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DUOPOLIS

ŁÓDŹ – WARSAW

REPORT BY DELOITTE



Source: Arkadiusz Lesniewski

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INTRODUCTION

The current growth of the city of Łódź is not only the result of the prevailing good economic conditions in Poland but, most of all, of the sustained efforts taken by the municipal authorities for many years now. The urban revitalization programme launched on an unprecedented scale, transport infrastructure investments, road repairs or the creation of new urban space have been changing the image of the city not only in the eyes of tourists and investors but its residents as well. The implementation of these wide-ranging projects facilitates the change of the very centre of Łódź as well. The ambitious goals established for the upcoming years, coupled with the projects that have successfully been implemented thus far, are beginning to bring a range of measurable benefits for the city.

Economic growth of the city

The exponential growth of the residential real estate sector with more than 4.5 thousand flats brought to the market in 2018 (a record high) has made Łódź one of the rising stars on the property development market. On the other hand, an upward trend observed in tourism is translating into optimistic outlooks for the hotel industry, strengthening at the same time the position of Łódź as a destination of both private and business travel. Łódź is also a growing business hub. The redesigned New Centre of Łódź stands a chance of becoming one of the major BPO and SSC hubs. The current supply of nearly 500 thousand square metres of office space (Q2 2019, according to JLL) with approx. 30 thousand square metres made available in the first half of 2019

and a similar volume of modern office space planned to be created in the second half of the year, in addition to a new supply of approx. 70 thousand square metres planned for 2020 point to the city's strong position in this sector.

Łódź is also a popular venue for conventions, conferences, fairs, exhibitions and festivals. One of the major French MICE companies (GL. Events) has named Łódź the best meeting place in Central and Eastern Europe. It has also been recognized as "The Most Dynamically Developing City in Poland" by CEE Business Media.

One of the major factors at play is the city's relationship with the capital of Poland. Łódź and Warsaw have been perceived as a duopolis for years.

Duopolis

Currently, the benefits of locating new investment projects in Łódź are emphasized more and more strongly along with its potential to join forces with Warsaw as a single business centre of regional importance to businesses investing in Central and Eastern Europe. To unleash this potential for businesses, strategic and political initiatives aimed to develop the duopolis further may be undertaken. The principles and benefits of partnerships are built in a long-term perspective and the natural conditions created by the closeness of the cities require setting the

right direction through the development of long-range plans to enhance cooperation in specific areas.

Strengthening the ties between Łódź and Warsaw as well as using the synergy benefits created by their cooperation may have positive effects for both the urban agglomerations, in addition to opening the way to a large-scale partnership in central Poland that will be capable of competing with the fastest growing centres in Europe.



Source: UML materials

WHAT IS A DUOPOLIS?

A duopolis is a relationship between two cities that is based on their partnership and the synergies created by their economic and business ties.

The examples of other cities which have joined forces worldwide show that it is worth to promote cooperation that delivers tangible results.

Edinburgh and Glasgow

The cities have been profiling the job market and the business offering by positioning Edinburgh as a technology and business, while Glasgow as an industrial city. At the same time, they have been improving their global recognition by holding together events with an international reach, such as the Commonwealth Games.

Birmingham and London

The relationship between these cities represents a different type of collaboration and ties. Located at the intersection of main transportation routes in the country, with its access to transit, closeness to London and excellent transport connections with the capital, Birmingham has been selected as a destination to which various companies have transferred some of their business structures, which has additionally strengthened its position as London's "base".

1

The success of a partnership between two cities is determined by a variety of factors, with **development of road and railway infrastructure** in each of them and between them being always of utmost importance.

2

Typically, the basis for putting the idea of a duopolis into action is the asymmetrical distribution of the economic, scientific and cultural potential of the two cities, as it is exactly this difference that may allow them to join forces instead of competing with each other. Being complementary to each other, they may come up together with a joint value proposition for investors.

3

Not only do differences in their profiles offer an additional potential but also opportunities to eliminate gaps between the cities.

Key success factors

An analysis of cities which have already put the duopolis idea into practice reveals some recurring patterns which determine the success of such ventures.

These include:

> Location and distance between the two cities

These aspects play a crucial role in each case. The location of both, or at least one, of the cities entering into a bilateral partnership ensures that it is easy to reach from most parts of the country. This is vital from the business point of view.

The distance between the partnering cities is typically relatively small, which enables the free movement of people and goods on a day-to-day basis.

> Transport infrastructure and investments as the prerequisites for success

A well-developed infrastructure, both roads and railways, exerts a significant influence on the functional success of a duopolis. Our case study reveals that the partnering cities make massive outlays on the development and improvement of quality of their transport services.

In each of the analysed partnership cases, the transport infrastructure is not only well-developed but also planned to be modernized and expanded. All the cities are making endeavours to reduce the travel time, by launching or planning major infrastructure investments. A wide range of connections, easy access to multiple modes of transport and their superior quality increase the flexibility of workers.

One city is at most one and a half hours' train ride (or drive) away from the other. In the vast majority of cases, the maximum travel time makes it possible to maintain economic relations, in addition to enabling the free movement of people.

> Differences in salaries

Our analysis has shown that initially clear differences are visible between the cities as far as salaries and the cost of living are concerned. It is one of the driving forces behind the economies of both the cities. By recognizing the economic differences, they may seize the opportunity to achieve greater synergy benefits and make their proposition considerably more compelling.

> Complementary investment and talent capabilities

The economic profiles of the analysed urban agglomerations show that the synergies created by their partnership are key to economic growth. A joint strategy aimed to draw on their strengths and to address their weaknesses ought to underlie all of their combined efforts. A complementary offering will facilitate the free flow of resources and flexibility in the recruitment of staff.

> Different natures

Different lifestyles, cultural and historic attractions as well as predominant sectors of the economy (for instance, industrial, tourist or financial centres) contribute considerably to the creation of added value

> Abundance of talent

One of the key success factors is availability of highly-skilled workers. Therefore, alliances between businesses

and universities are a must. Innovativeness attracts capital and encourages investment and business entities locate their head offices in innovative cities. Two cities mean two different pools of talent educated at different universities.

> A joint cultural, entertainment and sports offering

Culture, entertainment and sports play an important integrating role in a duopolis, in addition to attracting newcomers. Easy access to the offering of both the cities may also be a factor that will attract investors, both in the context of easier logistics and the location of entertainment centres between the cities.

> University alliances and partnerships

Alliances and partnerships between universities located in both the cities appear to play a crucial role. Equally important seems the possibility to exploit each other's potential – exchange classes or work opportunities in the other city may be considered attractive not only by students or lecturers but also by employers, who are now in a better position to find the right talent. What is more, education-based partnerships offer additional potential as far as the development of functional duopolis plans for the long term is concerned.

> Involvement and willingness to act together

A joint strategy and a value proposition for investors developed by two cities together are the main starting point for all the planned projects – investment as well as economic policy and demographic initiatives, in addition to promotional campaigns launched both at the country and global level. Success will not be possible without cooperation between the municipal authorities and development of complementary offerings.

THE CONCEPT OF A DUOPOLIS

According to Prof. Robert Krzysztofik, a duopolis is a concept defined as an integration of two neighbouring cities with different or similar functions and origin . Other terms used interchangeably to describe it are dipoles, twin cities, bipolar arrangements or conurbations. Additionally, in foreign literature functional dipoles are sometimes referred to as a combination of a central city being an urban core with service functions and a suburban edge city with manufacturing functions. On the other hand, cities with similar functions and a considerable demographic potential are referred to as twin cities.

Such an idea of a relationship between Łódź and Warsaw which is based on real and strong functional links in a bilateral arrangement was put forward as early as in the 1970s but the first consistent definition of the concept was announced publicly for the first time at a conference in the early 1990s by Prof. Jacek Damiński. He proposed the creation of the “binary city”, the so called duopolis.

Fast transportation between the cities (a railway line and a motorway) and an international airport located near the town of Skierniewice were supposed to be the key integrators. The idea put forward by Prof. Damiński was approved by the mayors of both the cities, Marek Czekalski from Łódź and Marcin Świąćicki from Warsaw. It was then that a catchphrase that

became fairly popular in the 1990s: “Łódź and Warsaw: a common cause” was coined. Not much more has been done, though, to put the idea into practice.

In 2002, a letter of intent was signed by Wojciech Kozak, the mayor of Warsaw, and Krzysztof Panas, the mayor of Łódź. The objective was to open Warsaw up to Łódź through the Łódź Portal, a complex of modern office and commercial buildings to be located on a plot adjacent to the Łódź Fabryczna Railway Station. To maintain a balance, a similar investment project was supposed to be launched on the other end of the railway line, on Plac Defilad in Warsaw. However, even then everybody knew that it would take decades, not years, to put such a futuristic idea into action. Unfortunately, also this attempt to create a duopolis was unsuccessful and Jerzy Kropiwnicki, the new mayor of Łódź, came up with a different plan for the economic development of the city.

According to Prof. Tadeusz Markowski, Head of the Urban and Regional Management Department at the University of Łódź and an acknowledged urban development expert, despite declaring their interest in the duopolis concept, both the cities were motivated by the desire to achieve their own objectives. The investment plans formulated by Łódź were questioned by the capital of Poland, while those devised by Biuro Rozwoju Warszawy were not even considered by the municipal authorities of Łódź. Instead of focusing on fostering their cooperation, both the cities perceived external investment, including the influx of capital from abroad or the implementation of private projects, as a growth opportunity.

In 2004, Poland joined the European Union, thus opening up to external

markets, which increased foreign investors’ interest in our country. The European Regional Development Fund has presented a tremendous opportunity for growth and enabled the launch of numerous infrastructure investment projects, to include modernization of the railway line that connects Łódź with Warsaw. Owing to such initiatives, aimed to improve the comfort and standard of travel as well as reducing the travel time between the cities, the idea of a duopolis began to be seen as realistic again.

Since 2004, a number of scenarios have been developed, outlining the model of cooperation and functioning of a duopolis. The strength of a bilateral functional relationship between Łódź and Warsaw was also emphasized and recognized in the new Spatial Development Policy for Poland, which was designed in 2011 at the request of the Ministry of Regional Development. In line with the National Spatial Development Concept 2030 (NSDC 2030), the competitiveness of the Polish economy will be highly dependent on the efficiency of the creation and development of stronger relationships between metropolitan and regional centres. Increasing the scope of cooperation to achieve synergies based on their experience is to be a key success factor. The partnership between Łódź and Warsaw has been cited as an example of such strong relationships.

Current situation

Similar scenarios were also outlined in the final report produced by the Łódź Spatial Planning Department in June 2015, which focused on the shaping of the functional ties between the metropolitan areas of both the cities, based on bilateral cooperation in a symbiotic relationship. Łódź expected a large influx of capital from Warsaw as well as the establishment of branches of major companies with business savvy managers, which would gradually eliminate pay differences between the cities.

The current initiatives are aimed to enable the cities to come up with solutions that will combine the scenarios considered in the past. The New Centre of Łódź, which is called a district that is functionally linked with Warsaw, offers superior quality office space, excellent transport connections and highly-skilled workers with a lower cost of living.

The current duopolis development vision is based on the assumption that solutions which will allow both the cities to derive maximum benefits from the partnership will be worked out.

