S.A.
NOVA TRADING S.A.
NOWA ITAKA SP. Z O.O.
OKRĘGOWA SPÓŁDZIELNIA MLECZARSKA W ŁOWICZU
OKRĘGOWA SPÓŁDZIELNIA MLECZARSKA W PIĄTNICY
OSADKOWSKI S.A.
PPHU SPECJAŁ SP. Z O.O.

PHUP GNIEZNO SP. Z O.O. HURTOWNIA SP. K.
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.
PRZEDSIĘBIORSTWO USŁUG TECHNICZNYCH INTERCOR SP. Z O.O.
PRZEDSIĘBIORSTWO USŁUGOWO - HANDLOWE CHEMIROL SP. Z O.O.
SUPERDROB S.A.
UNIMOT S.A.
WIPASZ S.A.
WORK SERVICE S.A.
X-KOM SP. Z O.O.

Due to significant data gaps, Cersanit S.A. and Totalizator Sportowy Sp. z o.o. were not included on the list. Terg S.A. asked not to be included in the ranking, and Polska Grupa Zbrojeniowa changed the method of data consolidation, which meant that it did not qualify for the group of companies with annual revenues exceeding PLN 1 billion.

Economy

	Economy	Value-Added	Employment	Average salary	Payroll budget	Liquidity and solvency	Contribution to the state budget	Investments and fixed assets	Capitalisation
1	PGE POLSKA GRUPA ENERGETYCZNA S.A.	92	90	100	94	52	100	100	100
2	KGHM POLSKA MIEDŹ S.A.	89	98	87	100	51	100	92	100
3	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	88	100	83	94	29	87	96	100
4	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	84	97	85	100	43	60	83	41
4	PKN ORLEN S.A.	84	98	80	71	23	100	95	100
6	ASSECO POLAND S.A.	82	78	82	100	100	98	37	62
6	TAURON POLSKA ENERGIA S.A.	82	83	83	80	62	53	94	100
8	ENEA S.A.	77	75	76	57	50	87	92	98
9	POLSKA GRUPA GÓRNICZA S.A.	76	93	90	55	56	56	71	85
10	CYFROWY POLSAT S.A.	72	80	62	100	21	75	100	70
11	ENERGA S.A.	69	71	69	63	38	99	83	71
11	LPP S.A.	69	52	83	77	100	59	100	47
13	GRUPA LOTOS S.A.	68	71	59	90	22	57	100	66
14	PKP POLSKIE LINIE KOLEJOWE S.A.	65	66	90	0	100	13	61	75
15	POCZTA POLSKA S.A.	63	78	100	0	98	2	54	38
16	GRUPA AZOTY S.A.	62	67	75	37	60	64	55	52
17	PKP CARGO S.A.	61	56	82	12	100	81	59	42
17	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	61	70	47	82	10	85	69	71
19	COMARCH S.A.	56	38	62	86	100	97	62	17
20	BORYSZEW S.A.	54	50	68	38	83	53	66	28
20	PRZEDSIĘBIORSTWO PAŃSTWOWE PORTY LOTNICZE	54	34	43	100	93	76	83	30
22	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ-SYSTEM S.A.	53	41	50	100	57	52	69	41
23	CCC S.A.	52	41	76	0	82	11	75	68
23	DINO POLSKA S.A.	52	45	76	0	100	51	62	28
23	POLPHARMA S.A.	52	46	62	89	88	51	19	32
26	IMPEL S.A.	51	50	75	0	88	85	52	10
27	STALPRODUKT S.A.	50	41	62	18	75	80	69	31
28	TELEWIZJA POLSKA S.A.	49	46	50	100	53	51	50	22
29	ERBUD S.A.	47	32	47	100	69	77	50	7
29	GRUPA KĘTY S.A.	47	35	59	34	87	55	58	24
29	POLSKIE LINIE LOTNICZE LOT S.A.	47	61	42	100	12	7	50	41
32	FAMUR S.A. (GRUPA TDJ)	46	39	59	15	61	100	58	22
32	PKP INTERCITY S.A.	46	44	66	1	66	54	55	38
32	POLIMEX-MOSTOSTAL S.A.	46	30	56	33	92	92	50	17
32	SYNTHOS S.A.	46	59	51	70	20	46	24	38
36	INTER CARS S.A.	45	43	53	50	45	55	57	20
37	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	44	41	61	0	53	100	59	26
38	CIECH S.A.	42	45	55	18	35	55	31	42
38	MLEKOVITA	42	45	56	19	39	86	51	18
38	PELION S.A.	42	48	68	0	57	3	55	24
38	POLENERGIA S.A.	42	48	10	100	4	91	56	33
42	POLREGIO SP. z O.O.	41	29	63	0	98	56	50	21
42	WĘGŁOKOKS S.A.	41	19	61	0	100	99	52	24
44	ADAMED PHARMA S.A.	40	26	46	36	55	100	72	16
44	AMICA S.A.	40	37	51	66	58	64	3	18
44	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	40	31	28	100	49	87	53	7
47	SELENA FM S.A.	39	22	43	53	62	93	52	9
47	UNIBEP S.A.	39	25	41	69	52	69	52	9
49	ŻEGLUGA POLSKA S.A.	37	32	50	8	44	51	54	30
50	COGNOR HOLDING S.A.	36	27	45	33	51	53	53	12

