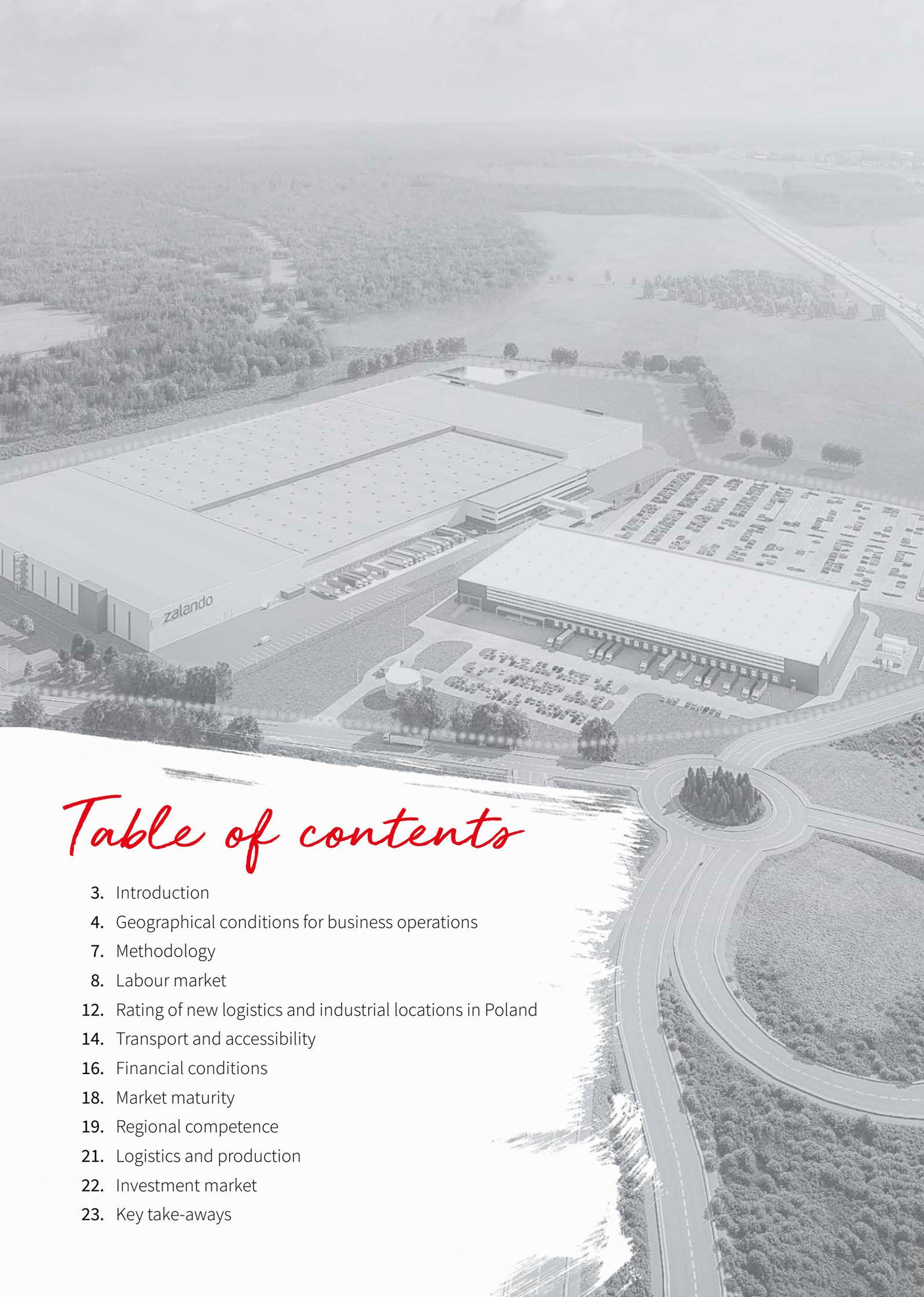


Small town  
*big* **DEAL**

New logistics and industrial  
locations in Poland



# Table of contents

3. Introduction
4. Geographical conditions for business operations
7. Methodology
8. Labour market
12. Rating of new logistics and industrial locations in Poland
14. Transport and accessibility
16. Financial conditions
18. Market maturity
19. Regional competence
21. Logistics and production
22. Investment market
23. Key take-aways

# Introduction

The last five years have proved to be an unprecedented period of growth for Poland's industrial real estate market. Demand has broken new records in each consecutive year, while the supply of space has more than doubled, from 7.5 to 15.7 million m<sup>2</sup> at the end of 2018. These excellent figures can be attributed to a number of factors. Those include the ideal location of Poland at the heart of Europe, which can at long last be taken advantage thanks to the ongoing improvements in infrastructure, attractive construction costs and the availability of a relatively cheap yet skilled labour force. The growth has also been due to the increasing purchasing power of Poles, which keeps on driving up retail sales, including online sales that result in yet further increased demand for logistics services and space.

Size-wise, Poland's market currently ranks seventh largest in the EU. However, juxtaposing the existing floorspace with population and GDP figures and comparing those results with some Western European countries, it appears that there is still significant potential for further growth. But such dynamic expansion did come at a cost, and some challenges began to become visible a few years ago. Production and logistics companies have been facing labour shortages in some regional markets, and industrial developers have reported increasing construction costs. However, as the road infrastructure in Poland is becoming denser, new expansion opportunities are springing up in locations which were previously not of any interest to market players.

This white paper is the result of a collaboration between JLL, Hillwood and Manpower. We have worked together to assess the potential for logistics and production activity in these less obvious industrial locations. We selected 34 industrial centres across Poland, including both established industrial markets located in and around Poland's largest cities and those where there is yet to be activity by developers and tenants. Each location was evaluated against a predefined set of criteria. The result was a ranking of industrial locations in Poland.

The main purpose of this analysis was to identify the unique selling points of each regions. As there is no common operations model for logistics and production firms, it is difficult to speak about one universal set of location criteria for all firms looking for industrial space. Therefore, this ranking should be seen as a tool to evaluate each location against factors the subjective weight of which should be individually determined for each particular company.

We hope that this white paper will be a useful source of information for companies considering investments in production or logistics facilities in Poland.



**Tomasz Olszewski,**  
Head of Industrial Agency CEE, JLL

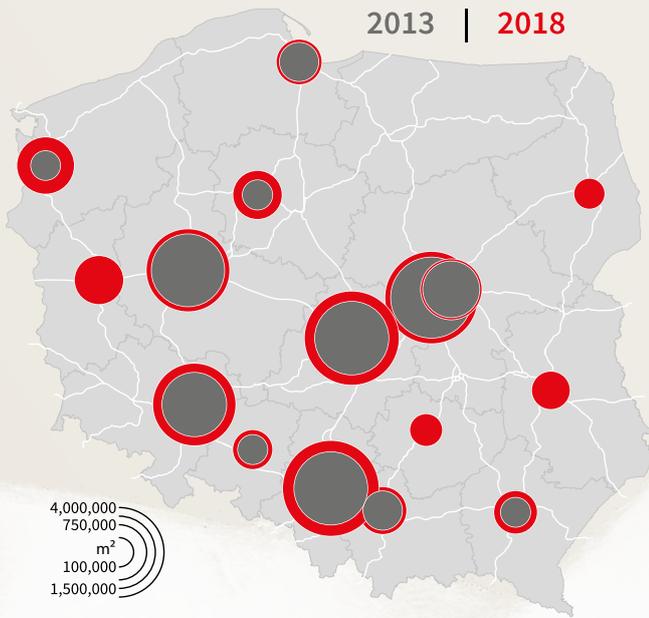


**Hubert Michalak,**  
Head of Hillwood Poland

# Geographical conditions for business operations

At the end of 2018 the industrial market in Poland was driven largely by the “Big Five” markets, i.e. Warsaw, Upper Silesia, Central Poland, Poznań and Wrocław. However, the joint share of the Big Five in both demand and supply has been steadily falling: from 90% in 2013 to 74% in 2018 in terms of demand; and from 92% to 83% in terms of existing industrial stock.

## Existing industrial stock



Source: JLL, 2018

Historically, the key sectors leasing industrial space in Poland were logistics operators and retailers, which together accounted for some 61% of the space leased since the beginning of 2014. Other significant tenant groups included light production (12%) and automotive companies (7%).

As the demand for space outside the Big Five markets is still relatively small, it is still premature to talk about any distinctive profiles of new industrial locations. It seems, however, that due to the low base, the level of sectorial specialisation is in fact somewhat higher than in the mature markets.

The increasing importance of emerging locations is predominantly due to growing transport accessibility, which opens these sites for logistics and manufacturing projects. With the falling unemployment, which can be most intensely seen in the largest cities, local labour force reserves have become an additional advantage of smaller geographies. Finally, one should not underestimate the cost of investment land, which is much lower in emerging locations as compared to major agglomerations.

The aforementioned factors are important, but certainly not the only drivers of the increasing interest in emerging locations. Often the demand for modern warehouse and production space is generated by local companies, the previous premises of which no longer met their qualitative, technical and geographical requirements. We can therefore speak about organic demand, which previously had no opportunity to arise.