For a number of years, Warsaw used to act like a magnet attracting workforce. In recent years, the balance of power has changed somehow. Owing to dynamic growth of the BSS sector, such regional centres as Łódź are becoming more and more popular among employees. They are attracting newcomers, who are tempted by their cultural offering, spatial development or housing market. However, considerable differences may still be observed between Łódź and Warsaw in salaries (to the benefit of the capital of Poland) as well as the cost of living (here smaller cities are unrivalled).

The measures employed thus far have contributed to:

The extension of the main railway line and road infrastructure. A motorway has reduced the travel time to 65 minutes.

The implementation of the idea of the New Centre of Łódź – a primarily business district which could be a potential location for companies from Warsaw. Large-scale initiatives have been and are planned to be launched with a view to increasing the appeal of this place, to include massive investment in the underground Łódź Fabryczna Railway Station or the construction of the city tunnel, which has already begun.

The development of a uniform street identification system. Łódź has introduced street name signs following the example of the Urban Information System in Warsaw.

Lobbying for the construction of a new airport between the cities – at present, the government is planning to locate the Solidarity Transport Hub (STH) between Łódź and Warsaw, together with its extensive accompanying infrastructure.

Plans to introduce a common urban transport ticket for both the cities.

Meetings of the mayors and efforts to further improve bilateral cooperation, for instance through plans to present the macroregion together at international fairs.

THE DUOPOLIS IN STRATEGIC DOCUMENTS

In 2015, the Council of Ministers adopted the “Central Poland Development Strategy by 2020 with a Perspective to 2030” as a resolution. The strategy identifies the areas of potential cooperation between the Mazowieckie and łódzkie Voivodeships, in addition to objectives the accomplishment of which will promote the development of Central Poland. The bipolar Warsaw-łódź arrangement, comprising not only the central cities with their functional areas but also considerable parts of both the voivodeships, is expected to play an important role in the development of the macro-region.

In light of the strategy, the duopolis would concentrate business, social and spatial processes that exert a considerable influence on the development of the entire macro-region. The attractiveness of the bipolar Warsaw-łódź arrangement is supported by the fact that it is the place of work not only for the inhabitants of both the voivodeships, but also for a number of people from other regions of Poland. If strengthened further, the duopolis may begin to play a more important role in the European settlement network as one of the growth poles for the entire CEE Region and ultimately become a migration destination for workers from the neighbouring Eastern European countries.

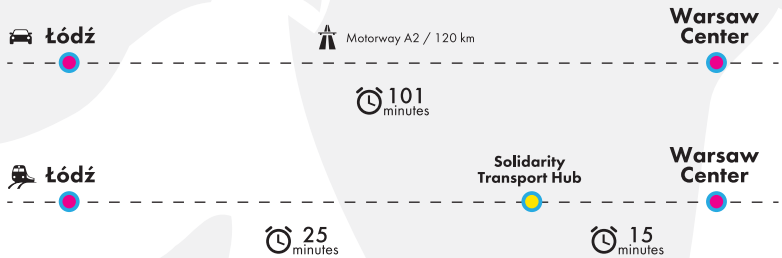
According to Statistics Poland, Central Poland, which is defined as the łódzkie and Mazowieckie Voivodeships, has 328.6 thousand university students accounting for 27 percent of all students in Poland in 2018. Also graduates (77.3 thousand) represented as many as 24 percent of all graduates in Poland in 2018.

The teaching staff and research personnel employed by high-level educational institutions constitute considerable potential of Central Poland. In 2018, 23.1 thousand university teachers, accounting for 24.8 percent of all the national resources, were employed in the macro-region (including 6 thousand in the łódzkie and 17 thousand in the Mazowieckie Voivodeships). Central Poland stands out in the country as far as the intellectual capital of the society is concerned — in 2018 more than 28 percent of the macro-region’s inhabitants had university education in comparison with the country average of 24 percent.

High academic potential created by prestigious academies of arts is also a source of competitive advantages of the sector. As many as 41 percent of all academies of arts in the country are located in Central Poland. The number and quality of film and theatre schools as well as academies of fine arts support the activity of artists connected with the film industry as well as those who have established a strong and recognized community of fashion and modern design professionals.

The primary objective defined in the Strategy for Central Poland is to raise the importance of the region at the international level by enhancing its perception as a place that facilitates the creation and transfer of knowledge and innovations. As stated in the Strategy, unique growth potential offered by the macro-region and concentrating in such fields as science, research and development, the creative industry, the medical and pharmaceutical sector, agriculture and food processing, transport and logistics, will be of key importance to increasing competitiveness.

There are a number of cities worldwide which may serve as an example of successful bilateral cooperation. Frequently, a duopolis is a recipe for making their tourist, cultural or business offer even more attractive. The synergies of a functional partnership determine considerably their economic growth as well as the quality of life of the residents of both the cities. Such a process has been observed in at least several pairs of cities that maintain similar ties.



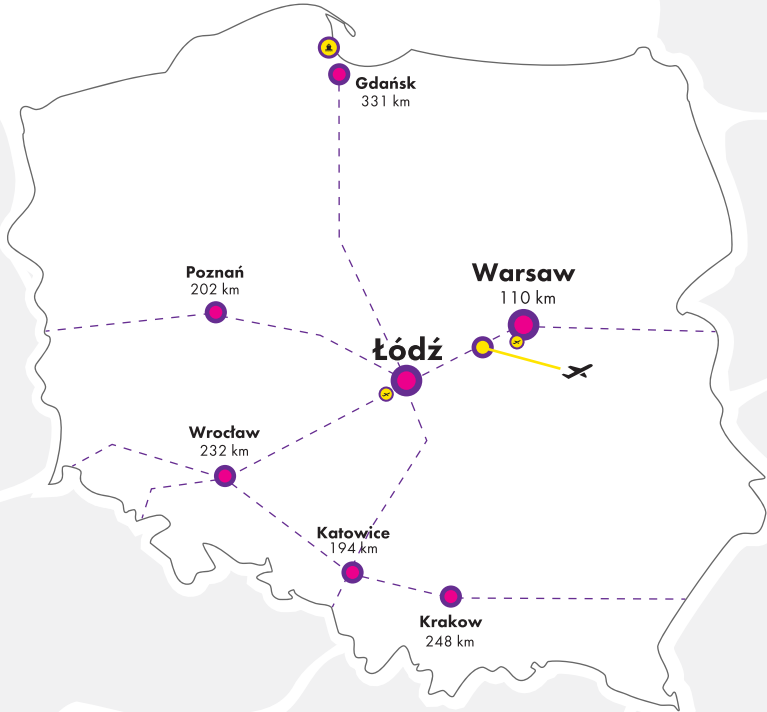
The closeness between the cities has a positive effect on the business synergies. What is more, the distance is reduced year by year as the travel time gets shorter.

Owing to its location at the intersection of the A1 and A2 motorways and the S8 expressway which together form a ring road, Łódź has the best transport connections in Poland.

The capital is 110 kilometres away and the Łódź-Warsaw duopolis has a unique location in Europe.

Distance of European cities from Łódź:

- Berlin / 465 km
- Praha / 547 km
- Bratislava / 579 km
- Kiev / 866 km
- Minsk / 655 km
- Vienna / 577 km
- Moscow / 1 374 km



DUOPOLISES AROUND THE WORLD



Glasgow and Edinburgh are the two largest Scottish cities. Located 75 kilometres away from each other, they cooperate effectively and are complementary, forming a duopolis.

Based on transport infrastructure that has been modernized for years, which has reduced the travel time to 42 minutes for the fastest train connection and to approx. 70 minutes on average. Every day, approximately 160 trains run between Glasgow and Edinburgh in both directions, allowing thousands of people to commute to work. As excellent transport connections are a key to success, both the cities are planning their further improvement. A railway infrastructure development and modernization project implemented between 2011 and 2020 is the key success factor for the partnership. Known as the "Edinburgh Glasgow Improvement Programme EGIP", it is to cost approx. 858 million pounds (approx. 994 million euros) in total. According to the Scottish Parliament, since 2007 the spending on infrastructure projects in Glasgow has totalled 2.123 billion pounds (approx. 2.46 billion euros) versus 1.870 billion pounds (approx. 2.17 billion euros) in

Edinburgh. Both Glasgow and Edinburgh have their own international airports – despite considerable effort, the idea of a single transport hub has not been put into practice. The passenger structure differs radically – in Glasgow approx. 80 percent are representatives of the "tourism and leisure" group, while the remaining 20 percent are classified as "business", and the proportion for Edinburgh is the opposite.

Development of the infrastructure necessary for the organization of the Commonwealth Games in 2014, during which representatives of the Commonwealth of Nations compete in various sports disciplines, was a major combined effort of both the cities. The investment outlays amounted to approx. 530 million pounds. The facilities were also used during the 2018 Berlin-Glasgow European Championships in swimming.

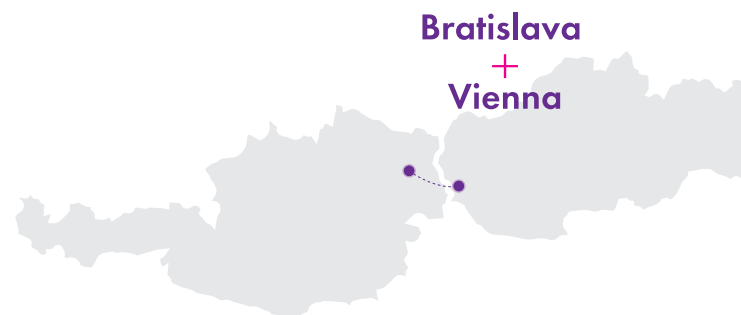
Currently, Edinburgh has approx. 515 thousand residents and the average annual pay in the city is approximately 33.3 thousand pounds (approx. 38.6 thousand euros a year) (2018), while the rent for a one-bedroom apartment in the city centre is approx. 790 pounds (approx. 915 euros) a month. The city has created a large number of well-paid jobs, for instance in the financial sector, in addition to attracting world-class specialists in technology and IT. "The Scotsman" has ranked the capital of Scotland the second best city to live in the United Kingdom. It also tops a number of other European rankings. Edinburgh offers excellent educational opportunities (the University of Edinburgh is among the best 30 universities in the world according to the World University Ranking 2019),

and has an exceptional cultural offering (e.g. the Edinburgh Fringe Festival). What is more, it is the Scottish capital of fashion and acts like a magnet for crowds of tourists. It is the location of the head offices of such institutions as The Royal Bank of Scotland or Bank of Scotland (Lloyds Banking Group). Also Sainsbury's Bank, Tesco Bank or TSB Bank are situated there, not to mention the Scottish Parliament, which enhances the prestige of the city. It is also a city with offers excellent higher educational opportunities in addition to hosting a wide array of cultural events, which makes it an immensely popular tourist destination.

On the other hand, Glasgow has approx. 623 thousand residents and the average annual pay is 26,579 pounds (approx. 30,790 euros a year) (2018). The rent for a one-bedroom apartment in the city centre is around 620 pounds a month (approx. 720 euros). Historically, Glasgow was an industrial city with the shipbuilding and heavy industries playing a major role. Traditional, including the heavy and shipbuilding industries still matter but new sectors, such as creative, biotech and services, are also growing in importance. The city's efforts and infrastructure investments coupled with a focus on innovations as well as building alliances and partnerships between businesses and universities have now made Glasgow a global leader in precision medicine, energy (including renewables), quantum mechanics as well as advanced textile production, metallurgy and shipbuilding. Such companies as Aggreko, Weir Group or William Grant & Sons have chosen it as the location of their head offices. The UK Offshore Renewable Energy (ORE), an institute exploring the issue of renewable marine energy in the United Kingdom, is an important innovation centre. It is located next to the Technology & Innovation Centre at the renowned University of Strathclyde.