■ International Champions	■ Local Champions
■ National Champions	■ Other large companies
■ Aspiring National Champions	

Sector

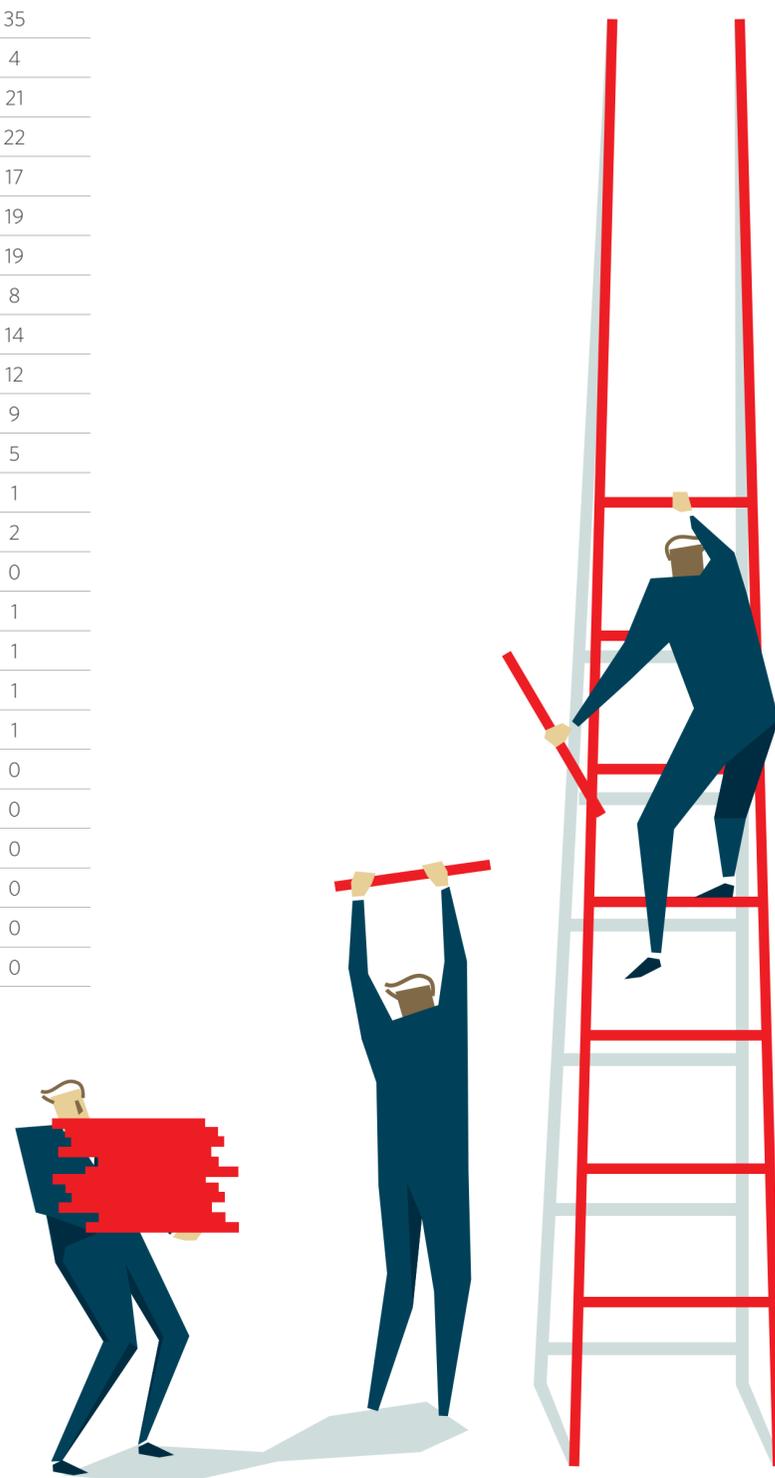
	Sector	Share in the value-added of all sectors and in the employment of the main sector	Profitability and earning power against the main industry	Main sector of activity (PKD/NACE code)	Other important business sections gospodarczej	
1	PKN ORLEN S.A.	82	100	27	C19.2.0 – Manufacture of refined petroleum products	5
2	KGHM POLSKA MIEDŹ S.A.	75	100	0	B7.2.9 – Mining of other non-ferrous metal ores	1
3	SYNTHOS S.A.	73	79	56	C20.1.7 – Manufacture of synthetic rubber in primary forms	4
4	CIECH S.A.	62	69	42	C20.1.3 – Manufacture of other inorganic basic chemicals	4
4	IMPEL S.A.	62	66	50	N81.2.2 – Other building and industrial cleaning activities	5
6	POLSKIE GÓRNICTWO NAFTOWE i GAZOWNICTWO S.A.	61	71	32	D35.2.3 – Trade of gas through mains	1
6	ŻEGLUGA POLSKA S.A.	61	82	0	H50.2.0 – Sea and coastal freight water transport	1
8	SELENA FM S.A.	60	63	50	C20.5.2 – Manufacture of glues	7
9	CYFROWY POLSAT S.A.	56	43	95	J60.2.0 – Television programming and broadcasting activities	3
10	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	50	50	50	B5.1.0 – Mining of hard coal	4
11	POCZTA POLSKA S.A.	49	66	0	H53.1.0 – Postal activities under universal service obligation	0
12	FAMUR S.A. (GRUPA TDJ)	44	42	52	C28.9.2 – Manufacture of machinery for mining, quarrying and construction	2
12	GRUPA AZOTY S.A.	44	55	10	C20.1.5 – Manufacture of fertilisers and nitrogen compounds	2
12	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ-SYSTEM S.A.	44	43	50	H49.5.0 – Transport via pipeline	0
15	STALPRODUKT S.A.	43	48	29	C24.4.3 – Lead, zinc and tin production	2
16	CCC S.A.	42	39	50	G47.7.2 – Retail sale of footwear and leather goods in specialised stores	0
16	PKP CARGO S.A.	42	39	50	H49.2.0 – Freight rail transport	0
18	GRUPA KĘTY S.A.	41	27	83	C24.4.2 – Aluminium production	0
18	POLSKIE LINIE LOTNICZE LOT S.A.	41	55	0	H51.1.0 – Passenger air transport	0
20	PKP POLSKIE LINIE KOLEJOWE S.A.	40	53	0	H52.2.1 – Service activities incidental to land transportation	0
21	ADAMED PHARMA S.A.	36	29	55	C21.2.0 – Manufacture of pharmaceutical preparations	5
22	BORYSZEW S.A.	35	42	13	C24.4.2 – Aluminium production	5
22	GRUPA LOTOS S.A.	35	34	41	C19.2.0 – Manufacture of refined petroleum products	1
24	ENEA S.A.	34	46	0	D35.1.1 – Production of electricity	7