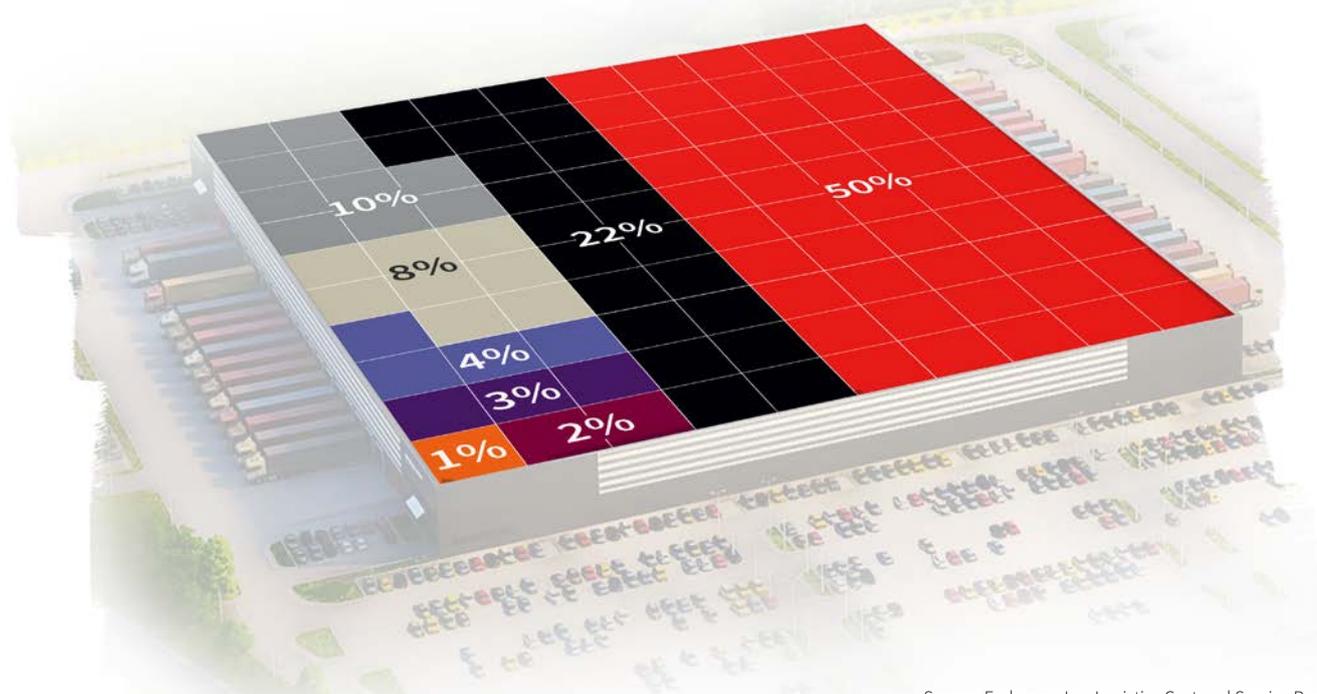
Selecting the optimal location is typically determined by the specific activity of a given company. Location criteria that are common for most firms are access to transport infrastructure and labour force. For manufacturers, location decisions are also driven by the shape of the entire supply chain: where the resources and semi-finished products are coming from and where the manufactured goods will be shipped to. Such entities often operate in clusters, taking advantage of the synergies resulting from proximity to numerous firms from the same industry. The automotive sector is a good example of such co-operation, with a number of production facilities located in Southern Poland working closely with car plants located in Germany, the Czech Republic and Slovakia. Often, location is determined by the availability of qualified staff, proximity to resources and infrastructure (including utility networks, rail and seaports), and local business incentives.

## New take-up by sector in years 2014-2018



Source: JLL, 2018

# Operational costs of supply chain by category



Source: Exchange, Inc: Logistics Cost and Service Report

■ Transportation 
 ■ Inventory 
 ■ Labour 
 ■ Customer services 
 ■ Rent 
 ■ Admin 
 ■ Supplies 
 ■ Other

In the case of decisions to lease space in a BTS project (BTS stands for Built-To-Suit, a building designed to the tenant’s technical specifications), production companies often look outside of the major cities, in specific locations that fit well in their supply chain. They are then able to take additional advantage of the increased availability of land, and usually also a cheaper labour force.

For retailers, on the other hand, a key rationale behind warehouse location is the geographical distribution of points of sale. As research shows, transportation accounts for an average of 50% of supply chain costs, whereas the share of rental costs is usually just over 4%. Finding appropriate locations for distribution centres is therefore crucial for the financial results of retail chains.

Retailers distributing to Western Europe from Poland typically choose locations near the country’s western border, along the S3 expressway corridor, which enables them to benefit from the significantly lower rents and labour costs. Those who run Poland-wide distribution typically locate their central distribution centres near Łódź, in Central Poland.

Given the above-mentioned breakdown of supply chain costs, after reaching a certain scale of operations it may be worth considering dispersing logistics needs between two or more local distribution centres. A shorter average distance between a warehouse and points of sale will linearly translate into lower transportation costs, including fuel, driving times, and fleet stock consumption.

It may then turn out that the optimal location for such a distribution centre may be in less obvious places, which are outside the major industrial markets. Some retail chains, which begin their expansion on the Polish market from a specific region, often located their

distribution centre there. As the chain expands, not only does such a centre become too small to handle the increased operations, but is also found to be in a non-optimal location from the perspective of effective distribution of goods. Moreover, the gradual expansion of Poland’s modern road infrastructure may also cause a location to lose its optimal position, e.g. due to the construction of a new stretch of motorway.

The local labour market situation is a location factor the importance of which has been significantly utilised in years gone by. However, labour costs (which account for less than 10% of supply chain costs) are usually of less concern than the availability of a sufficient number of staff.

As a rule, the cost of renting an industrial property results from its location and the type of space and is determined by then-current demand and supply trends and land and development costs. These factors are often also subject to regional differences. The maturity of a given submarket also plays a role, as larger markets usually translate into a wider choice for tenants. Additional benefits may involve local incentives or, more generally, the local investment climate.

To sum up, there are several elements behind a decision on where to locate a production or logistics facility. Some of those elements will result from the nature of a firm’s operations or purely geographical criteria, while others will be mainly driven by the balance sheet. On the following pages of this paper we will evaluate specific regions against a predefined set of criteria, which are the most common decision factors for companies renting warehouse and production space in Poland.



## Case Study

The diagram below shows the distribution network of a hypothetical retail chain operating stores in each of the 49 former regional capitals of Poland (prior to the 1999 administration reform). Each store has been weighted according to the given city's population and the local purchasing power. For scenarios involving one, two, three and four distribution centres the optimal locations of such facilities were determined and the resultant savings in transport distance were calculated.

The analysis below underlines that an informed decision about the number and location of distribution centres may generate considerable savings in transportation costs. As mentioned previously, this single element accounts for more than a half of all supply chain costs, considerably more than all costs related to real estate.

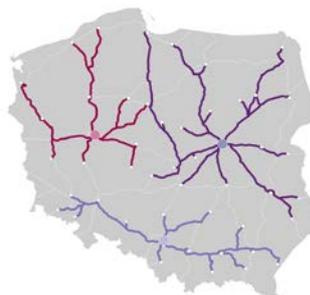
**1** Distribution centre  
Distance 12,924 km



**2** Distribution centres  
Distance 11,247 km  
Savings - 13%



**3** Distribution centres  
Distance 8,554 km  
Savings - 34%



**4** Distribution centres  
Distance 6,799 km  
Savings - 47%



Source: JLL, 2019

# Methodology

Our survey involved 34 locations, which were analysed in terms of their potential for logistics and production sectors. This number included both the established markets of the Big Five as well as regions which are yet to see the entry of the first market players.

Instead of the usual division into regions and subregions, we decided to use a different one that takes into account most of the cities with populations exceeding one hundred thousand residents, together with their immediate surroundings. That size threshold means that this ranking does not include some smaller cities, such as Kutno, Łomża and Świebodzin, which, due to their specific features, definitely have logistics and production potential.

Each location was evaluated in five key thematic areas: transport accessibility, labour market, financial conditions, regional competence and real estate market maturity. The score earned by a given location in a specific thematic area is the sum of the partial scores, which involve a wide spectrum of factors defining the potential of a given place. Each partial score has an applied weight, which reflects its significance for a theoretical-universal tenant type. These weights have been proposed by JLL's industrial experts, who work on a daily basis with companies from a wide spectrum of sectors.

The following weights have been applied to the specific thematic areas:

- ▶ Transport and accessibility – **30%**
- ▶ Labour market – **30%**
- ▶ Financial conditions – **20%**
- ▶ Regional competence – **10%**
- ▶ Market maturity – **10%**

Unsurprisingly, the ranking is topped by four of the Big Five regions. The only exception was Wrocław, the final score of which was reduced by a low mark for labour market. The highest score (79%) was awarded to Stryków, in Central Poland. However, it is also worth looking at the emerging locations, amongst which Konin, Kraków and Kielce ranked highest. Importantly, the difference between the first and the last places in the ranking is not particularly big.

The top 10 emerging industrial markets have been included in the table below. For a detailed evaluation of each of the analysed locations, please see pages 12–13.

## Top 10 new locations

Region	Transport and accessibility	Labour market	Financial conditions	Regional competence	Market maturity	Overall score
Konin	62%	82%	75%	68%	25%	68%
Kraków	83%	81%	40%	63%	40%	68%
Kielce	51%	77%	88%	67%	40%	67%
Legnica-Głogów zone	75%	71%	68%	58%	25%	66%
Zielona Góra	69%	72%	75%	58%	20%	65%
Częstochowa	70%	61%	80%	69%	25%	65%
Bydgoszcz	59%	87%	55%	62%	35%	65%
Włocławek	53%	89%	63%	61%	25%	64%
Tarnów	55%	87%	63%	65%	20%	64%
Rzeszów	47%	91%	68%	61%	30%	64%

Source: JLL, 2019



**Hubert Michalak,**  
Head of Hillwood Poland

Hillwood believes in the potential of new industrial locations, which is underlined by our recent projects. New locations share many of the advantages of major established markets, such as developing road infrastructure, but, at the same time, they allow for much more efficient recruitment processes than more saturated leading markets. These factors were very important when choosing Częstochowa for our new project, the first such development in this region.

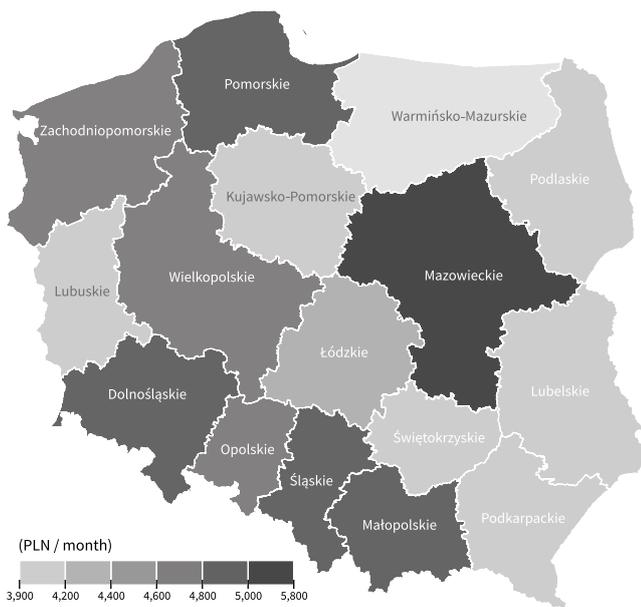
We believe that the location next to the constructed A1 motorway, between Upper Silesia and Central Poland, is excellent for both local and global firms. We have also invested in Kutno, which, given its proximity to Stryków, has enormous growth potential. In Świebodzin (in Lubuskie), we are working on a BTS project, which is our third development in this region; what is more, we want to start another one there in 2019. The leading markets will maintain their position, but it is anticipated that in the future the development of Poland's industrial market will be more decentralised.