The conurbation accounts for around one-third of Scotland's GDP (2018). The functional ties between the cities make them complement each other perfectly and increase the attractiveness of their offering substantially.

Cooperation between Glasgow and Edinburgh, which has resulted in the creation of a synergistic functional system, would not have been possible without active involvement of both the metropolitan areas and the extensive network of transport infrastructure, which has made travel easier. The process has additionally been affected by the available talent and a strong focus on innovation. Scientists are of the opinion that within the upcoming several dozen years or so Glasgow and Edinburgh will form a single mega-city as a result of suburbanization of the areas between them, which is expected to connect these two cities.



Bratislava is the capital and the largest city of Slovakia with approx. 430 thousand residents at present. On the other hand, Vienna, the capital of Austria and a city of enormous historic importance to Europe, has 1.89 million inhabitants. The distance between the cities is approximately 70 kilometres. They have been cooperating successfully and are now called twin cities.

As expansion and improvement of the quality of transport connections between the two capitals is of crucial importance, numerous investment projects have been

launched to achieve that objective since the establishment of their partnership in the 1990s. In 2005 Bratislava and Vienna were connected by boats taking passengers on the Danube River, which was followed by the opening of a motorway between the cities in 2007 and the launch of a railway modernization project worth 539 million euros in 2017. Owing to these initiatives, in 2023 it will take just 40 minutes to get from one city to the other by train. Currently, there are 30 train connections a day between Bratislava and Vienna. There are also plans to build an underground system of trains scheduled every 20 minutes, which would result in a reduction of the travel time to 30 minutes.

The investments have resulted in the creation of excellent transport connections between the cities – the river, a motorway and a railway line. Owing to the ease of access to transport links, tens of thousands of people travel every day from one city centre to another without any problems, while the commute time is around an hour.

The future bipolar cooperation plans are much more ambitious, though. For instance, the cities have launched a project aimed to integrate their urban public transport systems as well as a student exchange programme combined with a dual education system and improvement of language skills.

Bratislava is the richest and most prosperous city in Slovakia. It accounts for 28 percent of the country's GDP (2018). In 2018, the average monthly pay was approx. 1,591 euros and the rent for a one-bedroom apartment in the city centre was approx. 600 euros per month. The major companies recognized in the "TOP 200 Slovakia" list, which have their branches there, are Volkswagen, SAS Automotive, Kia, Eset (software), Slovnaft (oil industry) or Asseco (software). The city is home to several universities, such as the Slovak University of Technology in Bratislava or the Comenius University in Bratislava. Access to highly-skilled workforce and study centres has made Bratislava a high-tech oriented city,

as a result of which such companies as IBM, Dell, Lenovo or AT&T have relocated their service and outsourcing centres there.

Vienna accounts for approx. 25.5 percent of Austria's GDP (2018). The average pay is approximately 2,200 euros (2017) and the rent for a one-bedroom apartment in the city centre is approx. 850 euros. The major employers are OMV AG (oil, gas, chemicals), Raiffeisen Bank, Erste Bank, Strabag, Siemens Group Austria, Austrian Airlines, ÖBB Holding AG (transport) or Mondi AG (paper industry), while Hewlett Packard, Henkel or Baxalta have their main Eastern European offices located in Vienna. Vienna is recognized worldwide as the city of music and culture and famous for such composers as Mozart or Beethoven. It has held very high positions on the list of the "world's most liveable cities" since 2005, and topped it in 2018.

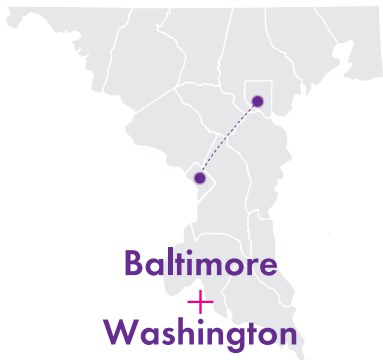
Over the past decade, the cities have joined forces to carry out a number of modern technology, healthcare, education, communication and other projects. The number of jobs created as a result was higher in the capital of Slovakia than in Vienna and the capital invested in Bratislava was twice as high as in the capital of Austria. Both the cities want to cooperate closely in order to develop their functional duopolis. The fact that as many as 94 percent of Austrian companies are satisfied with their investment in the neighbouring country is a sign of a positive investment climate in Slovakia. The functionality of the synergistic cooperation between these bilateral centres is the driving force that boosts their growth.

There are international airports near both the cities, which are around 50 minutes' drive from each other. In 2018, the Bratislava Airport handled 2.3 million passengers versus 34.4 million handled by the Vienna International Airport.

Bratislava is currently going through a boom in the automotive industry, where talent shortages have begun to be observed. On the other hand, Vienna is growing rapidly and attracts newcomers, as a consequence of which the number of jobs is insufficient. Thus, it is a win-win situation for both the cities. Therefore, Vienna has been focusing on broadening those professional skills of its residents which may be needed on the Slovak job market and which will satisfy the needs of the ready market in Bratislava.

Cooperation in this field is strengthened under the European Interreg programme, which has been launched to support cross-border projects and initiatives undertaken in both the capital cities. It is also aimed to promote sustainable management and protection of natural resources located along the former Iron Curtain, in addition to supporting new eco-friendly transport solutions. These primary objectives are accompanied by efforts taken to strengthen institutional cooperation in order to integrate the region even more closely. The programme also sponsors regional and local projects to foster collaboration in legal and administrative fields, from language classes to labour market initiatives. The budget is 89 million euros, including 75 million from EU funds . The projects are so mature that the cities aspire to be recognized as a model of international cooperation in Central Europe.

At present, considerable pay differences may still be observed between Bratislava and Vienna. However, according to the Vienna Institute for International Economic Studies, a relatively strong economic growth in the Bratislava region may eliminate such differences by 2030.



Located in Maryland, Baltimore has approx. 602 thousand residents. It is 60 kilometres away from Washington, the capital of the United States, with approximately 700 thousand inhabitants. The cities are connected by a railway line and by a motorway.

The Baltimore-Washington International Airport, situated halfway between the cities, is the main international airport that they share. The railway infrastructure between the cities, which has been extended and modernized for years, makes it possible to relocate within 29 to 50 minutes if the fastest and most expensive Amtrak connection is used. Every day, 36 trains run between Washington and Baltimore on average and the estimated number of passengers is even 150 thousand. The proposed BWRR — Baltimore-Washington Rapid Rail, a superconducting magnetic levitation system (SCMAGLEV), will be vital for the cooperation between the cities as it is expected reduce the travel time to 15 minutes. However, the cost of the planned project, estimated initially at 15 billion dollars, is a serious problem. As a comparable amount would suffice to build more than 2 thousand kilometres of a four-lane motorway, the reasonableness of the project has been questioned.

The capital of the United States is not only the main seat of government agencies but it is also perceived as an attractive business location by such global companies as

Lockheed Martin, General Dynamics or Northrop Grumman to name just a few. This, in turn, makes the demand for technology and IT specialists enormous. The average annual pay in the city is approx. 61.4 thousand dollars (2018), while the cost of living and rents continue to rise. To rent a one-bedroom apartment in the centre of Washington, one has to pay 2,300 dollars per month on average, which reduces the availability of the city to those who are only planning to start work there.

Baltimore is also the seat of numerous government agencies. However, it is mainly a post-industrial city with services and IT being its leading sectors at present. Baltimore is the eighth American city as far as the growth rate and available industry talent are concerned (according to CBRE Tech Talent Report). In 2018, it came fifth in the Forbes’ “Best city for tech jobs” ranking . Such companies as Under Armour, BRT Laboratories, Cordish Company, Legg Mason, McCormick & Company or T. Rowe Price have their head offices there.

The average annual pay in the city is approx. 57.7 thousand dollars (2018), while the average rent for a one-bedroom apartment in the centre is only 60 percent of the amount that has to be paid in the capital, that is 1,450 dollars per month . Baltimore is also home to the world-class medical Johns Hopkins University with the main research, scientific and development centre, whereas Washington is the seat of the School of Advanced International Studies, one of the leading universities that specialize in international relations, which is part of the Johns Hopkins University.

In 2016, more than ten private sector companies undertook an initiative to establish the “Greater Washington Partnership” with a view to attracting

even more investors to the region as well as improving the quality of transport connections and the offering for future employees. The project has been launched under the patronage of Russ Ramsey, CEO of Ramsey Asset Management, and Peter Scher, Chairman of the D.C. Region at JP Morgan Chase & Co., acting as Chair and Vice Chair, respectively.

An abundance of talent and attractive employment terms are the assets of Baltimore, which has become the capital’s technology and IT base. Baltimore-Washington is one of the largest conurbations in the country as far as the number of IT sector jobs is concerned. Improvement of transport infrastructure coupled with the functional links between the cities have allowed them to unleash their potential, in addition to accelerating their growth. Bilateral cooperation has been a major factor contributing to the establishment of the National Aquarium in Baltimore, which is visited by 1.5 million people a year.



Birmingham is the second largest city in the United Kingdom (after London) with approx. 1.1 million residents . For comparison, the number of people living in the capital has already reached 8.9 million . The distance between the cities is approximately 200 kilometres.

The obvious advantages of Birmingham over other British cities are its accessibility and location. Approximately 90 percent of the citizens of England may get there within 4 hours. The city has a well-developed transport infrastructure. It was the construction of a railway line between London and Birmingham that became the major driving force behind the city’s economic development. What is more, Birmingham’s airport is the third largest in the United Kingdom.

The infrastructure projects completed thus far have contributed to the shortening of the time of travel between the cities to one hour and twenty-one minutes if the fastest connection is chosen. The extension and improvement of the transport network between the cities is such an important business factor that they have decided to support the planned high-speed railway project (HS2 Phase 1). According to BBC, the investment is expected to be completed in 2026 and the time of travel between London and Birmingham reduced to 52 minutes . The HS railway is intended to be a part of a larger transportation project and link London with such destinations as Stafford, Manchester or Leeds. The project is to be finally completed by 2033 and may cost as much as 86 billion pounds.

The services industry is predominant in the economy of Birmingham (approx. 82 percent of all jobs in 2018), although in the past the city was well known as an industrial centre and in 1791 it was being hailed as “the first manufacturing town in the world”. Today, it is a logistics, commercial, business, convention and cultural centre which attracts numerous exhibitions and economic events organized in the United Kingdom. In 2019, it has been named the “Beta-world city” by the world-class think tank Globalization and World Rankings Research Institute. Birmingham is also a major academic centre that focuses on the development of innovations. It is home to several universities that are recognized globally, to include the University of Birmingham, the Birmingham Business School or the Aston University.

In 2018, HSBC Bank moved its head office to Birmingham, which was a milestone in the development of the city. The new office with the area of nearly 20 thousand square metres is the place of work of approximately 2.5 thousand people. The decision was influenced by the attractiveness of the city, the institution’s ties with Birmingham as well as lower labour and operating costs. The bank’s new office is part of a plan to invest the total of 200 million pounds in the West Midlands region, whose capital is Birmingham. This would not have been possible without a fast train connection – the journey from Birmingham to London takes one hour and twenty minutes. According to economists, since its relocation from Canary Wharf in London HSBC has generated 540 million pounds for West Midlands. Besides HSBC, such companies as Barclays Bank, PwC or EY have also relocated some of their operations to the capital city of West Midlands.