24	TAURON POLSKA ENERGIA S.A.	34	45	0	D35.1.1 – Production of electricity	3
24	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	34	28	50	C17.2.2 – Manufacture of household and sanitary goods and of toilet requisites	0
27	PKP INTERCITY S.A.	33	44	0	H49.1.0 – Passenger rail transport, interurban	0
27	POLPHARMA S.A.	33	31	41	C21.2.0 – Manufacture of pharmaceutical preparations	2
29	ASSECO POLAND S.A.	32	32	32	J62.0.1 – Computer programming activities	2
30	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	31	25	50	C33.1.5 – Repair and maintenance of ships and boats	2
31	LPP S.A.	30	20	61	G47.7.1 – Retail sale of clothing in specialised stores	0
31	PGE POLSKA GRUPA ENERGETYCZNA S.A.	30	40	0	D35.1.1 – Production of electricity	2
33	POLSKA GRUPA GÓRNICZA S.A.	29	39	0	B5.1.0 – Mining of hard coal	0
34	COMARCH S.A.	26	19	50	J62.0.1 – Computer programming activities	2
35	INTER CARS S.A.	24	15	50	G45.3.1 – Wholesale trade of motor vehicle parts and accessories	0
35	PRZEDSIĘBIORSTWO PAŃSTWOWE PORTY LOTNICZE	24	32	0	H52.2.3 – Service activities incidental to air transportation	0
37	ENERGA S.A.	22	27	7	D35.1.1 – Production of electricity	2
38	AMICA S.A.	19	8	51	C27.5.1 – Manufacture of electric domestic appliances	0
39	DINO POLSKA S.A.	17	3	60	G47.1.1 – Retail sale in non-specialised stores with food, beverages or tobacco predominating	0
39	PELION S.A.	17	9	38	G46.4.6 – Wholesale of pharmaceutical goods	0
39	POLREGIO SP. z O.O.	17	23	0	H49.1.0 – Passenger rail transport, interurban	0
39	TELEWIZJA POLSKA S.A.	17	16	21	J60.2.0 – Television programming and broadcasting activities	0
43	POLIMEX-MOSTOSTAL S.A.	16	21	0	F42.2.2 – Construction of utility projects for electricity and telecommunications	2
44	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	15	20	0	D35.1.2 – Transmission of electricity	0
45	POLENERGIA S.A.	14	18	0	D35.1.4 – Trade of electricity	2
46	ERBUD S.A.	13	17	0	F41.2.0 – Construction of residential and non-residential buildings	2
46	UNIBEP S.A.	13	17	0	F41.2.0 – Construction of residential and non-residential buildings	2
48	COGNOR HOLDING S.A.	12	5	32	C24.1.0 – Manufacture of basic iron and steel and of ferro-alloys	0
49	WĘGŁOKOKS S.A.	8	11	0	G46.7.1 – Wholesale of solid, liquid and gaseous fuels and related products	1
50	MLEKOVITA	6	8	0	C10.5.1 – Operation of dairies and cheese making	0

■ International Champions
■ Aspiring National Champions
■ Other large companies
■ National Champions
■ Local Champions