# Labour market

The attractive labour market has for many years been one of the key factors driving the development of the industrial market in Poland. This attractiveness resulted not only from lower employment costs, as compared to other European countries, but also from the availability of staff, both blue-collar and white-collar, skilled and unskilled. This competitive advantage of Poland is still evident; however, in recent years it has lost some of its importance. The good economic conditions here led to a drop in the rate of registered unemployment, from 13.4% in 2013 to 5.8% in 2018. Although this decline coincided with increased migration to Poland on unprecedented scale, mainly from Ukraine, some companies have begun to report difficulties with recruiting staff. The lengthening of the process of finding the necessary number of employees has resulted in increases in labour costs. At the end of 2018, the average wage in the enterprise sector was PLN 4,827, nearly 27% higher than in 2013. The average wage in Poland is still lower than that in, for example, the Czech Republic; however, it is now comparable with that in Slovakia and higher than those in Hungary, Latvia and Lithuania.

We noted significant differences in the wages offered in each region. The average wage in the Mazowieckie voivodeship was PLN 5,797, which equates to 120% of the national average. Salaries above the average are also seen in the Dolnośląskie (103%), Śląskie (102%) and Pomorskie (101%) voivodeships. The lowest wages are found in Warmińsko-Mazurskie, only 81% of the national average.

Average monthly gross wages in enterprise sector in 2018



Source: Central Statistical Office, 2018



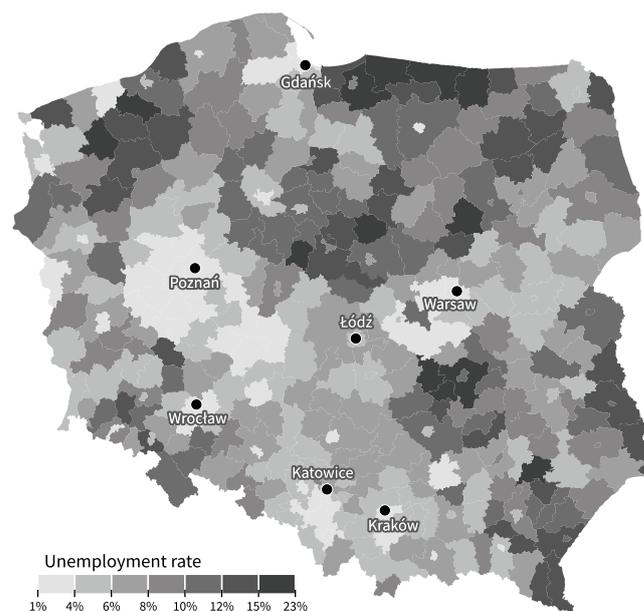


Not much more needs to be paid to staff in the Podkarpackie (83%), Świętokrzyskie (84%) and Lubelskie (85%) voivodeship, which form the wider Eastern Poland region. Relatively low labour costs are also found in the more centrally-located Kujawsko Pomorskie voivodeship (85%).

Some differences in wages are also noted between cities located in the same region. For example, in Włocławek the hourly wage is PLN 14.20 while in nearby Toruń it is PLN 16. Smaller discrepancy in wages is typical for Central Poland, Łódź, Stryków and Piotrków, where the average hourly wage stood at PLN 16. The cities where the hourly wages are the lowest include Włocławek, Rzeszów and Bydgoszcz. It should not be a surprise that the highest wages are found in the largest cities, such as Warsaw and Wrocław.

Alongside the wages expected, another key factor considered by logistics and production firms is the availability of the necessary number of staff. In recent years, we have noted the increasing importance of this factor, particularly in terms of choosing a location for a project, as visible shortages in labour have appeared in some of the most developed markets. Thus this is a factor which favours less developed emerging locations. Historically, the lowest unemployment rates were characteristic of the largest agglomerations, such as Warsaw, Poznań, Wrocław and the Tri-City. In the contrary, the highest rate was typical for smaller industrial towns and cities, in which restructuring processes took place during the time of the transformation of the Polish economy in the 1990s. Those include, amongst others, Radom, Elbląg and Włocławek. As well as the number of potential staff available, the labour force in the aforementioned locations is in most cases highly qualified.

### Unemployment rate in 2018



Source: Central Statistical Office, 2018

The general decline in the unemployment rate in recent years is evident in most of Poland, but the historical regional structure is still visible. However, not only unemployment rate should be considered, as the real number of unemployed persons actively looking for jobs is also essential: in major agglomerations a low unemployment rate can equate to a relatively extensive labour pool.

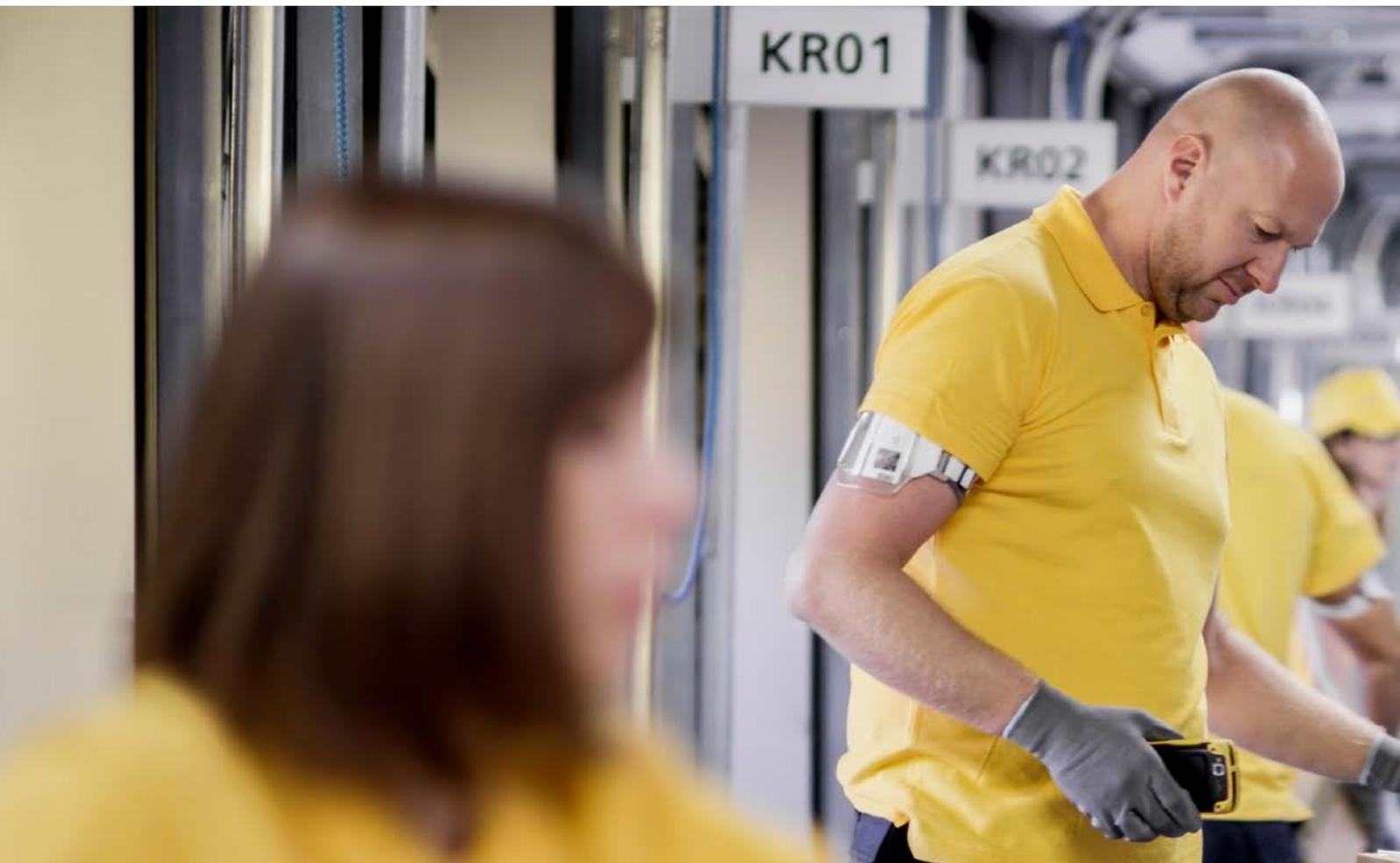
Given the current conditions on the labour market, economic migration is becoming a key factor for companies which wish to operate and expand in Poland, and thus to maintain a high demand for warehousing space. According to the Central Statistical Office, in 2018 nearly 330,000 work permits were issued to foreigners in Poland. The permits issued mainly involved construction (23%), industrial processing (21%), and transport and warehousing (16%). Although statistics on immigration and foreign workers in Poland are still somewhat scarce, the available sources indicate that the largest cities are the most popular destinations. One can certainly argue that it was due to immigration that the Big Five markets have been able to maintain their domination, as, despite the shrinking unemployment levels there, the supply of available employees continued to be sufficient.

The current condition on a local labour market dictate how long it will take to find staff. According to Manpower's data, the recruitment of a 100-man production team will be the fastest in Białystok, where it should take approximately 40 days. It will take 50 days in Bielsko-Biała, Bydgoszcz, Częstochowa, Elbląg, Gorzów, Kalisz, Konin, Kraków and in the eastern part of the industrial zone around Łódź. The longest recruitment process, up to 90 days, can be expected in Wrocław, Warsaw and its surroundings, and also Zielona Góra and Włocławek.

The regions where potential employees can choose between a wide range of job offers are mainly the cities of the Big Five and Kraków. Interestingly, the Upper Silesia market has visible differences in the number of vacancies within the region. According to Manpower, the zones (poviats) of Będziny, Dąbrowa Górnicza and Mikołów are characterised by a relatively high number of vacancies, while the number of open positions is low in neighbouring cities (poviats) such as Bytom, Chorzów and Ruda Śląska. This shows that it is worth considering locations in the wider region and running one's recruitment process on a wider geographical scale.

In this context local transport connections become increasingly important. Accessibility, including via public transport, becomes an important attribute of a given location, both in the suburbs of the biggest agglomerations and some smaller cities. Firms operating in the most developed industrial regions now often offer special bus lines for their employees.

The final, but by no means least important, factor in terms of labour market is demographic change. Our scorecard included data on what percentage of the local population are in the age groups entering or leaving the labour market in the next few years. Additionally, it also covered the number of students in local vocational schools, which educate qualified employees, particularly those sought after by manufacturing firms. Demographic trends are most favourable in Konin, Kraków and Piła. The least advantageous age structures are found in the populations of Warsaw and Wrocław, but one should remember about the positive migration balances of those cities. The largest numbers of students in vocational schools are to be found in Tarnów, Bydgoszcz, Kraków, Poznań and Warsaw.





**Marek Wróbel,**  
Commercial Director,  
ManpowerGroup

When analysing the potential of local markets for production and logistics projects, one should not forget about small and medium towns and cities. In terms of labour, these locations are, paradoxically, much more attractive than large agglomerations. If there is no other major development planned in a particular location, the process of recruitment should not be a challenge, which it is in the case of the most popular industrial regions.