The difference in the cost of living between the two cities is very big. To rent a one-bedroom apartment in the centre of Birmingham one has to pay approx. 740 pounds in comparison with 1,700 pounds a month in London . This is a clear advantage as business entities are seeking alternatives to the extremely expensive capital.

London is the major and most important economic centre in the United Kingdom as well as the world capital of finance. According to a report prepared by Knight Frank, in Q1 2019 the city had approx. 1.3 million square metres of office space available for rent, which made it an undisputed leader not only in that country but also across Europe. Needless to say, Birmingham is not capable of competing with London in this regard but the development of their functional and economic cooperation undoubtedly has a positive effect on both the cities, making their joint value proposition for investors considerably more attractive.



Copenhagen
+
Malmö

Copenhagen is the capital of Denmark, while Malmö is a regional hub in southern Sweden. The distance between the cities is just under 45 kilometres. The cities represent one of the classic examples of cross-border bipolar cooperation.

Situated on both sides of the Sound, the cities joined forces once the Øresund Bridge combining a motorway bridge and a railway tunnel and running nearly 8 kilometres had been opened. The crossing, made available to the public in mid-2000, has reduced the time of travel between Copenhagen and Malmö to approx. 50 minutes by car and to only 33 minutes by train . Trains run there every 20 minutes.

Both the metropolitan areas are so much aware of the potential offered by their functional cooperation that they have come up with a plan to construct an underwater railway tunnel of 22.1

kilometres. The investment is expected to reduce the commute time to just 20 minutes. The estimated cost of the project is approx. 4 billion euros and it should get off the ground in 2028. For years, Denmark has been trying to persuade Sweden to create a new conurbation known as “Greater Copenhagen”, comprising Malmö and the surrounding areas with nearly 4 million inhabitants, 11 universities and 150 thousand students. The duopolis would be driven by new technologies and innovation. As underscored in a report prepared by the European Commission, Denmark and Sweden are the most technologically advanced countries in the EU, among the global Top 10 in e-business (UN) and topping the list of countries with the highest number of patent applications. Malmö is fourth on the list of 15 most innovative cities around the world, which is closed by Copenhagen. The capital of Denmark is also among the best locations for start-ups.



Helsinki
+
Tampere

Tampere is the second largest city in Finland with approximately 235 thousand inhabitants, while the number of residents of the capital city is nearly 640 thousand . The distance between the cities is approximately 180 kilometres. However, a high-speed railway and a motorway make it possible to get from one city to the

other even within 90 minutes by train and within 2 hours by car. Tampere used to be known as the industrial base of Finland but today it has a strong ICT industry growing on such foundations as innovations (R&D divisions) and the development of education. Since 1996, Tampere has been the partnering city of Łódź.

On the other hand, Helsinki is the major educational, cultural, political and financial centre of Finland. Eighty-three out of the top 100 Finnish companies have their registered seats there. Both the cities have made endeavours to foster their functional cooperation, which should be possible thanks to the planned construction of the Helsinki-Tampere high-speed railway via the Helsinki airport, with estimated outlays of approx. 5.5 billion euros.


The new railway line is to handle about 6.5 million passengers a year.




Duopolis case study – a summary:

Duopolis example	Distance in a straight line	Shortest time of travel by train	Total population (in millions)
Baltimore - Washington	57 kilometres	29 minutes	1,3
Bratislava – Vienna	55 kilometres	60 minutes	2,3
Glasgow – Edinburgh	66 kilometres	42 minutes	1,1
Birmingham – London	163 kilometres	81 minutes	10
Copenhagen – Malmö	29 kilometres	33 minutes	1,1
Helsinki - Tampere	180 kilometres	90 minutes	0,9
Warsaw – Łódź	119 kilometres	75 minutes	2,5


Major benefits of cooperation between metropolitan areas:




Overcoming talent shortages thanks to access to the other city’s workforce.




Combined efforts to develop transport infrastructure to facilitate and accelerate communications.




Improvement of the quality of life thanks to a common cultural, sports and entertainment offering for the residents of both the cities, which will be more attractive.



A joint value proposition for investors helps to attract new major investors, both regional and global.



Cost reduction through the exploitation of the economic potential of the other city without the necessity to relocate the main seat. The solutions that have already been implemented and used (e.g. HSBC Bank) show how attractive this idea is.



A growth of the tourism industry – a joint, complementary tourism offer allowing to attract more visitors.

Development of a joint value proposition for investors requires the abandonment of the cities’ individual growth ambitions focusing on short-term results. The region’s brand needs to be built in the long term, which should be accompanied by the creation of a shared vision. Warsaw may use the infrastructure around and on the way to Łódź as well as enjoying the benefits of a satellite city. A joint value proposition for investors developed by the cities as a single powerful region will strengthen the position of both of them in addition to increasing the scale of their impact not only in Poland but also across Europe and globally.

Undoubtedly, the development of infrastructure and a network of connections is a common denominator for urban agglomerations which have successfully put the idea of a duopolis into practice. The construction of the city tunnel in Łódź as well as the establishment of STH and a network of train connections will be of key importance, as they may become an impulse for acceleration of the economic development of the whole region, in addition to driving corporate decisions to rely on the duopolis. What is more, the improvement of the road transport links and the launch of an airport hub between the cities will add a completely new dimension and functionalities to communications in the region. Each example of the partnering cities which our case study focuses on shows that the actions taken with a view to improving the shared infrastructure have to be constantly intensified.

Łódź could support Warsaw, as is the case with Birmingham and London. The key management structures could be located in Warsaw, while the back office, industrial or technology operations transferred to Łódź or its region, which is a viable option both for the private sector

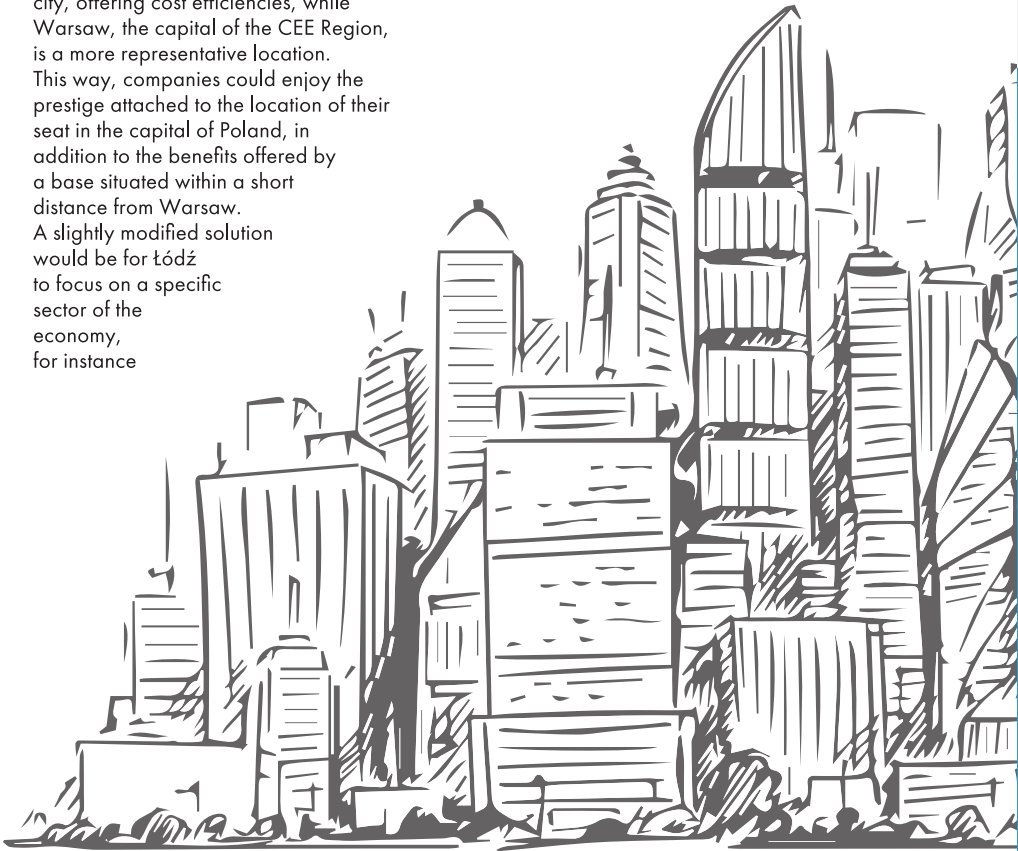
and selected government entities. Like Birmingham, Łódź has an excellent central location at the intersection of the main transportation routes. The attractive offer of the Special Economic Zone of Łódź, which has been recognized in the prestigious fDi ranking as the second in Europe and the eighth worldwide, is appreciated by investors, who have decided to launch numerous new projects there.

Łódź and Warsaw should profile their joint investment offering based on their characteristics, positioning the first one as, for instance, a more industrial city with an abundance of investment locations, excellent transport connections and attractive pays, and the other as the city where management functions could be located. Łódź is a slightly less expensive city, offering cost efficiencies, while Warsaw, the capital of the CEE Region, is a more representative location. This way, companies could enjoy the prestige attached to the location of their seat in the capital of Poland, in addition to the benefits offered by a base situated within a short distance from Warsaw. A slightly modified solution would be for Łódź to focus on a specific sector of the economy, for instance

the technology industry, and develop an offering around that industry. This should be accompanied with efforts to establish academic alliances and partnerships.

Undoubtedly, the connection between Łódź and Warsaw would be communicated effectively if the cities joined forces to hold international events. A good example of such an initiative is the Commonwealth Games organized jointly by Glasgow and Edinburgh.

Creating duopolis between those two cities is also a chance for Warsaw to achieve a status of leading European capital.




INFRASTRUCTURE AS A KEY SUCCESS FACTOR FOR THE DUOPOLIS

Although a wide spectrum of the investment projects on the Łódź-Warsaw line are initiatives undertaken centrally, they directly facilitate cooperation between the cities and may constitute the basis for the functioning of the duopolis.

Individual infrastructure projects are capable of unleashing the potential for cooperation between cities, which has been the case, for instance, for Malmö and Copenhagen or Baltimore and Washington. In each of the cities that have been analysed here as examples of bipolar cooperation, infrastructure projects continue to be implemented. Functional ties would be difficult to establish without optimization of the transport connections between the cities.

As far as the effectiveness of transport connections between Łódź and Warsaw is concerned, it is imperative to modernize the motorway, launch STH and build the city tunnel.