International Presence

		International presence	International activity	Export
1	ASSECO POLAND S.A.	100	100	100
1	SELENA FM S.A.	100	100	100
3	COMARCH S.A.	95	74	100
4	BORYSZEW S.A.	92	59	100
4	CIECH S.A.	92	58	100
4	PKN ORLEN S.A.	92	59	100
7	AMICA S.A.	89	44	100
7	KGHM POLSKA MIEDŹ S.A.	89	46	100
9	GRUPA KĘTY S.A.	86	31	100
10	STALPRODUKT S.A.	84	20	100
11	MLEKOVITA	80	0	100
12	PRZEDSIĘBIORSTWO PAŃSTWOWE PORTY LOTNICZE	80	0	100
13	LPP S.A.	74	78	74
14	POLPHARMA S.A.	69	39	77
15	ADAMED PHARMA S.A.	63	67	62
16	CCC S.A.	59	84	53
17	GRUPA LOTOS S.A.	56	27	63
18	FAMUR S.A. (GRUPA TDJ)	51	27	58
19	INTER CARS S.A.	48	39	51
20	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	42	0	53
21	GRUPA AZOTY S.A.	31	8	36
22	WĘGLOKOKS S.A.	28	0	35
23	ŻEGLUGA POLSKA S.A.	23	98	4
24	POLIMEX-MOSTOSTAL S.A.	20	15	21
25	PKP CARGO S.A.	18	0	22
26	UNIBEP S.A.	17	14	17
27	COGNOR HOLDING S.A.	15	0	19
27	POCZTA POLSKA S.A.	15	0	19
29	ERBUD S.A.	14	40	8
30	POLSKIE GÓRNICTWO NAFTOWE I GAZOWNICTWO S.A.	13	9	14
31	POLENERGIA S.A.	9	0	12
32	POLSKA GRUPA GÓRNICZA S.A.	7	0	9
33	PELION S.A.	4	0	5
34	CYFROWY POLSAT S.A.	2	10	1
34	IMPEL S.A.	2	2	2
36	PGE POLSKA GRUPA ENERGETYCZNA S.A.	1	2	0
36	PKP INTERCITY S.A.	1	0	1
36	PKP POLSKIE LINIE KOLEJOWE S.A.	1	0	1
36	TAURON POLSKA ENERGIA S.A.	1	2	1
40	ENERGA S.A.	0	0	1
40	DINO POLSKA S.A.	0	0	0
40	ENEA S.A.	0	0	0
40	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ-SYSTEM S.A.	0	0	0
40	POLREGIO SP. Z O.O.	0	0	0
40	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	0	0	0
40	TELEWIZJA POLSKA S.A.	0	0	0