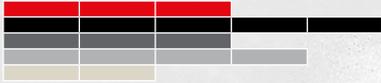
If they have an opportunity to work closer to where they live, potential employees will choose the new company in order to save the time commuting. By contrast, companies located in the most popular large industrial regions have to compete for employees by offering them more and more competitive wages. However, if firms decide to relocate to a new, less obvious location, after checking the local labour potential and offering attractive but still market-based wages, they could attract the staff they currently need. In this case, we are mainly thinking of warehousing or production staff.

What could be a challenge, though, is the fact that engineering and management staff will have to commute to work from large agglomerations, where most of them live. Nonetheless, new locations are an attractive alternative for personal development in both management roles and higher technical positions. However, we always recommend that our clients thoroughly investigate the potential of local labour market and competition nearby, to know if there is or will be any recruitment process ongoing, by both firms already operating in the region and newcomers.



# Rating of new logistics and industrial locations in Poland

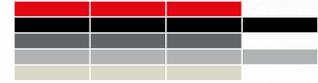
Bydgoszcz



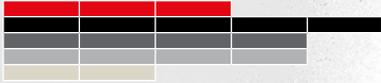
Toruń



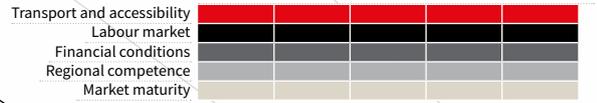
Tri-city



Wrocław



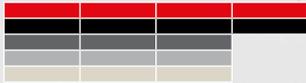
## Rating criteria



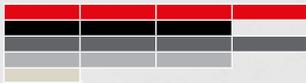
Piła



Szczecin



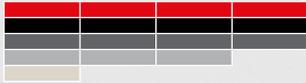
Gorzów Wielkopolski



Poznań



Zielona Góra



Konin



Legnica-Głogów zone



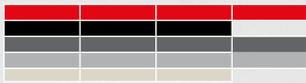
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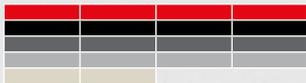
Wrocław



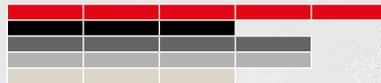
Opole



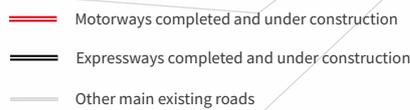
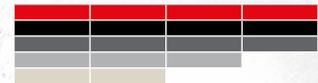
Częstochowa



Gliwice



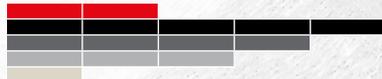
Bielsko-Biała



Elbląg



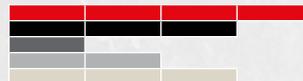
Olsztyn



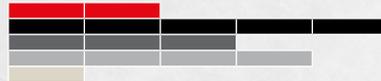
Warsaw Suburbs



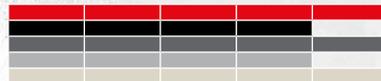
Warsaw



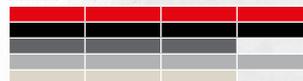
Białystok



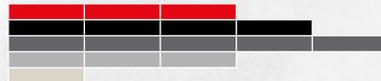
Stryków



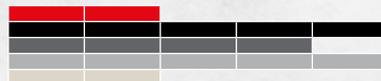
Łódź



Radom



Lublin



Piotrków Trybunalski



Kielce



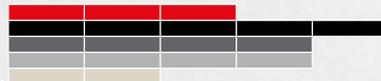
Tarnobrzeg



Rzeszów



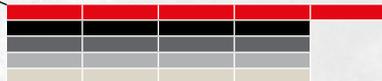
Tarnów



Tychy - Bieruń



Katowice - Sosnowiec



Kraków



# Transport and accessibility

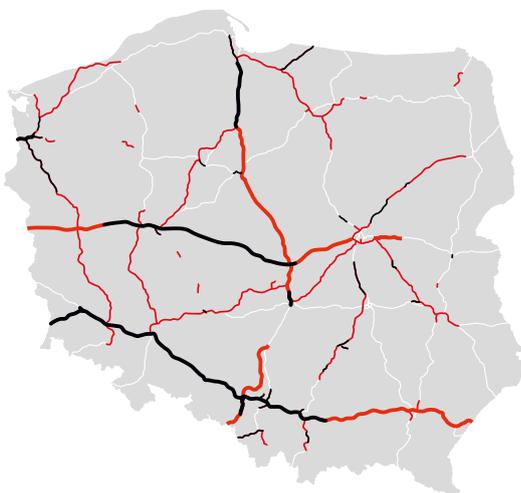
Convenient access to modern transport infrastructure is one of the most important factors when assessing potential locations for future industrial projects, both production and logistics facilities. Choosing the most attractive location, which meets all of transportation needs of the given company, makes possible visibly lower transportation costs, which account for the largest share in total supply chain costs. In addition, in the case of, for example, retail chains, a good location also makes it possible to shorten delivery times, which is a competitive advantage for the firm in question.

On our scorecard we have focused mainly on road infrastructure, which undoubtedly dominates other means of transport in Poland. According to the Central Statistical Office, more than 85% of cargo shipments (measured in tonnes) travelled by road. The share of railway is still marginal (12% of cargo shipments), due mostly to poor infrastructure, which directly results in low average speeds: in 2017 those were about 25 km/h in Poland, compared to 64 km/h in the Netherlands (UTK, IRG-Rail). Despite this, regarding high efficiency and environmental issues, which are in favour of railway transport, as infrastructure improves, it is expected to be of increasing significance in the future.

The dominance of road transport in Poland is largely due to the developed and still developing road infrastructure. The network of modern high-speed roads is now 2,200 km longer than it was in 2010, which means that the overall length of the network has doubled since then.

The key projects in this period were major stages of A1, A2 and A4 motorways, which create the spine of Poland's road infrastructure, connecting, among other cities, Warsaw with Łódź, Poznań and Gdańsk, and the western and eastern borders of the country. Also completed were all or parts of the expressways S3, S5, S7 and S8. This has made possible the creation of new industrial regions, which hadn't existed on developers' radar previously. Continued development of road infrastructure will certainly be followed by further decentralisation of the industrial market in Poland and will open up many new opportunities for developers and tenants.

## Road infrastructure 2010 vs 2019



Source: JLL, 2019

We applied a number of criteria to evaluate transportation and accessibility with regard to the selected locations. Most of those criteria were based on road transport, but the analysis also included accessibility via airports and sea ports.

One of the most important factors of our evaluation was the current condition of infrastructure in the immediate proximity of locations. For the purposes of this ranking we examined how many kilometres of high-speed roads were completed and being constructed within a radius of 50 km from the selected locations. It is no surprise that major agglomerations are the undoubted leaders, with Warsaw, Łódź and the Katowice Conurbation on the podium, all of them having more than 300 km of modern high-speed roads. However, in addition to the Big Five it is worth paying attention to locations such as Legnica, Elbląg, Gorzów, Szczecin, Bydgoszcz / Toruń, Zielona Góra and Piotrków Trybunalski: more than 100 km of high-speed roads can be found within 50 km of each of those locations. Considering the infrastructure investments planned for the next few years, the locations anticipated to gain in significance are Szczecin, Kielce and the cities of eastern Poland: Lublin, Białystok and Rzeszów.

Transport accessibility can also be viewed as the catchment area which is generated by the given location. This is why our scorecard includes an analysis of population within two and eight hours' drive time. The two-hour drive time area is that which should be regarded as a "last-mile zone"; however, not only in terms of just one selected major agglomeration, but instead, all destinations within that zone. This factor is also relevant with regard to large-scale distribution centres – Kutno could be an example, as Warsaw, Łódź, Poznań and Bydgoszcz are reachable from there within about two hours. The two-hour drive time population count is also an indicator of potential labour pool, who, thanks to convenient connections, will be willing to travel a slightly greater distance to reach a place of work.

## Total population in 2 and 8-hour catchment

Region	2h
Stryków	8,911,000
Piotrków Trybunalski	8,824,000
Częstochowa	8,795,000
Kraków	8,706,000
Gliwice	8,649,000
Region	8h
Legnica-Głogów zone	74,873,000
Wrocław	74,516,000
Gliwice	72,446,000
Zielona Góra	70,503,000
Opole	68,431,000

Source: JLL, 2019

The results are, however, very different in terms of the eight-hour drive time area, which is a distance similar to that which can be covered in a single shift by a truck driver. The more populated an area, the more clients can be served by a company from one central hub. A high reachable population indicates the ability to serve not

only major dense urban areas but also distant consumers, clients, subcontractors and final recipients of production. Due to the fact that the eastern border of Poland is also an external border of the EU, this factor favours locations in the south-western and western parts of Poland, from where foreign markets such as Germany, the Czech Republic, Austria and Hungary can be supplied. The largest population is found in the catchment area of the Legnica-Głogów zone, a total of up to 75 million people. Along with Wrocław, Upper Silesia, Opole and locations next to the S3 expressway, also worth mentioning are Częstochowa and Kalisz, the catchment zone population of each being about 60 million people. By comparison, a central hub located next to Warsaw is able to supply “only” 47 million people within an eight-hour drive time.

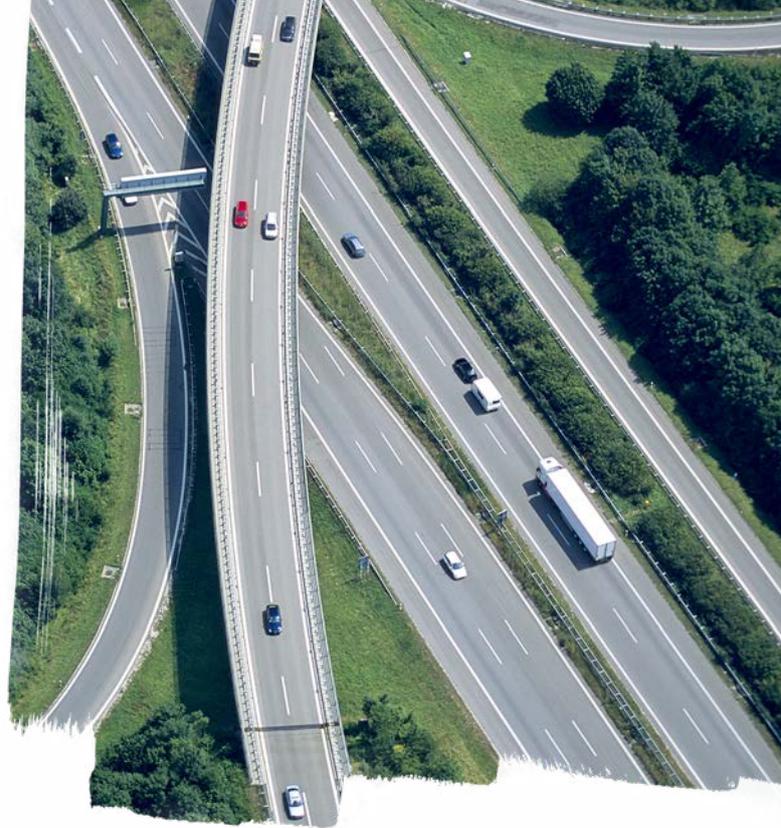
As an addition to the analysis of the eight-hour drive time catchment, we also included the GDP generated by the zone of each chosen location. In this case, the leader remained unchanged, but Szczecin joins the group of the most attractive locations. Interestingly, the difference in the GDP generated by the zones of Legnica-Głogów and Warsaw is 140:100 in favour of Legnica-Głogów. The main reason for that is the proximity of Legnica to western European markets (in Germany and Austria), where GDP per capita is much higher than in Poland.