Common infrastructure projects and the investment attractiveness of Łódź:



ŁÓDŹ FABRYCZNA AND ŁÓDŹ KALISKA RAILWAY STATIONS



SOLIDARITY TRANSPORT HUB AND HIGH-SPEED RAIL



CITY TUNNEL IN ŁÓDŹ



ŁÓDŹ AND WARSAW RING ROADS AND WARSAW TRANSPORT INFRASTRUCTURE MODERNIZATION



MODERNIZATION OF THE A2 MOTORWAY



PARK OF POLAND – SUNTAGO



Source: UMT materials

Infrastructure and transport projects

The synergies of cooperation between Warsaw and Łódź, which are approx. 130 kilometres away from each other, will not be possible without the strategic engagement of both the cities. The improvement of the quality of the transport service is one of the key success factors for putting the idea of a duopolis into practice. The development of public and private transport will increase the accessibility and improve the appeal of the region considerably. One of the imperatives is the improvement of the quality of transport between the cities, both in terms of the travel time and the number of available connections, as well as accessibility of different means of

transport. This view is supported by our analysis of the metropolises which have put the idea of a duopolis into practice around the world. Not only do the partnering cities have a well-developed transport infrastructure but they also plan its further extension and modernization. Therefore, STH with the accompanying infrastructure fits perfectly with the plans of both the metropolitan areas. Once the railway phase of the project is completed, the travel time will be reduced even to 45 minutes, which will undoubtedly maximize the benefits of cooperation between Warsaw and Łódź.

Łódź is connected with Warsaw by the A2 motorway, which was built before the 2012 UEFA European Football Championship hosted by Poland. It takes approximately 90 minutes to get from one

city to the other. What is more, there are 14 trains on average running in both directions and the time of travel from the Łódź Fabryczna Railway Station to the Warsaw Central Railway Station is approx. 70-90 minutes. The available transport connections allow thousands of commuters to travel between the cities every day. However, their expectations of higher standards and speed continue to grow. As both Łódź and Warsaw are aware of that, the A2 motorway is planned to be modernized starting from 2021 so that there are three lanes in each direction to increase the traffic capacity. However, construction of a new main railway line between the cities will be of utmost importance. It will be launched as part of the Solidarity Transport Hub (STH) project located between Łódź and Warsaw.

Road network

One of the boundary conditions the satisfaction of which is necessary for a duopolis to operate efficiently is a well-developed transport infrastructure that facilitates fast and easy travel between the two cities. Although trains are a faster and more comfortable mean of transport, the importance of diversification may not be ignored.

As far as road infrastructure is concerned, Łódź is currently among the Polish cities with the best transport connections. The intersection of the major A1 and A2 motorways is located in the nearby town of Stryków. Łódź also stands a chance to become the first conurbation in Poland with a fully expressway ring road comprising the A1 and A2 motorways as well as the S8 and S14 routes. The S14 expressway, which is known as the Łódź Western Ring Road, is the missing part — the construction of the section between Łódź Teofilów and Słowik on national road #91 should be completed by 2023. Such a well-developed road transport network has been the major factor contributing to the development of the logistics industry in and around the city.

The A2 motorway, which was opened in 2012, is the road axis connecting Łódź and Warsaw. The time of travel between the city centres is approx. 1.5 hours and to get from Łódź to the Warsaw Chopin Airport one needs about sixty minutes.

The road is planned to be widened and the related works should begin in 2021. A complete set of documents and the necessary analyses, studies and permits are expected to be prepared/obtained by that time. The investment is to be completed in 2024 and its estimated cost is approx. 600 million zlotys. Its scope includes the construction of the third lane from the Łódź Północ to the Pruszków interchange and one more between the Pruszków and the Konotopa interchanges,

in addition to modernization of the surface of the road to accommodate increased traffic as well as increasing the capacity of selected interchanges. The increase in the traffic capacity and improvement of the connections between the cities is also linked with the planned Solidarity Transport Hub project.

Solidarity Transport Hub — a link between the two cities

The Łódź Władysław Reymont Airport and the Warsaw Chopin Airport are currently the cities' windows on the world. While the capital's airport is gradually reaching the maximum number of passengers, the one located in Łódź is still far from operating at its maximum capacity, even though an upward trend has also been observed. In 2019, traffic has grown versus the preceding year.

At the beginning of the year it went up by approx. 5 percent but the most exponential increase was seen during the summer (Q2 2019), when the number of passengers boarded went up by 26.5 percent versus the corresponding period of the preceding year.

The large-scale plans to build a central airport in Poland which will be several times larger than the Warsaw Chopin Airport have been designed in response to the latter's reaching gradually its maximum capacity.

The concept of a central airport for Poland was proposed already in the 1970s. Although the Warsaw Chopin Airport was called the Central Warsaw-Okęcie.

Airport at that time, its limitations were obvious even then. In 1976, a vision of an international airport was presented, aimed

to handle primarily intercontinental flights and planned to be located a few kilometres away from Modlin.

Over the years, the idea was explored by subsequent governments and since 2003 reports have been published and working parties established to formulate guidelines for the mega airport project. The towns of Mszczonów and Modlin were among the proposed locations. However, the legitimacy of the proposed investment locations has finally been questioned and the commune of Baranów, situated west from Grodzisk Mazowiecki, has been selected as the most suitable place for the project.

In 2017, the government adopted changes to the country's transportation system. The plan provides for the construction of not only a central airport but also a huge transfer hub combining air, rail and road transport services in one place known as the Solidarity Transport Hub (STH).

The "STH Blueprint" was adopted, whereby the project's mission is to "create a universal passenger transport system through the construction and operation of a profitable and innovative transport hub which, on the one hand, will be among the Top 10 airports around the world and, on the other, will lead to the reconstruction of the national railway system as an attractive alternative to road transport, covering all regions of Poland as well as driving growth and sustainable integration of the Warsaw and Łódź urban areas". The direct reference to Łódź and Warsaw in the strategic document prepared for purposes of a project demonstrating such huge potential indicates that the idea of a duopolis is very realistic and its importance is strategic.

The Blueprint also directly points to the necessity to integrate the Warsaw-Łódź conurbation, which is expected to result in the creation of the Central Metropolis – a strong economic hub with a global impact, which, once integrated with the infrastructure of the Southern Metropolis, will constitute a single consistent functional area of a Megalopolis with twenty million residents, capable of becoming the motor force behind the economy of Central Europe.

STH is expected to be a means to the integration of the central conurbation of the country (Warsaw – Łódź), which will not only be a metropolis on a global scale but also the national decision-making as well as a leading political, administrative,

business and scientific centre and the destination of a major part of both business and private travel. As specified in the Blueprint, the Airport City, which will also serve commercial functions, will play a role in the integration process and be a driver of economic growth, especially in the region of Łódź. As a result, the areas located along the major transportation routes (mainly roads) may be transformed into an innovative business park with recreational and entertainment functions.

Additionally, the STH Blueprint mentions the possible expansion of the hub to include an additional vacuum tube transport component and identifies the need to ensure sufficient area for the construction of the necessary linear infrastructure. Should the vactrain idea be put into practice, access to sufficient land will also be needed along the planned Warsaw-Łódź route (following the tracks of HSR) so as to ensure an ultra-high-speed connection between the two urban agglomerations and STH.

In 2017, the Warsaw-Łódź route was the most congested thoroughfare in Poland. According to estimates based on figures published by PKP Intercity S.A. and GDDKiA, it may be used annually by as many as 16-20 million passengers, including approx. 30 percent travelling by rail (even 5-6 million people, which translates into 14-16 thousand a day on average), and the remaining part by road. Preliminary calculations aimed to determine the potential financial viability of the Warsaw-STH-Łódź vactrain project were based on information gathered by Hyper Poland sp. z o.o. while developing the technology in Poland. A reduction of the time of travel from Warsaw to Łódź from approximately 45 minutes (estimated for HSR) to approx. 13 minutes (estimated for vactrain) could generate cost savings in terms of the value of travel time (VTT) of

approx. 233 million zlotys for the current number of approx. 16.1 million passengers a year (assuming the average pay in Q1 2017 of 4,354 zlotys and the VTT representing 82 percent of the average hourly pay). Considering the expected pay rises until the launch of the connection as well as the anticipated increase in the number of passengers, the real cost savings may be considerably higher.

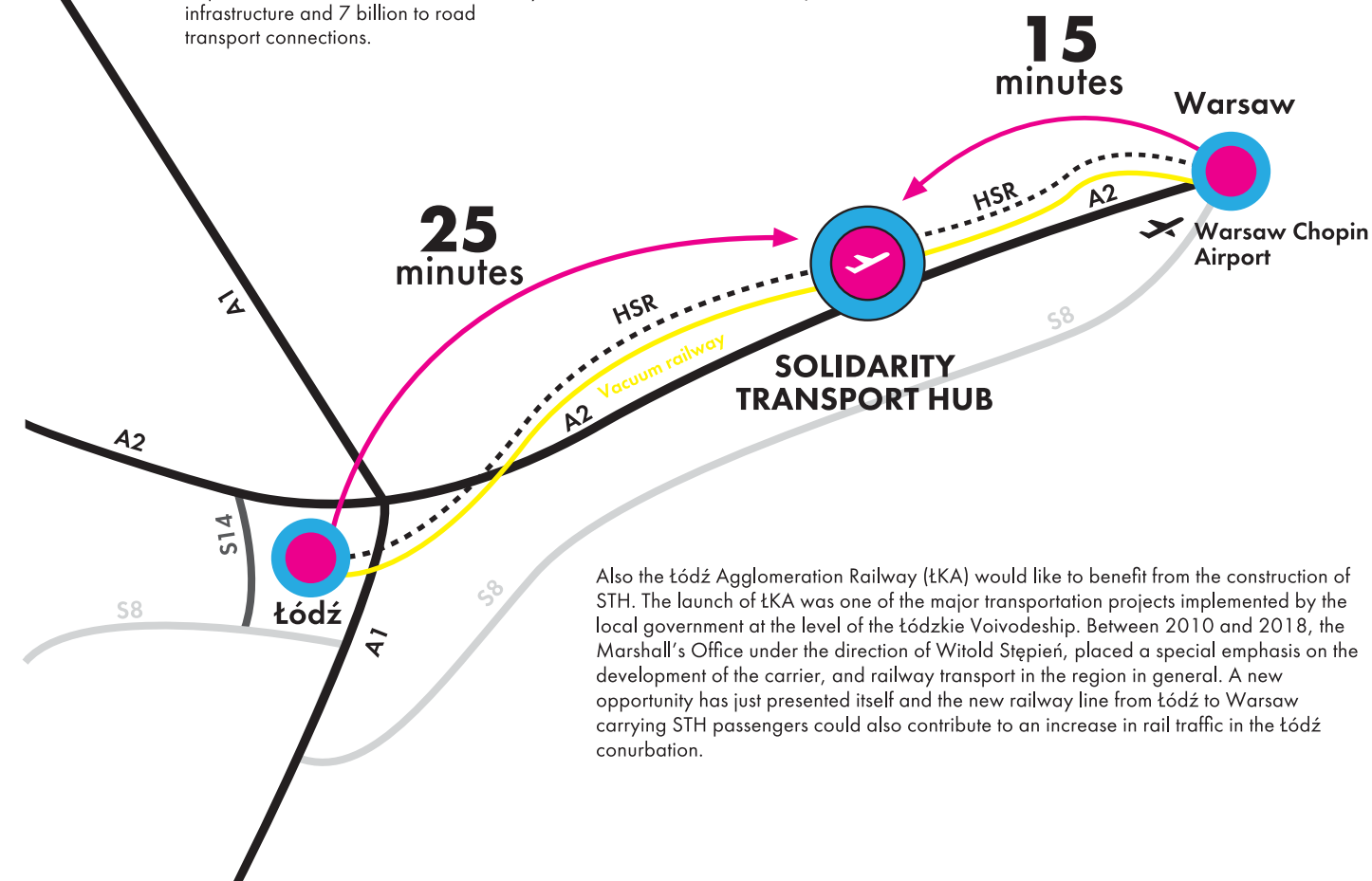
The construction of the proposed line would not only contribute to the establishment of a fast connection from Warsaw (approx. 5 minutes) and from Łódź (approx. 8 minutes) to STH but also to the balancing of the transport system, increasing its eco-friendliness, enhancing its reliability, ensuring proper spatial development of the entire region and a more coherent spatial planning or improving the safety and comfort of travel.