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



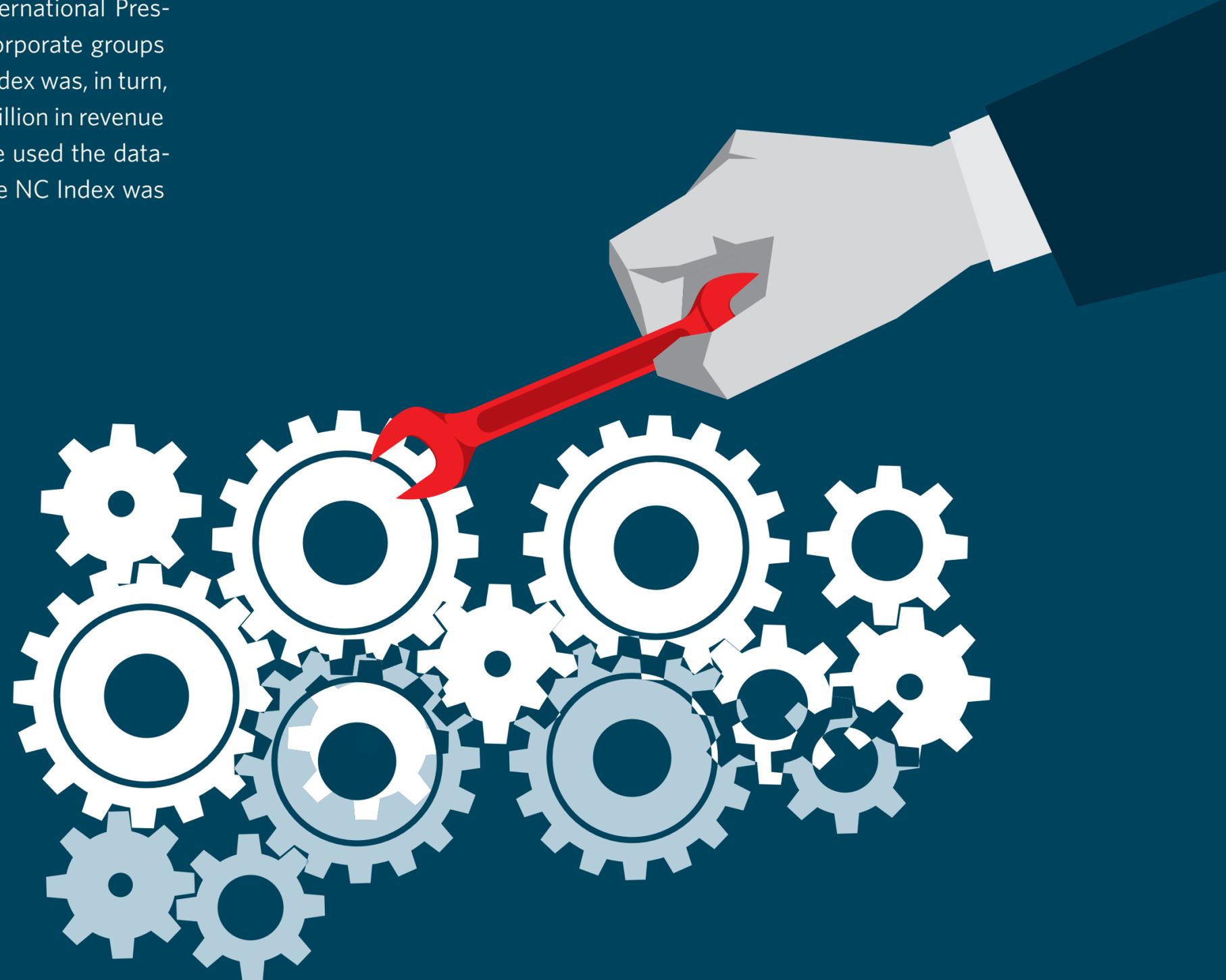
Innovation

		Innovation	Intellectual property	R&D activities	Business & science cooperation	Work efficiency
1	KGHM POLSKA MIEDŹ S.A.	83	87	49	97	100
1	PKN ORLEN S.A.	83	100	52	81	100
3	ADAMED PHARMA S.A.	77	86	77	84	56
3	POLPHARMA S.A.	77	91	90	69	49
5	POLSKIE GÓRNICZTWO NAFTOWE I GAZOWNICTWO S.A.	72	91	N/A	100	100
6	GRUPA LOTOS S.A.	71	55	38	100	100
7	GRUPA AZOTY S.A.	66	100	N/A	100	53
7	SYNTHOS S.A.	66	69	N/A	100	100
9	MLEKOVITA	57	41	22	100	70
10	BORYSZEW S.A.	56	21	68	100	39
10	FAMUR S.A. (GRUPA TDJ)	56	75	N/A	100	44
12	OPERATOR GAZOCIĄGÓW PRZESYŁOWYCH GAZ-SYSTEM S.A.	53	37	N/A	100	85
12	TAURON POLSKA ENERGIA S.A.	53	46	N/A	100	68
14	JASTRZĘBSKA SPÓŁKA WĘGLOWA S.A.	50	45	N/A	68	100
15	COMARCH S.A.	48	55	99	0	34
16	STALPRODUKT S.A.	45	43	N/A	100	37
17	ENERGA S.A.	44	79	N/A	0	100
18	ASSECO POLAND S.A.	41	16	100	0	58
19	AMICA S.A.	37	81	N/A	0	65
20	PKP POLSKIE LINIE KOLEJOWE S.A.	35	21	N/A	100	20
21	POLSKIE SIECI ELEKTROENERGETYCZNE S.A.	33	45	N/A	0	100
21	TORUŃSKIE ZAKŁADY MATERIAŁÓW OPATRUNKOWYCH S.A.	33	84	N/A	0	41
23	GDAŃSKA STOCZNIA REMONTOWA IM. J. PIŁSUDSKIEGO S.A.	30	33	N/A	0	100
24	LPP S.A.	29	24	72	0	16
25	CIECH S.A.	27	0	47	0	77
25	POLSKIE LINIE LOTNICZE LOT S.A.	27	25	N/A	0	100
27	CYFROWY POLSAT S.A.	25	16	N/A	0	100
27	GRUPA KĘTY S.A.	25	58	N/A	0	36
27	PRZEDSIĘBIORSTWO PAŃSTWOWE PORTY LOTNICZE	25	16	N/A	0	100
30	INTER CARS S.A.	23	25	N/A	0	77
31	POLENERGIA S.A.	22	6	N/A	0	100
31	POLIMEX-MOSTOSTAL S.A.	22	50	N/A	0	34
31	TELEWIZJA POLSKA S.A.	22	6	N/A	0	100
34	ENEA S.A.	20	20	N/A	0	73
35	CCC S.A.	18	20	36	0	15
36	POLSKA GRUPA GÓRNICZA S.A.	17	14	N/A	0	66
37	ERBUD S.A.	16	10	N/A	0	67
38	POCZTA POLSKA S.A.	15	39	N/A	0	17
38	UNIBEP S.A.	15	0	N/A	0	74
40	PELION S.A.	14	23	N/A	0	35
40	PGE POLSKA GRUPA ENERGETYCZNA S.A.	14	6	N/A	0	59
42	COGNOR HOLDING S.A.	12	0	N/A	0	61
42	PKP INTERCITY S.A.	12	17	N/A	0	36
44	SELENA FM S.A.	11	0	N/A	0	56
44	WĘGLOKOKS S.A.	11	28	N/A	0	15
44	ŻEGLUGA POLSKA S.A.	11	0	N/A	0	57
47	PKP CARGO S.A.	8	12	N/A	0	21
48	DINO POLSKA S.A.	7	12	N/A	0	18
48	IMPEL S.A.	7	6	N/A	0	24
50	POLREGIO SP. z O.O.	4	0	N/A	0	20