Given the recent investments in sea-port infrastructure in Poland, as well as the increasing volume of goods transported by sea, the distance to the nearest container port is also included in our ranking. There can be no doubt the locations which dominate in these terms are coastal ones in northern Poland. Other cities which did well here are those located next to expressways leading north, such as Gorzów, Zielona Góra and Włocławek.

### Estimated 8-hour catchment area from Białystok and Legnica



Source: JLL, 2019



Convenient and quick access to an international airport could also be an additional advantage of a given location, especially in terms of attractiveness to foreign investors. Although air cargo constitutes only a small fraction in the means of transport mix and the demand for airport-centric warehouses remains marginal, the international availability of a given location is important. The main reason for that is the ability to organise a direct inspection or visit from the headquarters of a company. In this respect the Big Five markets are leading the way, with Warsaw clearly dominant. Less obvious locations from which you can reach an airport in less than an hour are Częstochowa and Elbląg. Only airports serving more than 1 million passengers per year were taken into account, as, in our opinion, only such airports have sufficient critical mass and network of regular international flights to the largest airports in Europe.

Summing up, the best transport accessibility is characteristic for mature industrial markets around Poland’s major agglomerations, which form the Big Five. However, thanks to Poland’s constantly developing infrastructure, other regions, located next to the most important transport routes, are also becoming very attractive. In recent years the beneficiaries of such developments have been certain locations along the S3 expressway in the western part of Poland, which benefit from proximity to the German market. Less obvious locations which are attractive in terms of transport accessibility include Częstochowa, Opole, Konin, Bydgoszcz and Toruń, which are to be found in the middle of our ranking. In terms of infrastructure developments planned for the next few years, the remaining stages of the S7 expressway (Warsaw–Mława) and the S61, S19 and S17 in eastern Poland, which is still visibly less developed in terms of transport infrastructure, are anticipated to play key roles. The region around Kujawy will be strengthened by the completion of the S5 expressway, as that region has not yet properly taken advantage of its central location in Poland.

# Financial conditions

Every decision-making process depends significantly on finance, both in terms of projects designed and built for a specific client and the leasing of space in an existing warehouse. When investing in a new property one of the first and most important decisions is the choice between buying and leasing. In the case of leasing, the costs associated with a property are primarily a result of the rent, which is influenced by the price of land and construction costs, and service charges, which may vary depending on location.

However, it is worth noting that in terms of leasing, which is the main subject of this study, the real estate costs related to the operation of a distribution centre are only a small part of the total supply chain costs. They are more important for logistics operators, the activity of which is low margin and every possible saving is significant for operating results. As well as rent, the most important components to include are primarily transport and labour costs. Taking into account the proportion of costs generated by each component, a simple calculation enables one to conclude that a 10% saving in transportation costs can entirely offset the costs associated with leasing a warehouse. Of course, this is a very general assumption, but it somewhat indicates the significance of individual components in logistics activity.

Given the above, the strictly financial aspects associated with leasing a property may be marginal compared to the possible savings generated by choosing the best location.

The robust, and even booming, development of the industrial market in Poland has resulted in a reduction of available investment plots in the most attractive locations, which has led to increases in land prices, particularly in large key markets. Despite that, the availability of attractive industrial land is still relatively

high and prices are competitive. In terms of prices, the most attractive plots can be found in Elbląg, Tarnów, Opole, Radom, Piotrków, Włocławek, Tarnobrzeg and Olsztyn, as well as Zielona Góra, where prices start at €10/m<sup>2</sup>. The most expensive locations, where prices start at €40/m<sup>2</sup>, are Gliwice and Kraków, with prices in the Capital City of Warsaw in excess of €80/m<sup>2</sup>.

## Land prices

Price for 1 m <sup>2</sup> of land (euro)	From	To
Elbląg, Radom, Włocławek	10	25
Opole, Zielona Góra, Tarnobrzeg	10	35
Piotrków Tryb., Tarnów, Olsztyn	10	40
Wrocław	25	90
Kraków	40	70
Warsaw Inner City	80	180
<b>Average for Poland</b>	<b>20</b>	<b>50</b>

Source: JLL, 2019

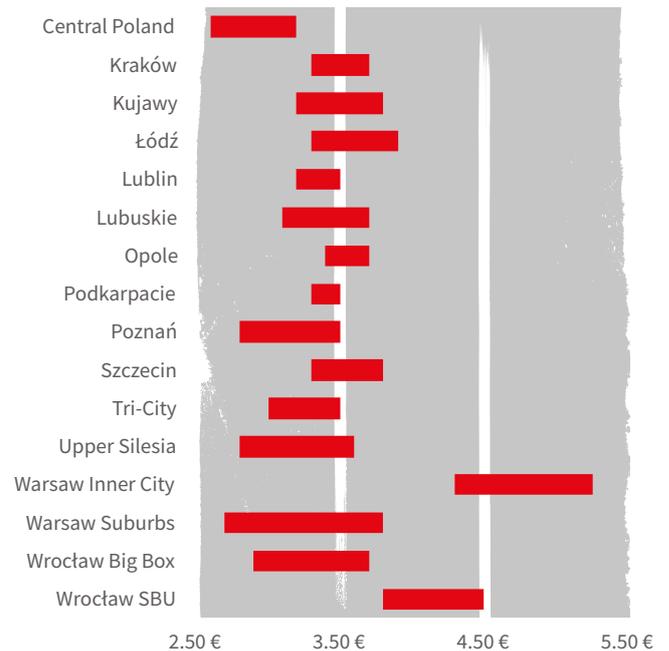
Average prices of land within each of the analysed locations may vary by as much as €40/m<sup>2</sup>. That is due to a number of factors which all affect the final value of a given plot. Apart from the micro-location itself and the direct distance from major transportation routes and the visibility of the planned development, the status of land and how quickly the construction work can begin are among the most important factors. The price also depends on whether the given plot is covered by a local zoning plan (MPZP), whether it has utilities infrastructure and whether it has a convenient existing connection to the main road and a valid building permit.



Land prices and construction costs are the main elements in the equation determining the final rental rate. It is estimated that in the last two years construction costs have increased by about 20%. That covers both the construction of warehouses and adjacent necessary infrastructure (including adjoining roads). This, accompanied by the growing value of land and a decrease in vacancy rates, has led to visible pressure on rents to rise. After a period of stabilisation, increasing rents have already been seen in Wrocław, Szczecin, Opole, Warsaw and the markets of western Poland. We anticipate that this trend will continue, with average annual growth in rents of approximately 5% over the next two years. However, despite the increases seen, rents for industrial space in Poland are still the most attractive among the markets of Europe, which encourages many foreign players to invest here. Another factor affecting rents on the regional level is the maturity of each market. Strong competition among developers in the Big Five markets results in more attractive rental conditions. What is more, the popularity of these markets guarantees that it will be fairly easy to lease available space, which reduces periods without rental revenue.

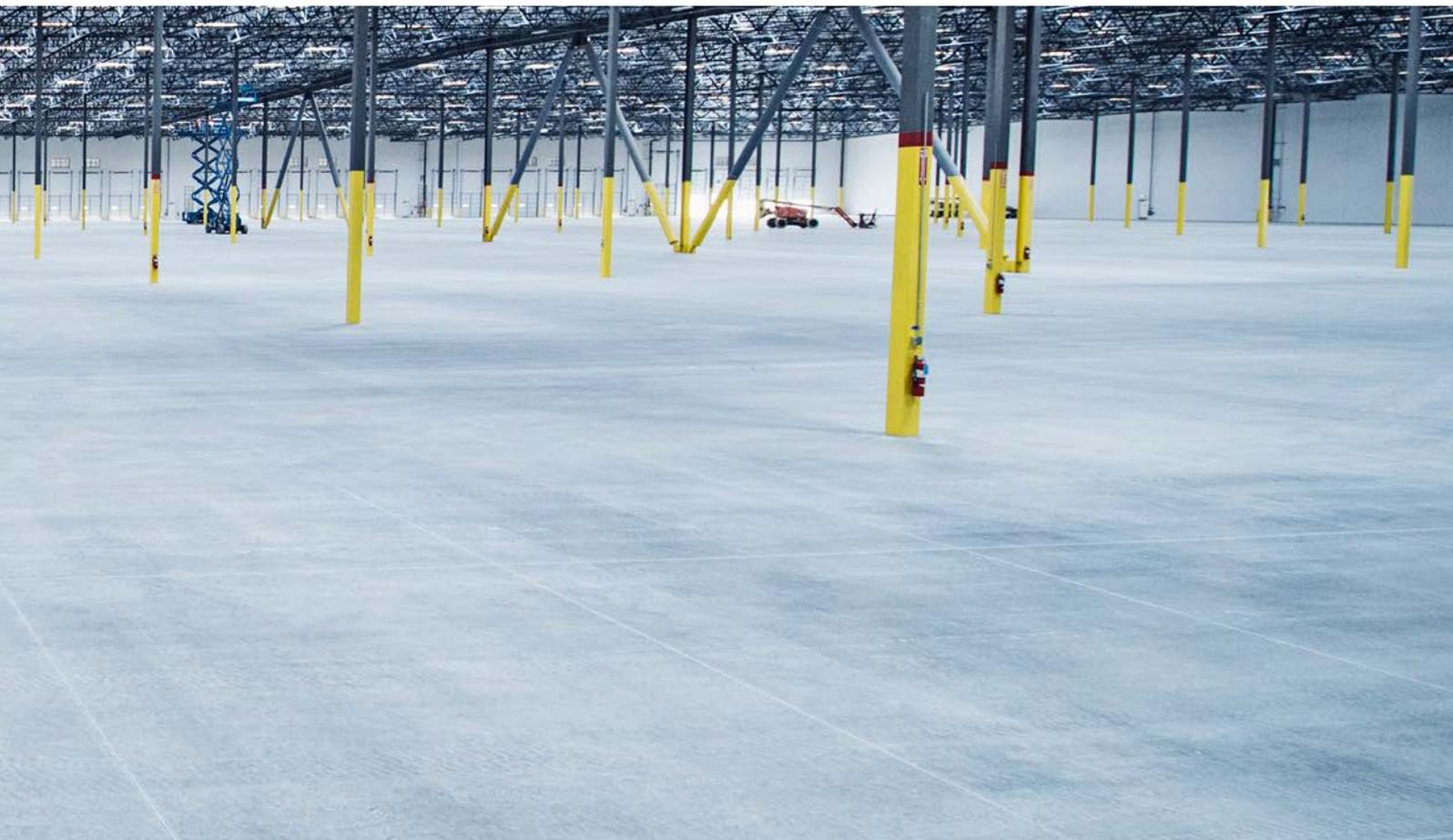
The lowest rents for Big Box warehouses are found in Central Poland, around Łódź and Piotrków Trybunalski, in Upper Silesia, Warsaw, Poznań and Wrocław. Emerging markets, which are affected by the slightly higher development risk there, have higher rents, but are still in the healthy range of €3.0 to €3.8 per m<sup>2</sup> per month (headline rent). Most expensive is leasing SBU facilities and warehouses located in urban zones. Rent for this type of space in Wrocław range between €3.8 and €4.5 per m<sup>2</sup> per month, €3.3 to €4.0 in Łódź and €5.25 in Warsaw Inner City. Considering both the prices of land and rental levels, the most attractive locations included in the ranking are Włocławek, Radom, Piła and Elbląg.