An integral part of the STH Blueprint is the new high-speed rail connection between Warsaw and Łódź and STH itself, expected to serve the function of the main transport hub for the Central Metropolis with stations of the metropolitan Warsaw-Łódź express trains and the Warsaw-Łódź commuter rail, being the terminus of the suburban rail of Łódź and Warsaw as well as the main interchange station for national IC and IR trains.

The preparatory phase of the project is scheduled to be completed by the end of 2019 and the hub is expected to be opened to passengers in 2027. The costs are estimated at 40 billion zlotys, including 16-19 billion to be allocated to airport construction, 8-9 billion to railway infrastructure and 7 billion to road transport connections.

The heart of this huge investment, that is the central airport, will be situated in Stanisławów, in the commune of Baranów. Initially, the airport's capacity is to be 45 million passengers a year and ultimately it will increase even to 100 million. Because of the location of the investment project, Warsaw and Łódź will be its major beneficiaries. This may have a considerable impact on further development of the idea of functional cooperation between the cities. The reduction of the travel time to approx. 45 minutes will surely be a key factor at play.

The scope of the STH project includes the construction of approximately 1.6 thousand kilometres of new railways in total. There are plans to build a network of 10 links to STH, known as "spokes" and leading to Baranów. More than a hundred Polish cities and towns will be within a zone from which the guaranteed time of travel to STH will not be longer than 2.5 hours. A new high-speed rail which is expected to connect Warsaw with Łódź will allow passengers to travel from STH to the capital city of Poland within approx. 15 minutes and to Łódź within approx. 25 minutes. A 140 km section with the connection speed planned at approx. 250 km/h is a priority and will probably be made available even before the new airport begins to operate. Regional strategic consultations as to the shape of the railway network began in the second half of the year.



Also the Łódź Agglomeration Railway (ŁKA) would like to benefit from the construction of STH. The launch of ŁKA was one of the major transportation projects implemented by the local government at the level of the Łódzkie Voivodeship. Between 2010 and 2018, the Marshall's Office under the direction of Witold Stępień, placed a special emphasis on the development of the carrier, and railway transport in the region in general. A new opportunity has just presented itself and the new railway line from Łódź to Warsaw carrying STH passengers could also contribute to an increase in rail traffic in the Łódź conurbation.

Łódź City Tunnel

The plans to build a city tunnel will surely be put into practice faster. The second phase of the massive railway project in Łódź has already begun. The first one focused on the construction of a railway tunnel between Łódź Widzew and Łódź Fabryczna, along with a brand new railway station. The city tunnel connecting Łódź Fabryczna with Łódź Kaliska and Łódź Żabieniec, with two stops along the way, may change the city’s transport network completely. The project is planned to be completed at the beginning of 2022 and its cost is estimated at approx. 1.7 billion zlotys. The construction of the city tunnel will also materially improve the quality of the railway transport service in Poland. Modification of the transport hub in Łódź will make the Łódź Fabryczna Railway Station one of the main interchange stations in Poland.

The tunnel will “open” the Łódź Fabryczna Railway Station, which will be transformed from a main to an en-route station. According to PKP S.A., 7.7 thousand passengers used the Łódź Fabryczna Railway Station on a daily basis in 2017, while its expected capacity is 70 thousand passengers once the HSR line has been made available on the routes crossing Łódź. This shows the scale of the project, which – considering the current passenger traffic – seems to be excessive. Only if sufficient investment is made in the existing railway infrastructure will it be possible to benefit from the planned passenger flows. The construction of the tunnel will open up new opportunities for the Łódź transport hub and for the railway system in Poland. Both regional and long-distance trains will begin to run through the centre of the city on the East-West (Łódź Widzew, Łódź Fabryczna and Łódź Kaliska stations) and the North-South (Łódź Widzew, Łódź Fabryczna and Żabieniec stations) axes, which will considerably reduce the travel time. There will also be two intermediate

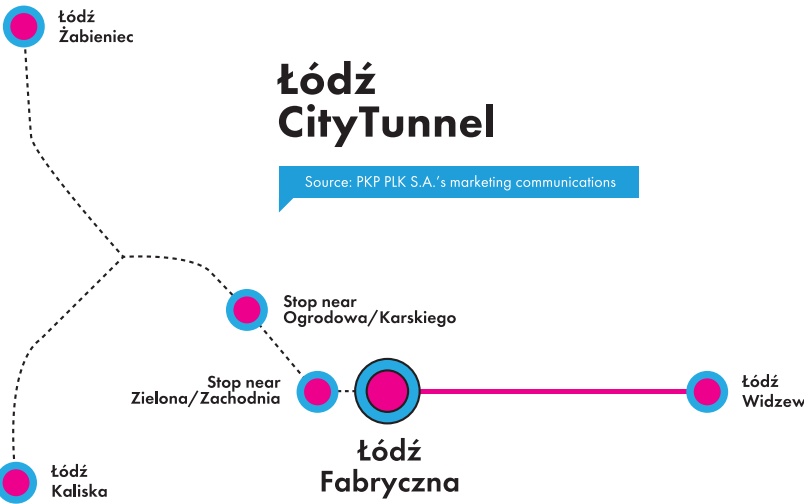
stops in the tunnel for local trains, so the new section of the underground line will offer a convenient railway connection to the city’s residents.

The purpose of the project is to address transport challenges facing Łódź, but it will also increase the significance of the Łódź Fabryczna Railway Station making it an important national hub station. The project assumes the construction of two intermediate underground stations making the rail an interesting transport alternative for the residents also in the city centre. Construction of the city tunnel will help improve the quality of transport services and the New Centre of Łódź will become the city’s district with the best transport network.

Planned Łódź Fabryczna Railway Station Project Phases

Phase	Investment	Traffic forecast (number of passengers per day)
I	The underground part of the station is made available	20 thousand.
II	The tunnel for conventional trains connecting the Łódź Fabryczna Railway Station with the Łódź Kaliska and Żabieniec Railway Stations is made available	40 thousand
III	HSR is made available on the routes crossing Łódź	70 thousand

Source: "Łódź Fabryczna station as multimodal rail central station" study. A. Giedyś, Railway Transport Technique magazine, 2017.



Development of Łódź Agglomeration Railway

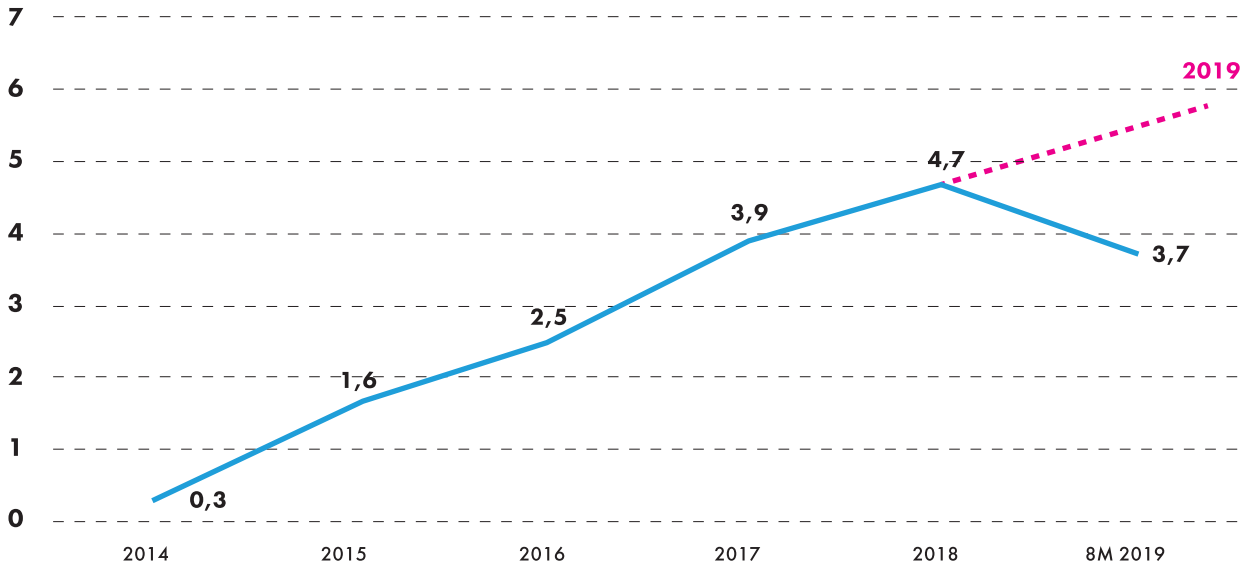
As announced by the Łódź Agglomeration Railway (ŁKA), once the tunnel has been opened, regional trains will be able to run even every 8 minutes, which will facilitate the extension of the existing city routes. Direct trains will take passengers from Sieradz to Skierniewice, from Kutno to Radomsko and, after electrification, from Łowicz to Tomaszów Mazowiecki/Opoczno. The journey from Łódź Widzew to Łódź Kaliska is expected to take 16 minutes by ŁKA train.

In 2018, the number of passengers using the services of Łódź Agglomeration Railway (ŁKA) was the highest on record (almost 4.7 million). This means a rise of nearly one-fourth versus 2017. The second phase of the ŁKA development project was launched in 2018. Its scope includes purchases of further trains and the launch of new connections. Support under the Regional Operational Programme for Łódzkie Voivodeship has been used to finance the purchase of 14 new Impuls2 trains. Connections between Łódź – Piotrków Trybunalski, Łódź – Radomsko and Łódź – Tomaszów Mazowiecki have also been made available to passengers.

The plans for 2019 include the installation of the third component in the FLIRT3 train, which will increase the number of seats by approx. 30 percent. It is forecast that ŁKA will transport 5.5 million passengers in 2019. ŁKA estimates that the opening of the city tunnel with three stops (including “Centrum” located in Zachodnia Street with a passage leading to a tram stop) will increase the number of passengers to approximately 10 million a year. ŁKA offers zone and trip tickets as well as the Conurbation Travelcard which allows passengers to use both trains and the urban public transport system in Łódź and in the neighbouring towns. Importantly, passengers travelling between Łódź and Warsaw may get to the station and to their destination by tram, bus or Metro also in the capital. The increasing capacity of the railway system is strengthening the conurbation’s position in the region.

A year-on-year increase in the number of passengers by more than one-fourth between January and August 2019.