■ International Champions	■ Local Champions
■ National Champions	■ Other large companies
■ Aspiring National Champions	

Methodological Appendix

The National Champion Index (NC Index) is an arithmetic average of points obtained for the four indices in the following categories: Economy, Sector, International Presence, and Innovation. The NC Index was calculated for the top 50 corporate groups (interchangeably called "companies") in the Economy category. This index was, in turn, calculated for 113 Polish-owned corporate groups that had over PLN 1 billion in revenue in 2018, over 100 employees, and over PLN 100 million in capital. We used the dataset consolidated for the entire corporate group. For each company, the NC Index was rounded to an integer.



Index: Economy

The index is calculated based on eight subindexes, each representing another aspect of the company's influence on the economy:

The value-added generated by a company in 2018 is calculated based on the consolidated data from the company or - if there is no data available - as the product of the sum of the added value quotients and the income for all relevant departments and PKD codes of a given company's activity and its revenue. 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 the i-th company, and VA_{MAX} is the highest added value from all companies surveyed (in billion PLN). Moreover, whenever we mention the notion of logarithms in this Appendix, we refer to base ten logarithm, unless stated otherwise.

The employment is the total number of people employed at a given company at the end of 2018 in full-time equivalents from its annual report. The value of the subindex is then calculated using the formula:

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

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

The average salary is calculated based on the average annual gross salary in the company, provided in the survey received from companies. If a company provides data on employee-related expenditure, the quotient of this data and the number of employees is calcu-

lated. In the absence of data, we use the average remuneration paid in the sector (according to the main PKD section). The value of the subindex is then calculated using the formula:

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

where w_i is the average salary at the i-th company and \bar{w} is the annual average salary in the enterprise sector in Poland in 2018.

The payroll budget is calculated based on employment, salary, and value-added data using the formula:

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

The contribution to the state budget is calculated based on data on taxes paid by a given company in 2018 obtained from surveys sent to the companies or, if there was no response, from the data included in its consolidated financial report for 2018, as the difference between gross profit and net profit (after tax deduction) plus sectoral taxes paid by the company. The subindex is thus calculated using the formula:

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

where Tax_i is the tax paid by the i-th company, BTAX is the state budget's total tax revenue in 2018 in thousands of zloty, 1_{PL} is a one-element set consisting of Poland, and Reg_i the country of registration of the dominant entity in the i-th corporate group.

Investments and fixed assets are calculated based on data for late 2018 obtained from the consolidated financial reports for 2018, and investments based on data on gross spending on fixed assets in 2018 collected from the survey distributed to enterprises or, if there was no response, based on an estimate analogous to that used to calculate the added value. The subindex is then calculated using the formula:

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

where $GFCF_i$ is spending on fixed assets at the i -th company, $GFCF$ is the value of gross fixed assets in the national economy, K_i the fixed assets of the i -th company, and K_{MAX} the highest K among the surveyed companies.

Liquidity and solvency are calculated based on the solvency ratio and liquidity ratio data (calculated following the Polish accounting reporting recommendations), obtained from the consolidated financial report for 2018. The subindex is then calculated using the formula:

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

where SR_i is the solvency ratio at the i -th company, LR_i the liquidity ratio index at the i -th company, and $F(\chi, \mu, s)$ the distribution function of the logistic distribution with argument χ and parameters μ and s .

Capitalisation is calculated based on the nominal value of shareholders' equity (million PLN) at the end of 2018 obtained from the company's financial report and information on whether a given company was listed on the stock exchange at the end of 2019. The subindex is then calculated using the formula:

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

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

The full index in the Economy category is the weighted average of the components 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: Sector

This index is calculated based on two subindexes, the first of which reflects the company's position in its sector and in other significant sectors, and the other shows its productivity and profitability compared to other companies in the same sector:

Share in the sector is calculated based on data on revenue, employment, and spending on investment from the consolidated financial report for 2018 and based on data on the segments of business activity from received surveys or estimated from companies' annual reports and publicly available information. The subindex is then calculated using the formula:

$$B_i^1 = \text{Min} \left\{ 60 * \frac{GO_i}{GO_k} + 20 * \frac{E_i}{E_k} + 10 * \frac{GFCF_i}{GFCF_k} + 10 * \log_2(j) \right\}$$

where GO_i is the value of the i-th company's revenue from its main activity, GO_k the value of revenue in the k-th PKD class that is the i-th company's main activity, E_i is employment at the i-th company, E_k employment in the k-th PKD class that is the i-th company's main activity, $GFCF_i$ is gross spending on fixed assets at the i-th company, $GFCF_k$ gross spending on fixed assets in the k-th PKD section that is the i-th company's main activity, and j is a set of all other classes of PKD, in which the i-th company obtains at least 1% of its revenue, and \log_2 is a logarithm with the base 2. All the above data were collected for 2018.