### Prime headline rents (m<sup>2</sup>/month)



Source: JLL, 2019

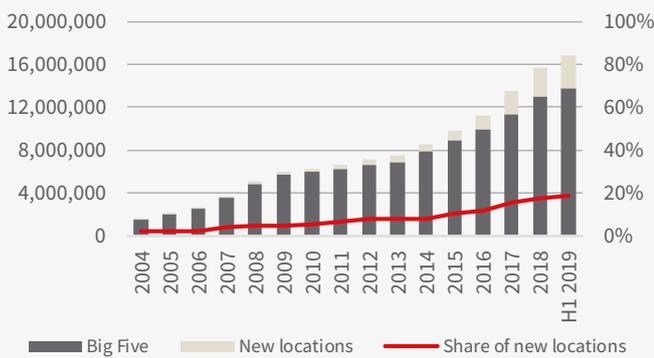
The levels of service charges also vary in terms of location. In this case, however, the lowest levels are found in the emerging markets, outside of the major agglomerations, approximately €1.0–€1.2/m<sup>2</sup>/month. The highest service charges are found in the Warsaw Inner City market (€1.3–€1.9), Warsaw Suburbs (€1.0–€1.4) and Wrocław (€1.2–€1.5). The cost of renting an office space at a warehouse site is in the range of €8.5–€10/m<sup>2</sup>/month.



# Market maturity

The market for modern industrial space in Poland has been developing non-stop since the beginning of the 21st century. Initially, developers' attention was focused on only the major agglomerations, where industrial stock grew at the most dynamic pace. That was the beginning of the Big Five markets' dominance, with the share in new demand there at the end of 2010 standing at 93%. As infrastructure developed, demand started to appear in less popular locations, which led to the weakening of the leading position of the five major markets, with their share in demand in 2018 down to 74%.

## Share of the Big Five markets in Poland's industrial stock (m<sup>2</sup>)



Source: JLL, 2019

The mature and developed industrial market has resulted, first of all, in a visibly wider offering for tenants, greater flexibility for firms seeking space to lease immediately and much more competitive rents. The largest stock of existing and constructed space can be found in the Big Five markets, but there are also a number of additional locations which offer a total stock in excess of 300,000 m<sup>2</sup>. Those are Szczecin, Piotrków, the Tri-City and Kraków. On the other hand, some of the selected locations do not currently offer even 50,000 m<sup>2</sup> of industrial space; but it is their "immaturity" which may be regarded as an advantage, especially in terms of availability of labour. These locations include Białystok, Gorzów, Tarnobrzeg, Włocławek, Częstochowa, Piła, Tarnów, Elbląg and Kalisz.

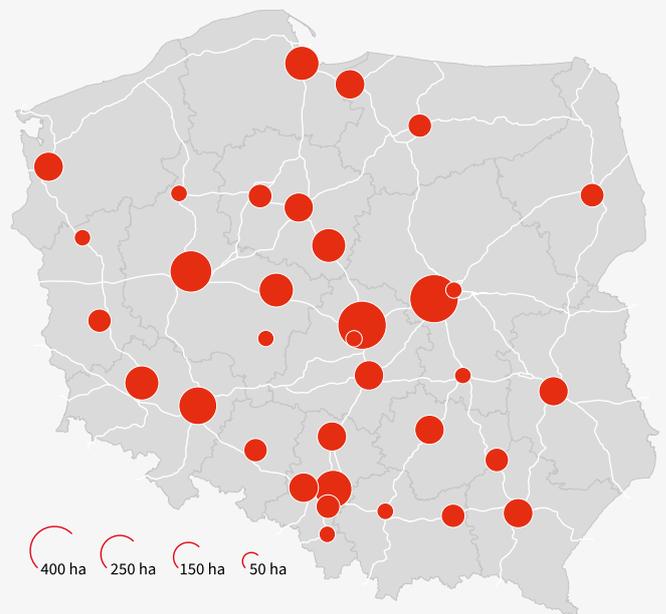
However, with regard to this aspect, the scorecard rewards already well-developed markets and another factor in favour of their attractiveness is the ability to quickly lease relatively large units within one park. Immediately available units of over 20,000 m<sup>2</sup> are offered in the markets of the Big Five, the Tri-City and Kielce. Smaller units, of approximately 10,000 m<sup>2</sup>, can be found also in Bydgoszcz, Kraków and Szczecin.

In addition to firms interested in large units there is also a sizeable group of tenants which are looking for smaller units with an area of under 5,000 m<sup>2</sup>. The availability of such units is also a factor reflecting the maturity and attractiveness of the given location: the larger a market's stock, the greater the chance of finding a unit of this type. At the end of 2018, five and more units of under 5,000 m<sup>2</sup> could be found in Warsaw, Poznań and Upper Silesia (Tychy, Gliwice, Sosnowiec, Czeladź and Będzin). Interestingly, in Łódź

there were only two such units available. It is also worth noting that Opole, Kielce, the Tri-City, Rzeszów, Szczecin and Kraków are the other locations in the ranking which offered smaller units below 5,000 m<sup>2</sup>.

As well as existing stock, the maturity of a market is also determined by the offer and availability of plots of land suitable for industrial developments which are already prepared for the commencement of construction. Therefore this factor was also included in the scorecard for this report. The availability of attractive plots in Poland is still relatively high, which is proven by the fact that land banks (of various stages of preparation) in locations selected for the purpose of this ranking would theoretically allow for the construction of approximately 25 million m<sup>2</sup> of industrial space.

## Industrial land banks secured by developers



Source: JLL, 2019

Apart from Big Five, where land secured around each agglomeration exceeds 250 ha, over 100 ha of land for industrial purposes was offered in most of the selected locations. Among them, Konin, Legnica-Głogów and Włocławek stand out: in each of these locations the land bank exceeds 200 ha. However, very limited choice of land is found in, among other locations, Warsaw (Inner City), Kraków and Bielsko-Biała.

The overall rating of a given location in terms of its maturity and significance certainly varies depending on the specific requirements and needs of the particular developer and tenant. However, based on factors proposed by JLL, the most attractive locations in that context are, unsurprisingly, the Big Five markets. After them attention should be paid to the Tri-City, Szczecin, Kielce, Kraków and Bydgoszcz. What is more, investors interested in completely new destinations, which offer a long perspective of development, may wish to note attractive locations such as Białystok, Kalisz, Olsztyn, Piła, Radom and Tarnów.

# Regional competence

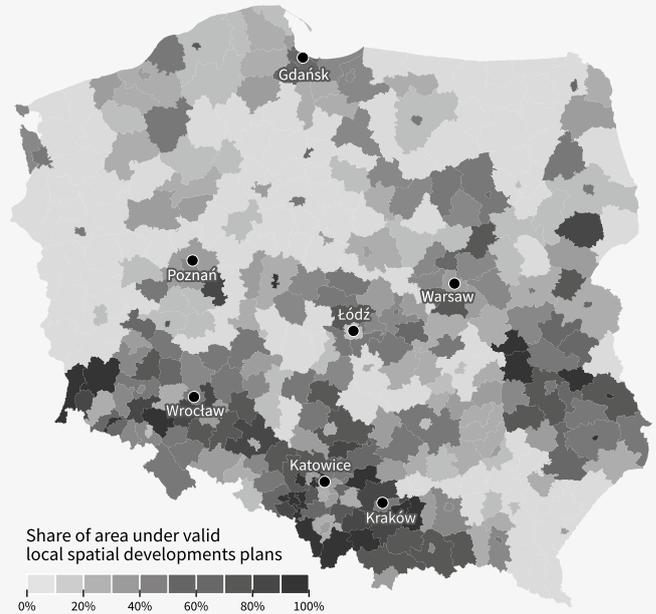
Another element commonly taken into account when looking for the optimal location is the ease of developing an operational production or logistics facility. That can be assessed by using several factors. When analysing the competencies of specific locations we included the availability of sufficient land, the amount of land which is covered by valid zoning plans, the level of industrialisation, the maximum level of available public aid and the general investment climate.

Whether or not a given region has a sufficient supply of suitable investment land can result from a variety of factors, such as physiographic conditions, ownership structures and local policies that support the development process. In most Poland's largest cities the availability of land today is limited. Finding an appropriate plot within the city limits of Warsaw, Kraków or Tychy/Bieruń may be somewhat problematic. Łódź, on the other hand, offers a relatively wider availability. Amongst the less obvious locations those with abundant land include Bydgoszcz, Elbląg and Lublin.