Number of passengers using the services of Łódź Agglomeration Railway (ŁKA) between 2014 and 2018 (in millions)

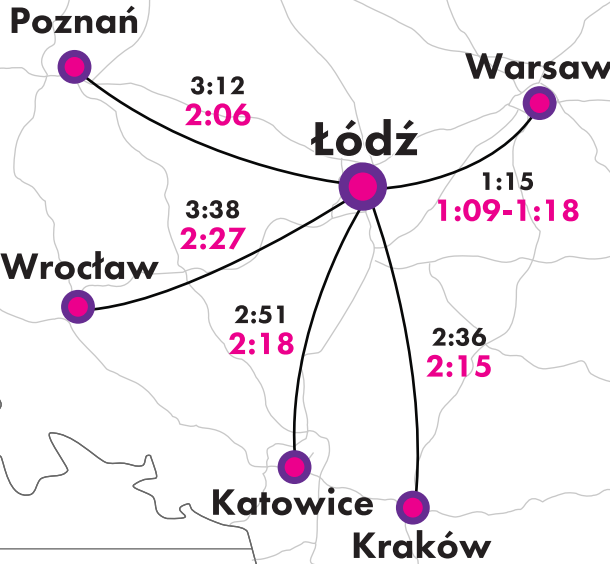


Source: According to the Office of Rail Transport, 2018-2019

The estimated times of travel by conventional trains from Łódź to the neighbouring urban areas at present and once the planned infrastructure investment projects have been completed (2023)

Development of the Łódź Agglomeration Railway (ŁKA) with a complementary project for a city tunnel linking the Łódź Fabryczna and Łódź Kaliska Railway Stations will have a positive impact on the entire public transport system in the city.

3:20 Time of travel - now
2:06 Time of travel - once the planned infrastructure investment projects have been completed (2023)



Transferring some of the passenger traffic from roads to rail will help improve the living conditions in Łódź, the transport network of the city and the New Centre of Łódź, also in terms of the urban area of Łódź as a whole.

Two hundred and nineteen kilometres of new railways will be built in the region of Łódź as part of the Solidarity Transport Hub project. A high-speed rail system will also be launched in the region with trains travelling with the speed of 250 km/h.

- Line #85 Warsaw – STH – Łódź – Sieradz – Poznań
- Line #87 Sieradz – Wieruszów (part of the Warsaw – Wrocław route).

The construction of the new railway lines will make Łódź a part of the all-Poland high-speed rail network, leading to a considerable reduction in the travel times. It is estimated that 60 percent of the citizens of the łódzkie Voivodeship will be able to get to an HSR station in less than 60 minutes.

The effect of the tunnel on the quality of urban transport in Łódź

The opening of the city tunnel with two intermediate stops along the way (Łódź Śródmieście and Łódź Polesie – Manufaktura) will change the city’s transport network entirely. The rush-hour commuter trains on the central part of the route are to run every 8 to 10 minutes. As announced by ŁKA, two shuttle trains are planned to be operated – from Widzew via Łódź Fabryczna and Łódź Centrum to Pabianice or Zgierz. This way trains whose route ends near the city centre could run even every 4 minutes, which is comparable to the frequency of the underground.

At present, ŁKA is designing a network of connections to be made available to passengers once the construction is complete.

The “Łódź Underground” project will also have an impact on the transport service in the New Centre of Łódź. A network of connections will strengthen the position of the city as the central point of the conurbation, in addition to improving the commuter service.

Łódź Fabryczna Railway Station – the central point of the new transport network

Łódź Fabryczna is the main railway station in the city and the transport hub for the emerging New Centre of Łódź. Being one of Poland’s most modern railway stations it guarantees excellent transportation links with Poland’s biggest cities as well as the suburbs of Łódź, in addition to being the main regional rail axis after the city tunnel has been made available for use. It was constructed in 1866 on the initiative

of Karol Scheibler, the richest factory owner, as a terminus, to make it easier for manufacturers to pursue their business objectives. After 140 years the old building was demolished and the construction of a huge underground railway station began. Works started in 2011 and the new facility was first made available in 11 December 2016.

Łódź Fabryczna is one of the most modern railway stations in Poland and in Europe. It also comprises a huge interchange that integrates a number of different modes of transport, with a multi-platform underground coach station, above-ground urban transport station and a three-storey underground car park. The railway station is set to have direct transport links with the intended Solidarity Transport Hub further boosting the appeal of the New Centre of Łódź. The total cost of the investment was 1.76 billion zlotys and the major part was sponsored by EU funds. The usable area of the railway station is 44 thousand square metres and the facility comprises three concourses with the total area of 36 thousand square metres. There are four underground platforms, three of which are 400 and one 300 metres long.

The project has had an enormous impact on the surroundings – once the platforms have been moved underground, the areas adjacent to the station became available for development, thus opening up an excellent growth opportunity for the city to launch the New Centre of Łódź initiative with the railway station being its integral part.

Łódź Kaliska Redesigned

Łódź Kaliska is the second largest railway station in the city, located in the western part of Łódź, in the immediate neighbourhood of Atlas Arena and national road 91. Designed by Czesław Domaniewski and erected in 1902, the original edifice was recognized as one of the most beautiful public utility buildings in the city. However, it had never been entered in the heritage register and it was demolished in the 1980s. The new facility constructed in its place will soon be modernized along with the entire track system so that it may handle the new city tunnel connections. The project is planned to get off the ground in 2020 and it will cost 337 million zlotys.



Łódź Fabryczna station

Source: UMT materials

The renovation of the Łódź Kaliska Railway Station will complement railway investments which are expected to unleash the potential of Łódź. What is more, a connection between Łódź Kaliska and Łódź Fabryczna will accelerate the development of the Łódź Agglomeration Railway (ŁKA), in addition to decongesting the city.

Growing transport network in Warsaw

The capital city of Warsaw, the other side of the duopolis, has also come up with ambitious plans to expand its transport network, which provide for the modernization of the Warszawa Zachodnia, Warszawa Wschodnia and Warszawa Śródmieście stations as well as the Warsaw Cross-City Line, in addition to building new tram lines.

The railways, trams and Metro (the so called “three tracks”) account for 48 percent of all public transport connections in the capital of Poland, with more than 43 million trains running every month. Improvement of the quality of the transport service in this segment is one of the priorities defined in the development plans for the city. At present, some train routes are unreasonably long (for instance, Dolny Śląsk, Mazury, Pomorze Środkowe, Roztocze, Kujawsko-Pomorskie Voivodeship). Elimination of the largest gaps in the railway network will produce a dramatic reduction in the travel times among these regions.

The new connecting lines will contribute to a significant improvement of the railway service on the Eastern – Western Poland axis (Białystok – Warsaw – Wrocław) and between the north and the south of the country (Poznań – Kraków). Owing to the links, the Łódź-Warsaw duopolis will further grow in importance as far as the Polish transport network is

concerned. The transport projects in Warsaw take account of Łódź, both directly and indirectly, as well as cooperation between the cities in a duopolis formula.

Investments having an effect on the bilateral cooperation of Warsaw and Łódź include:

Modernization of the Warszawa Zachodnia Railway Station, including the construction of an easily accessible transfer hub.

Expansion of the A2 motorway connecting Warsaw with its suburban areas as well as Łódź, through the construction of additional lanes.

Construction of the Motorway Ring Road around Warsaw to connect the towns located around the capital with the planned STH and the A2 motorway.

Planned launch of a direct railway connection between Łódź Fabryczna and the Warsaw Chopin Airport.

Partnership of ŁKA, ZTM Warszawa (Zarząd Transportu Miejskiego w Warszawie) and MPK Łódź (Miejskie Przedsiębiorstwo Komunikacyjne w Łodzi) to introduce a single travelcard.

Further integration of public transport tickets in both the cities.

The transport projects which are underway or planned by Warsaw will contribute to increasing transport accessibility in the capital and to improving the quality of the service. This will result in a reduction of the time of travel between Łódź and Warsaw, in addition to addressing the transport needs of the residents of their suburban areas. A well-developed transport network will be vital for the functional cooperation between the cities.

Park of Poland - Suntago Wodny Świat

In order to be successfully put into action, the idea of a duopolis requires the integration of not only businesses but also, at least partially, the residents of the partnering cities. This could be achieved through a joint recreational offering that would complement the functional cooperation between the cities. The Park of Poland project, currently underway, is an excellent example of a joint offering of the Łódź – Warsaw duopolis.



Park of Poland is a massive leisure and recreation project which has been launched in Wřęcza near Mszczonów, 60 kilometres away from Warsaw and 90 kilometres away from Łódź. It will take around 40 to 60 minutes to get there from Warsaw as compared to 60 to 90 minutes from Łódź. The investment is located between the A2 motorway and the S8 expressway, 28 kilometres away from Stanisławów in the commune of Baranów, where the Solidarity Transport Hub is planned to be built.

The Suntago Water Park is one of the initiatives undertaken as part of the project (opening planned for the end of 2019). With the total area of 67 thousand square metres, the facility is to be the largest indoor water park in Central and Eastern Europe. It will cover 20 hectares of land and the estimated investment cost is 1 billion zlotys.

The project is financed by the investor (Global City Holdings) and bank loans. The Suntago Water Park will offer, among other things, 32 slides with the total length of 3 kilometres and the longest indoor water slide in Europe, which will be 320 metres long. As the park will be easily accessible from both the cities, it will complement their common functional offering. Situated near the planned STH with its excellent railway and road connections, Suntago will be easy to reach.

Summary

Improvement of the investment attractiveness of Łódź is currently one of the top priorities around which the infrastructure projects launched in the city revolve.

Their shared feature is a focus on the improvement of the city’s access to transport, whether road, railway or air – both at the national and international level. Efforts made to enhance the quality of transport services are reflected in the Łódź – Warsaw functional duopolis model. The free movement of workers in the newly created conurbation is one of the pillars on which the entire venture is based. Successful implementation of the duopolis will open up new investment opportunities both for Łódź and for Warsaw. The infrastructure projects underway in Warsaw are having a positive effect on the quality and availability of transport to commuters within the duopolis area.

Infrastructure investments make the city available to businesses, which, in turn, is a factor determining indirectly the growth of the real estate market, both the commercial and residential segments. SMEs may locate their operations in a region that is growing in economic importance, in addition to offering larger job market resources, which creates better opportunities for growth and expansion as well as improving their offering and competitive advantage. Small and medium-sized enterprises will have a chance to grow faster, especially as far as regional specializations are concerned, thanks to a more extensive distribution network and easier logistics.

On the other hand, additional recreation and entertainment projects, such as Park of Poland – Suntago, which stand out in the whole Central and Eastern Europe due to their large scale, create an opportunity to promote the region, draw attention to its investment potential and confirm the business rationale for further investment.



Source: UMT materials

THE NEW CENTRE OF ŁÓDŹ

The New Centre of Łódź is an urban scheme which proposes various functions — the majority of which serves office and business purposes with areas combining residential estates, cultural establishments and green space.

Source: UMT materials

The large-scale office development projects in the strategic point of the city, surrounded by revitalized areas and the site to host the planned Horticultural Expo, hold a strong appeal to investors.

As far as the Łódź-Warszawa duopolis is concerned, the New Centre of Łódź is the key area experiencing strong growth which may enhance synergies from collaboration between both cities due to its location right next to the Łódź Fabryczna Railway Station. The New Centre of Łódź is set to benefit most from the current infrastructure investments.

The opening of the city tunnel will improve Łódź's transport links with other regional cities and boost Łódź's importance as a pass-through city (and it is the New Centre of Łódź that the route cuts through).