Profitability in relation to sector is calculated based on data on ROA index (percentage of net profit to asset value) and the gross margin from surveys received from companies or from the consolidated financial report for 2018. The subindex is then calculated using the formula:

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

where ROA_i is the i-th company's ROA, ROA_k the ROA in the k-th PKD class that constitutes the i-th company's main activity, GM_i is the i-th company's gross margin and GM_k the gross margin in the k-th PKD class that constitutes the i-th company's main activity.

The full index in the Sector category is the weighted average of the components above using the formula:

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

Index: International Presence

This index is calculated on the basis of two subindexes, the first of which illustrates the scope of the company's foreign activity, and the second the importance of exports for the company's size:

Foreign activity is calculated based on data on the number of entities from the corporate group registered outside Poland and the share of revenue generated by entities abroad in total revenue, obtained from the survey filled out by companies or, if no information was provided, based on our own estimates from annual reports for 2018 and publicly available information. The subindex is then 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 companies in the top 50 in the ranking of national champions, with A_i counted using the following formula:

$$A_i = 100 * FE_i * FR_i$$

where FE_i is the percentage of a corporate group's entities registered abroad, and FR_i the share of the revenue from foreign entities in a corporate group's total revenue.

The export subindex is calculated based on data on the number of countries to which the goods and services of a given company are exported, obtained from the survey filled out by companies or, if no response was provided, from publicly available data on the company's activity, including the annual report. Data on the share of the revenue from exports in total revenue, obtained from financial reports for 2018, surveys or from publicly available information was also included. The subindex is then calculated using the formula:

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

where x_i is the number of countries to which the i -th company sells its goods and services, \bar{x} is the median number of countries where companies in the top 50 of the ranking of National Champions sell their goods and services, and ER_i the share of export sales in the i -th company's revenue.

The index in the International Presence category is calculated as a weighted average of these two subindexes using the formula:

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

Index: Innovation

This index is calculated based on four subindexes, each illustrating another dimension of innovation in a given corporate group:

Intellectual property is calculated based on data on a given corporate group's current number of patents and trademarks in the Polish Patent Office's Espacenet Base. The subindex is then calculated using the formula:

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

where P_i is the number registered by the i -th company, P_{10} the lower limit of the tenth decile of the distribution of patents registered by companies in the top 50 of the ranking of National Champions, ZT_i the number of trademarks registered by the i -th company, and ZT_{10} the lower limit of the tenth decile of the distribution of trademarks registered by companies in the top 50 of the ranking of National Champions.

R&D activity is calculated based on the number of R&D employees and the company's expenditure on research and development, according to the data from the survey. Missing data was collected from public sources, including annual reports for 2018. Since in the case of many corporate groups, the data were not available, it was assumed in further calculations that that company's R&D subindex is 0. When data were available, the subindex was calculated using the formula:

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

where E_i^{BR} is the number of R&D employees at the i -th company, E_{10}^{BR} the lower limit of the tenth decile of the distribution of the number of R&D staff at companies in the top 50 of the ranking of National Champions, BR_i spending on R&D at the i -th company (in PLN million), and BR_{10} the lower limit of the tenth decile of the distribution of the expenditure on R&D (in PLN million) by companies in the top 50 of the National Champions ranking.

Business and science cooperation is calculated based on data from the National Centre for Research and Development in Poland (NCBiR) concerning the number of research projects carried out by the companies in the corporate group under NCBiR programmes at the end of 2018 and based on data concerning the financing of research units by the companies in the corporate group in 2018 declared in questionnaires received from the companies. In the case of companies which did not send questionnaires, it was assumed that the company's Science index is 0. The subindex was calculated using the formula:

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

where $NCBiR_i$ is the number of research projects carried out by the i -th company, $NCBiR_{10}$ is the lower limit value of the tenth decile of the distribution of the number of research projects carried out by the top 50 companies from the National Champions list, Fin_i is the value of i -th company's expenditure on financing research units in thousand PLN, and Fin_{10} is the lower limit value of the tenth decile of the distribution of spending on financing research units of top 50 companies in the National Champions list.

Work efficiency is calculated based on data on value-added and employment at a corporate group, obtained for the index in the Economy category. The subindex was then calculated using the formula:

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

where va_i is the value-added per one employee at the i -th company, va_4 the lower limit value of the fourth quartile of the value-added distribution per employee at companies in the top 50 of the ranking of National Champions.

The full index in the Innovation category is calculated as a weighted average of the categories above using the formula:

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

Special Index: Human Capital

The index is calculated based on the arithmetic mean of four subindexes, each of which illustrates a different dimension of fostering human capital:

$$KL_i^1 = \text{Min} \left\{ 100 * \frac{G_i^4}{G_{q3}^4}; 100 \right\}$$

where G_i^4 is the value of the subindex payroll fund for the i-th company, and G_{q3}^4 is the value of the upper limit of the third quartile of the subindex payroll fund distribution for all companies.

$$KL_i^2 = \text{Min} \left\{ 100 * \frac{L_i^H + L_i^{BR}}{L_{q3}^{HBR}}; 100 \right\}$$

where L_i^H is the share of employees with higher education in the total number of employees working in the i-th company, L_i^{BR} is the share of R&D workers in the total number of employees working in the i-th company, and L_{q3}^{HBR} is the value of the upper limit of the third quartile of the distribution of the sum of L_i^H and L_i^{BR} for all companies.