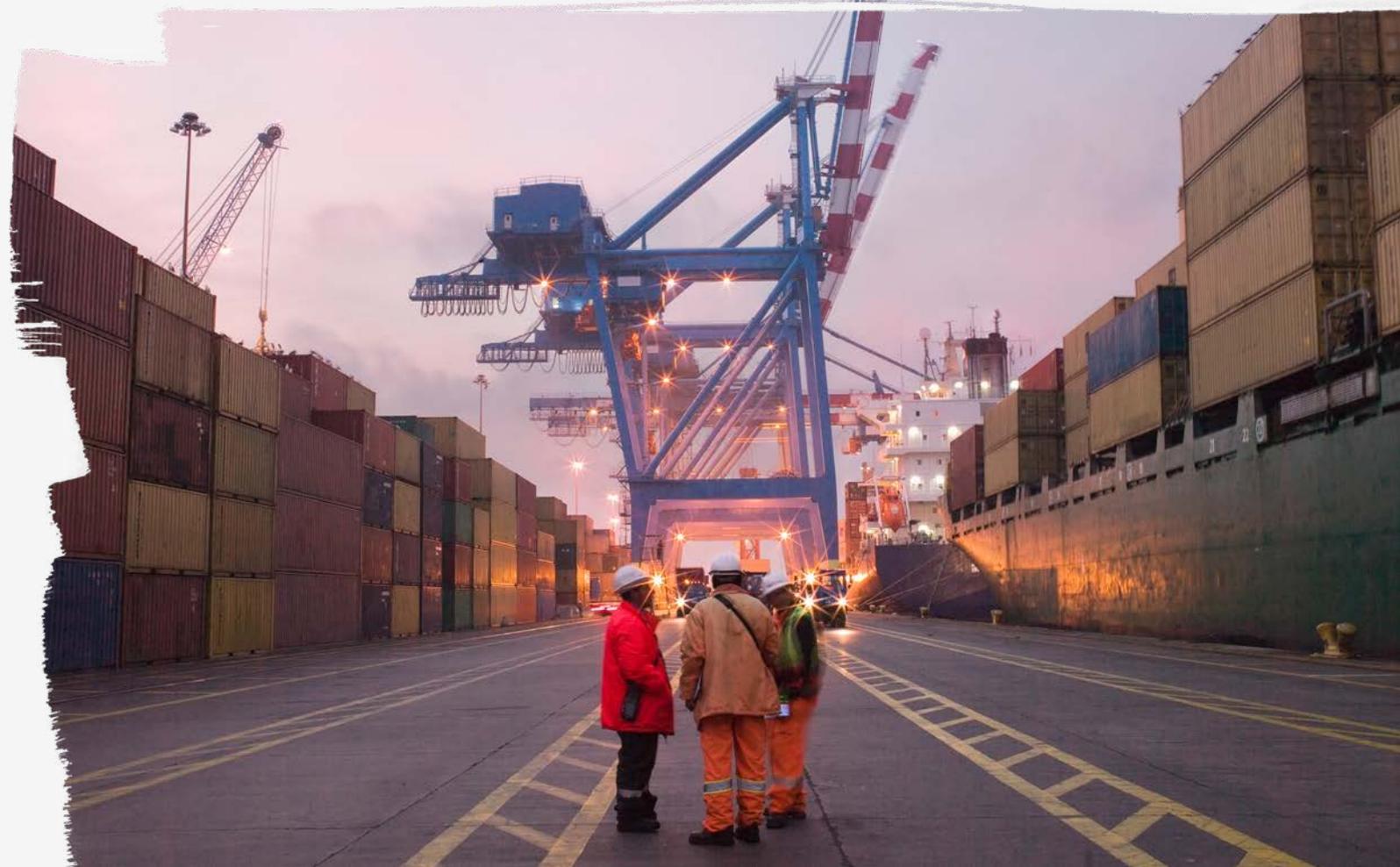
One of the elements of the site preparation process is the obtaining of appropriate zoning permits. In Poland the adopting or changing of a local zoning plan (Miejscowy Plan Zagospodarowania Przestrzennego) can take more than two years. From the perspective of developers and end-users it is therefore beneficial if a given plot of land is at an advanced zoning stage. However, according to the Central Statistical Office in 2017 only 30% of Poland was covered by zoning plans, although there were considerable differences between specific regions and even

adjacent municipalities. Amongst the analysed locations the highest coverage by zoning plans was found around Lublin (81%). Zoning plan coverage of above 70% was also noted in Kraków, Stryków, Wrocław, Częstochowa and Gliwice.

## Valid local spatial development plans



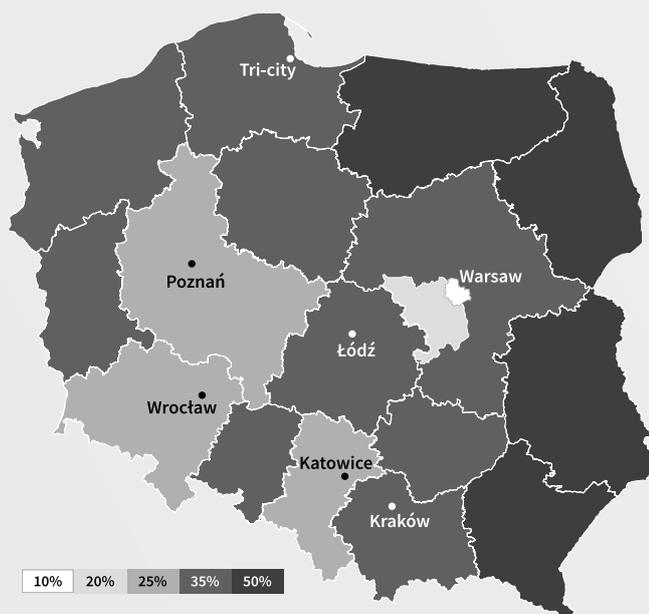
Source: Central Statistical Office, 2017



A location's competence can also be assessed based on the number of entities from a specific sector. Numerous companies sharing a similar profile operating within the same location suggests, with a high degree of probability, that this area offers a set of benefits needed to attract additional such firms. This also suggests greater ease with regard to finding suitable suppliers, subcontractors and employees. We have therefore looked at the number of entities from both the production and logistics sectors in a given location, which we then juxtaposed against the local population. In terms of production activity the top scores were recorded by the largest Polish cities. Beyond the Big Five markets, a high density of such entities was noted in cities such as Częstochowa, Bielsko-Biała, Szczecin, Kraków and Radom. In the case of logistics operators the highest numbers of companies per 1,000 residents were seen in Szczecin, Kraków, Gorzów Wielkopolski, Zielona Góra, Bielsko-Biała and Białystok.

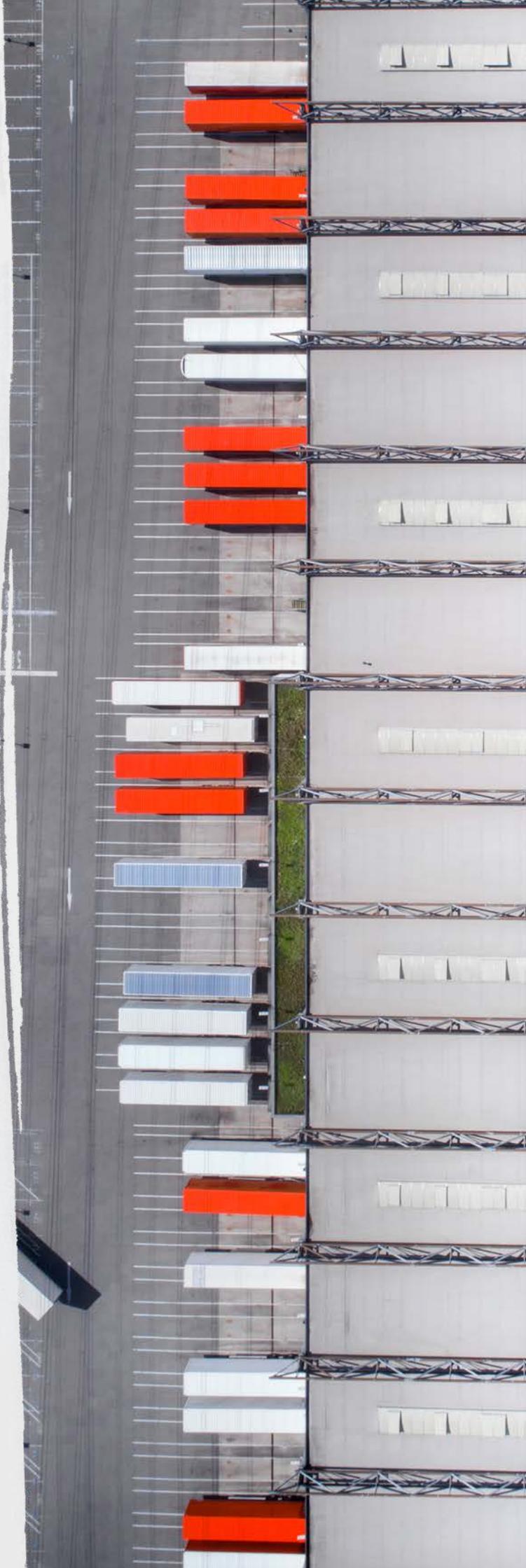
The level of regional public aid available for eligible projects is not to be underestimated. Locations in eastern Poland are entitled to the largest tax exemptions, up to as much as 50% of qualified costs, whereas in Warsaw investors can only expect a 10% exemption.

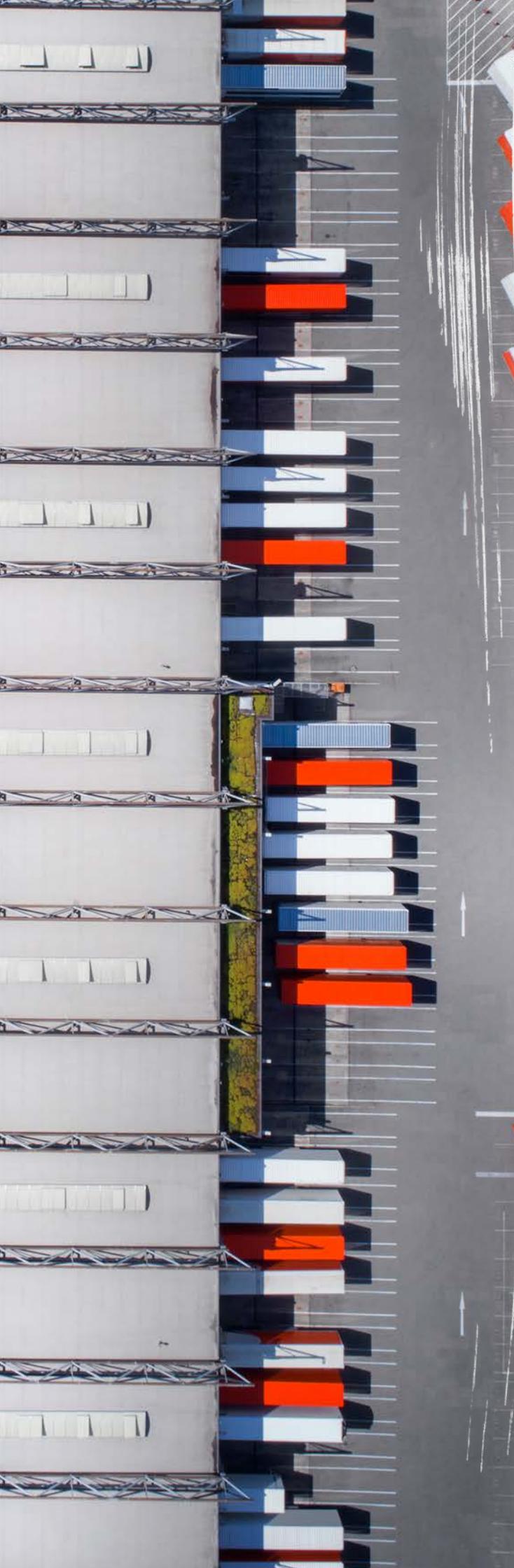
### Polish Investment Zone - maximum amount of state aid (tax relief)



Source: Ministry of Entrepreneurship and Technology , 2019

The final element when assessing the attractiveness of the surveyed locations was our attempt to evaluate a soft but important factor for investors: the investment climate. That was evaluated subjectively by JLL's industrial experts, who work on a daily basis with companies looking for industrial space, developers and landowners, as well as with local authorities. Their assessment looked at the general conditions for investing in a given location, particularly when it comes to the speed and ease of the development process and the attitude of the local authorities towards investors. The locations which were awarded the highest scores in this regard were Stryków, Olsztyn and Lublin. However, Warsaw and Kraków were placed at the other end of the spectrum.