$$KL_i^3 = 0,75 * \text{Min} \left\{ 100 * \frac{L_i^{3Y}}{L_{q3}^{3Y}}; 100 \right\} + 0,25 * \text{Min} \left\{ \text{Max} \left\{ 100 * \frac{L_{q1}^L - L_i^L}{L_{q1}^L}; 0 \right\}; 100 \right\}$$

where L_i^{3Y} is the percentage of employees with more than 36 months' experience in the i-th company, L_{q3}^{3Y} is the upper limit of the third quartile of L_i^{3Y} distribution for all companies, L_i^L is the average number of days of sick leave per employee in the i-th company and L_{q1}^L the upper limit of the 1st quartile of L_i^L distribution for all companies.

$$KL_i^4 = 0,5 * \text{Min} \left\{ 100 * \frac{L_i^{ZZ}}{L_{q3}^{ZZ}}; 100 \right\} + 0,5 * \mathbf{1}_{ZZ}(i)$$

where L_i^{ZZ} is the ratio of the number of trade union members in the i-th company to the number of all employees of that company, L_{q3}^{ZZ} is the value of the upper limit of the third quartile of L_i^{ZZ} distribution for all companies, and ZZ is a set of all National Champions with a trade union, and $\mathbf{1}_{ZZ}$ is an indicator of this set.

Only data for 2018 from questionnaires filled in by corporate groups were used in the calculations. In case of any lack of data, the subindex for the i-th company assumed the value of zero.

References

Publications:

- Antosz, P., Czarnik, S., Jelonek, M., Kasperek, K. (2018), "Raport z badania ludności w wieku 18-69 lat". Bilans Kapitału Ludzkiego 2017, PARP [Polish Agency for Enterprise Development], Warsaw.CBOS [Public Opinion Research Center] (2019), Związki zawodowe w Polsce. Komunikat z badań, Warsaw.
- Czerniak, A., Helak, M. (2019), Przedsiębiorca wysłuchany. Czego potrzebuje do rozwoju?, Polityka Insight, PRB, Warsaw.
- FOR [The Responsible Business Forum] (2019), XIII Ranking Odpowiedzialnych Firm, 13 June, online, <https://bit.ly/2ZSsz2U>.
- Gawlikowska-Hueckel, K. (2014), "Polityka przemysłowa i spójności wobec planów reindustrializacji Unii Europejskiej. Wnioski dla Polski", Gospodarka Narodowa (5).
- Glapiak, E. (2020), "W kwietniu czeka nas fala zwolnień. Bez pracy zostaną tysiące osób", Business Insider, 2 April, online, <https://bit.ly/31Y3r1U>.
- Górniak, J. (ed.) (2015), „Polski rynek pracy – wyzwania i kierunki działań na podstawie badań”, Bilans Kapitału Ludzkiego 2010–2015, PARP [Polish Agency for Enterprise Development], Warsaw-Cracow.
- Great Place to Work Institute (2018), Ranking najlepszych miejsc pracy. Polska 2018, online, <https://bit.ly/3iMx5gs>.
- Jabłoński, Ł. (2012), Kapitał ludzki a konwergencja gospodarcza, Warsaw.
- Komuda, Ł. (2020), "Więcej śmieciówek. A miało być tak pięknie...", Rynekpracy.org, 13 January, online,, <https://bit.ly/321UNiN>.
- Korzeniewicz, W., Szopik-Depczyńska, K. (2011), "Kapitał ludzki w modelu wartości przedsiębiorstwa", Zeszyty Naukowe Uniwersytetu Szczecińskiego. Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania (24).
- PwC (2019), Rosnąca luka na rynku pracy w Polsce. Jak ją zniwelować?, January, online, <https://pwc.to/2ZU23e6>.
- Statistics Poland (2018), Informacja o rozmiarach i kierunkach czasowej emigracji z Polski w latach 2004- 2017, 19 November, online, <https://bit.ly/2OaKbpL>.
- Statistics Poland (2019a), Kapitał ludzki w Polsce w latach 2014-2018, Warsaw/Gdansk, online,<https://bit.ly/2ZdEmOA>.
- Statistics Poland (2019b), Wybrane zagadnienia rynku pracy. Dane dla 2018 roku, online, <https://bit.ly/3gJmZep>.
- Warchał, A., M. (2017), Raport z badań nad skutkami ustawy o ograniczeniu handlu w niedziele i święta oraz w niektóre inne dni – aspekty prawne, psychologiczne, społeczne i gospodarcze, n|e-|x|t|men HR consulting at request of Krajowy Sekretariat Banków, Handlu i Ubezpieczeń NSZZ "Solidarność", online, <https://bit.ly/2DtwRL7>.
- Wincenciak, L. (2017), "Stopa zwrotu z wykształcenia wyższego w Polsce według grup kierunków studiów", Edukacja (4).
- Work Service (2019), XII Barometr Rynku Pracy, Q3 2019, online, <https://bit.ly/38KM1a9>.

Databases:

Eurostat, OECD.