## Logistics and production

For this white paper we analysed specific locations against a set of criteria, to which we applied certain weights with the aim of reflecting their significance to a typical company looking for industrial space. As universal companies do not actually exist, the weights applied do, by their very nature, feature a dose of subjectivity. However, it is not difficult to identify which of the utilised criteria will have a higher importance for production firms and which will have that for logistics companies.

We have therefore decided to make a slight modification to the original ranking. We have isolated criteria which concern only the production sector (e.g. population per production entity, GDP generated in the eight-hour drive time area, and the number of students at vocational schools), criteria which are important solely for logistics companies (population per logistics entity, the availability of small warehouse units and population within a two-hour drive time) and criteria which are crucial for both of these groups. The survey showed that it is that latter group of factors, i.e. those which are common for both sectors, that has a fundamental significance for the overall attractiveness of a given location. As a result, places which scored highly in terms of logistics potential will most likely also feature a high score in terms of attractiveness for production facilities.

However, sector-specific criteria do play an important role, as they allow us to identify regions that have potential which is visibly higher for either production or logistics activity. Szczecin is a good example of a region where the difference between production and logistics potential is significant (and for the benefit of the former). If our survey was limited only to production, Szczecin would be four places higher in the ranking. However, that would not be the biggest jump: if only production criteria were used, Elbląg would have been seven places higher. Other locations which have profiles that are significantly more suitable for production include Legnica – Głogów, Lubuskie, Lublin and the Tri-City.

Interestingly, the majority of the analysed locations have potential which is higher for production than for logistics. The places where logistics potential prevailed, for example Stryków, Piotrków and Katowice - Sosnowiec, are also the locations at the top of the entire ranking. The locations which have a slightly higher potential for logistics than production included the city of Warsaw, Warsaw Suburbs and Radom.

There is also a group of locations the profile of which can be regarded as neutral, i.e. offering a similar potential for both the production and logistics sectors. Those include Gliwice, Tychy - Bieruń, Konin, Opole and Kalisz. The remaining locations have a slightly higher potential for production activity, although, as already has been mentioned, attributes for both sectors largely overlap.

# Investment market

Institutional investors' interest in warehousing locations outside of the five large logistics clusters in Poland has traditionally been limited. But as the road infrastructure in non-established locations is developing and the lack of available workforce in Poland's main cities is becoming more apparent, the relative attractiveness of emerging cities is increasing. Despite initial signs of investors' interest in such locations, no clear trend is discernible yet, as the main industrial clusters continue to account for the vast majority of industrial activity in Poland. Non-established locations are still perceived by investors as relatively risky, with exceptions made for high-quality assets with a strong tenant, a long lease, and sustainable rent levels. Other than such exceptions, assets in these locations are less likely to attract traditional core funds. They would be rather on the radar of core+ / value-add investors looking for a less aggressive yield profile and opportunities to capitalise on rental growth and the growth of emerging logistics destinations.

The limited liquidity of such destinations can also be attributed to very thin stock, as well as leasing fundamentals which show that the critical mass has not yet been reached. For example, the stock as of Q4 2018 for the emerging industrial locations varies between 40,500 m<sup>2</sup> in Białystok and 158,000 m<sup>2</sup> in Podkarpacie, compared to 3.2 million m<sup>2</sup> in Warsaw Suburbs or even 300,000 m<sup>2</sup> in Kraków, which is considered to be a subsidiary market. Similarly, the combined gross take-up in 2018 of Białystok, Lublin, Kielce, Olsztyn, Opole, and Podkarpacie was 291,000 m<sup>2</sup>, compared to 331,000 m<sup>2</sup> in the Poznań market alone. The combined level of completions stood at 212,000 m<sup>2</sup> for those cities, so they are unlikely to catch up with the major clusters in the foreseeable future.

Nonetheless, a growing number of institutional investors are open to considering the acquisition of assets outside of the big industrial zones. Occasionally such assets are traded as part of larger portfolio transactions, e.g. Logisor Rzeszów was part of CIC's acquisition of Blackstone's industrial portfolio in Q4 2017. Another example: Metsa Tissue BTS & Dirks BTS in Krosno Odrzańskie were part of Mapletree's purchase of Hillwood's warehouse portfolio in Q4 2018.

Also in Q4 2018, KKCG Real Estate bought five industrial BTS projects across Poland with a GLA of 54,500 m<sup>2</sup>. The transaction volume was approximately EUR 41 million. The assets were situated outside the large industrial clusters: Polkowice (Dolnośląskie voivodeship), Międzyrzec (Lubuskie voivodeship), Koluszki (Łódzkie voivodeship), Września (Wielkopolskie voivodeship) and Brześć (Kujawsko-Pomorskie voivodeship).

Meanwhile, an increasing number of developers are putting smaller industrial locations on their investment map. In Nowy Kisielin (Zielona Góra) Panattoni completed three buildings comprising 75,000 m<sup>2</sup> in 2018 and is constructing an additional 55,000 m<sup>2</sup> across two buildings with its JV partner, Accolade.

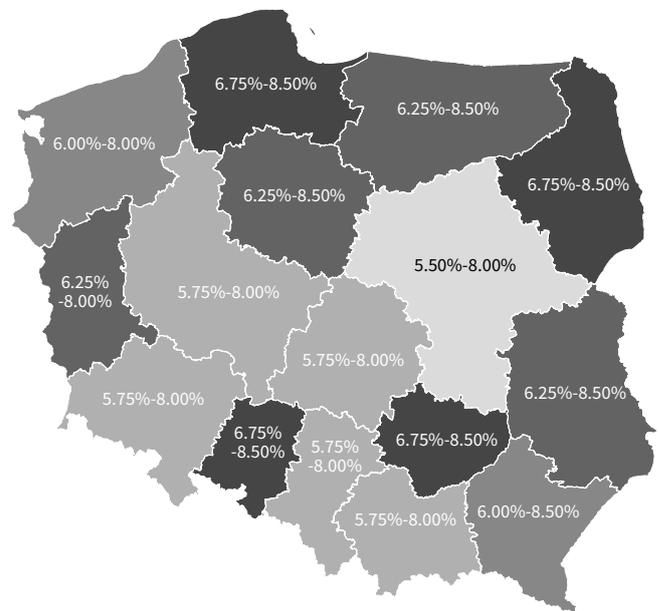
Hillwood has developed a new 130,000 m<sup>2</sup> logistics centre for shopping club Zalando Lounge in Olsztynek (near Olsztyn). The project was completed in Q1 2019 and sold to Korean investor.

In Q4 2018, Panattoni completed Panattoni Park Białystok, a multi-let warehouse scheme and the first grade-A logistics property in north-eastern Poland with its JV partner, Accolade. The project includes 41,000 m<sup>2</sup>.

In May 2019, 7R started the construction of 7R Park Rzeszów, two grade-A buildings in Rzeszów with a total area of 56,000 m<sup>2</sup>. The first building is set to be completed in Q4 2019 and has been sold to CBREGI.

In summary, there is no clear trend toward increased investment activity in non-established industrial locations in Poland, but investors are increasingly aware of such products, which may translate into larger trading volumes in the medium to long term.

## Industrial yields in Poland



Source: JLL, 2019

The map above presents the expected level of industrial yields in Poland. However, it should be underlined, that the final rate depends on many factors and given numbers should be considered as an indicator of the regional diversification of the investment attractiveness.

## Key take-aways

Despite the record high demand for industrial space over the last few years, that demand is still largely concentrated within the key regions forming the Big Five. Those markets will undoubtedly continue to be the main drivers of growth in the Polish market. That can be put down to not only their better transport accessibility and greater supply of labour, but also the fact that those are actually the most populous regions, generating considerable demand for goods stored in warehouses and manufactured in production facilities.

Such dynamic growth of the modern industrial market is also possible in some smaller towns that have the right set of attributes, of which the key factors are attractive and accessible location and ample number of potential staff. As our analysis showed, those are the features of, for example, Konin and Kielce. However, such characteristics are not found only in the largest cities, they are also offered by some smaller places, such as Kutno and Świebodzin.

As Poland's economy continues to grow and modernise, demand for modern industrial space will be generated, increasingly so in smaller geographies. It will be driven mostly by retail sales, both traditional and online. However, as labour market conditions tighten, logistics operators are expected to turn their interest to the remaining large and medium-sized cities. In the case of production companies, we predict further expansion thereby in already industrialised regions, predominantly in the south of the country.

Poland's road infrastructure is becoming denser. Within the next few years new expressways will greatly improve access to a number

of cities, such as Bydgoszcz, Lublin and Częstochowa. Undoubtedly that will positively affect their attractiveness to both logistics and production companies. The increase of throughputs at the Tri-City's container terminals can be an element fostering growth of the market there. Today the scale of port operations still does not equate to high demand for warehouse space, although the share of port-related tenants in Tri-City warehouses is increasing gradually.

It is also worth paying attention to the Kujawsko-Pomorskie region. Until now, the potential of this centrally located province has not been utilised, but it is now slowly being unleashed on the back of recent infrastructure developments. Locations in the west and the south of Poland continue to be the natural candidates for the further growth of the market, although some of them have begun to display the first symptoms of saturation, which manifest itself mostly in local labour markets.

Due to Poland's significant size and the large number of cities, the country offers a wide selection of locations convenient for logistics and production activity. Each of them has a unique set of strengths and weaknesses. In order to take a rational location decision, it is worth analysing which of the criteria mentioned in this report have the strongest significance for a particular company's operations. Finding the right balance between transportation costs, availability of labour and rental costs is therefore crucial. However, with a certain dose of flexibility, taking advantage of opportunities offered by some smaller locations may become an attractive alternative.



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