Major public sector investment projects carried out in the NCŁ's neighbourhood

- Łódź Fabryczna Railway Station
- Construction of an underground road
- Construction of new streets: Rodziny Scheiblerów and Grohmanów ave. - Nowowęglowa St.
- Construction and launch of high-speed rail
- Construction of Łódź Agglomeration Railway (ŁKA)
- City tunnel
- Planned construction of the Warsaw — Łódź high-speed rail route
- Hosting of the 2024 EXPO Horticultural
- Urban Revitalization Programme



EC1 Complex

Source: UMT materials

Origins

One of the conditions for the success of the duopolis is that the offerings of both cities are complementary. Łódź has got something that the very centre of Warsaw does not: areas available for development in the city centre, right next to the Łódź Fabryczna Railway Station. Strong resolve of the authorities and the need to

regenerate areas which have fallen into decline, accompanied by an active involvement of investors and residents, gave rise to actions which have made Łódź an example for the rest of Poland.

This success is owed to the efforts of various entities the effect of which is a cohesive plan for the New Centre of Łódź. The initial assumptions underlying the New Centre of Łódź were given as a present by Luxembourgian architect and urban designed Rob Krier in 2007. The starting point was the idea to link Poland's major cities: Warsaw, Łódź, Poznań and Wrocław with high-speed rail which would be underground in the city. This was the first local plan to set the location of the Łódź Fabryczna Railway Station in the centre, establish functional zones and outline the network of streets. The current plan for the New Centre of Łódź, which dates back to 2012, envisages further development and improvement of the concept, to account for subsequent revisions to the local plan.

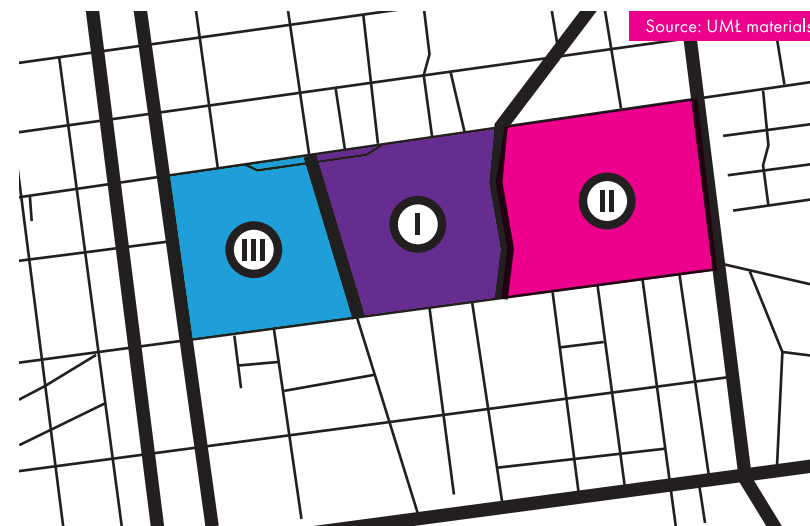
The New Centre of Łódź — today

Today, the New Centre of Łódź is one of the largest coherent urban development and regeneration projects in Central and Eastern Europe. It is a unique scheme covering 100 hectares of land in the very heart of the city enclosed by Narutowicza, Kopcińskiego, Tuwima and Piotrkowska streets.

The objective of the scheme is to find balance between various urban functions with the aim to create a multi-functional centre, combining residential, business, cultural, commercial and transport functions.

To achieve this, the area has been divided into three functional and subject-based zones:

- **Zone I** (c. 40 hectares) — space designated for round-the-clock activities ensuring balance between cultural, commercial and residential functions. This is the priority area in the New Centre of Łódź programme which is now being implemented.
- **Zone II** (c. 30 hectares) — space to host commercial events, taking heed of the regeneration schemes aimed at maintaining the historic neighbourhoods and creating urban structures linked to the adjacent areas.
- **Zone III** (c. 30 hectares) — historic buildings dating back to the end of 19th and beginning of 20th century, comprising quarters in need of intense regeneration and redevelopment. Zone III is a priority component of the revitalization programme that is underway.



Source: UMT materials

Objectives of the New Centre of Łódź scheme



to improve the quality of life

The key to the success of the new district is to create a resident-friendly area in the city centre where one can work and spend one’s free time. Such project may stimulate investment, increase the trust the city enjoys among its residents, business people and tourists. The development of the New Centre of Łódź will expand the business, the cultural and entertainment offering and also improve safety in the city.



to regenerate areas which have fallen into decline

The urban programme for the development of the New Centre of Łódź should be a signal for larger scale renewal of the city centre. A combination of synergistic and complementary efforts is set to accelerate the city’s inner growth.



to improve transport

The improvement of the quality of the public transport offering is one of the key factors for the success of Łódź and the concept of Łódź — Warsaw duopolis that is being implemented. The development of public and private transport will increase the accessibility of Łódź and improve its appeal as well as the appeal of the New Centre of Łódź to the local, regional and international community.

The New Centre of Łódź — Łódź’s business district

Łódź is presently an important centre for investment and one of the most attractive markets for all sorts of real estate projects in the region. According to JLL, total investments in Łódź from the beginning of 2017 to August 2019 reached over 625 million euro. The office and industrial sectors account for as much as 37 percent of total investments. Łódź comes fourth after Kraków, Wrocław and Tricity for its office development projects in Poland.

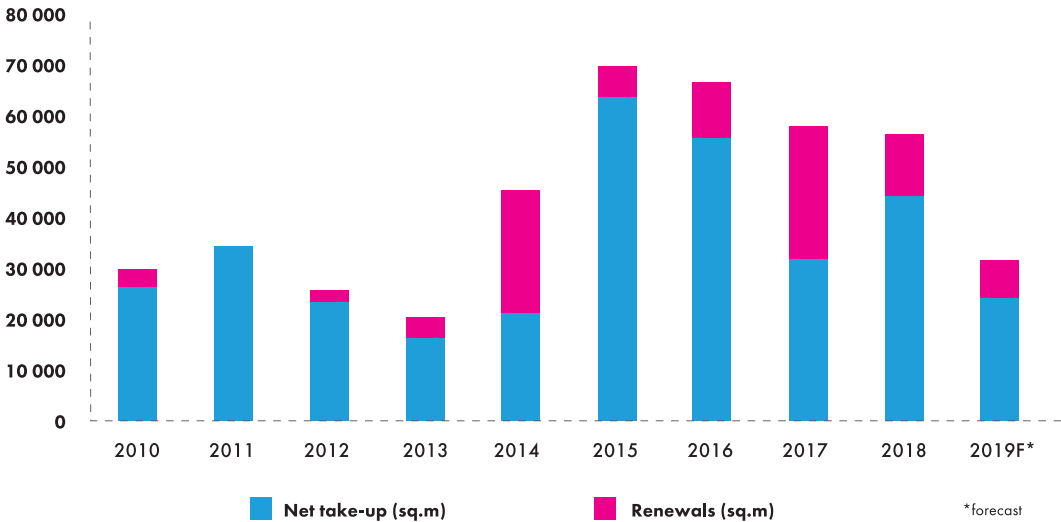
Since 2017 there have been seven completed transactions to sell office buildings amounting to 230 million euro. In mid-2019, modern office space available in Łódź totalled nearly 500 thousand square meters. In Q1 and Q2 2019, there were nearly 30 thousand square meters of new office space with over 30 thousand more to become available by the end of the year. Furthermore, roughly 70 thousand square meters of office space is set to be completed in 2020 (including the Hi Piotrkowska and part of the Brama Miasta projects). This is good news for the city, as it shows a high level of interest from investors.

Selected largest office projects underway:

Investment project	Year of completion	Office space	Investor
Hi Piotrkowska 155	2020	20,800 square meters	Master Management Group
Brama Miasta A	2020	12,500 square meters	Skanska Property Poland
Monopolis M1	2019	7,000 square meters	Virako
REACT 1	2020	15,000 square meters	Echo Investment

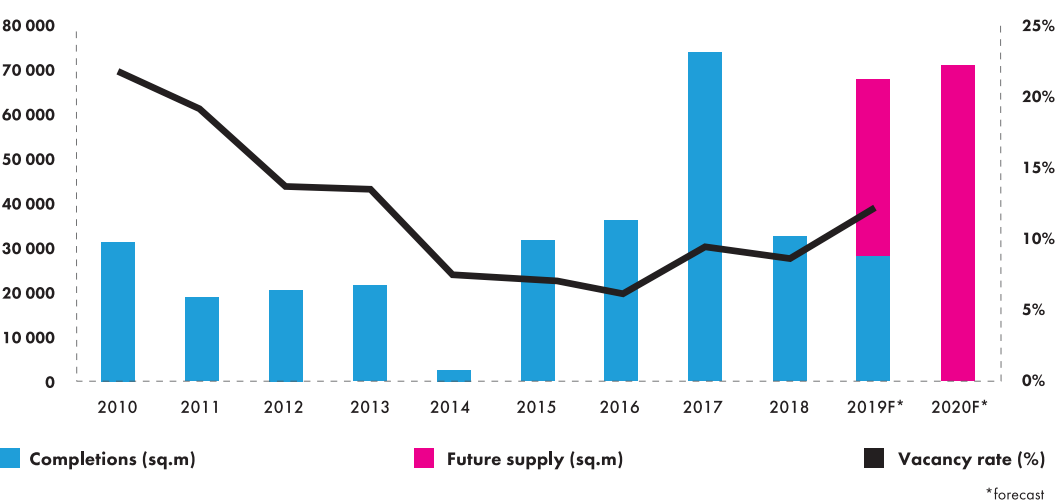
Changing demand for office space in Łódź since 2010

Source: JLL, Q2 2019



Completions and vacancy rate in Łódź since 2010

Source: JLL, Q2 2019



SELECTED MAJOR OFFICE DEVELOPMENT PROJECTS IN ŁÓDŹ

OFFICE BUILDINGS

- Existing / under construction
- Planned

OFFICE SPACE

- <1000 m²
- 1000 - 10 000 m²
- >10 000 m²

No	Name	Year of completion
01	Monopolis M1	2019
02	Brama Miasta	2020
03	Centrum Biznesowe Faktoria	2015
04	Cross Point B	2017
05	Hi Piotrkowska	2020
06	Imagine A	2019
07	Imagine B	2019
08	Kopcińskiego 79	2016
09	Łódź. Work	2019
10	Nowa Fabryczna A	2017
11	Nowa Fabryczna B	2017
12	Sepia Office	2019
13	Teal Office	2018
14	Office-Center.pl	2018
15	Piotrkowska 242/250	2020
16	Regus Fabryka Józefa Balle - biuro coworkingowe	2018
17	Stara Drukarnia	2019
18	Symetris Business Park I	2016
19	Symetris Business Park II	2017
20	Biurowiec Pomorska 65	2017
21	Business House	2019
22	Dowborczyków 30/34	2020
23	Kantor Fabryczny I.Poznańskiego	2020
24	Office R	2019
25	Ogrodowa Office	2018
26	CFI	2017
27	Słowiańska 1/9	2018
28	Telimena Office	2018
29	Przystanek mBank	2017
30	Forum 76	2009
31	Manufaktura Widzewska	2021
32	Monopolis M2	2021
33	Monopolis M3	b/d
34	Synergia budynek C II Faza	2020
35	The React	2021

The New Centre of Łódź — map of investment projects

Source: UMiL materials



Flagship projects in the New Centre of Łódź

The New Centre of Łódź has been enjoying increasing popularity and significance which is manifested in the amount of public realm investment and the effectiveness of the sale of property in the area. In the district, private investment projects are carried out next to the public ones, and there is also room for residential projects. The New Centre of Łódź is a long-term project, though the first effects of the scheme are already visible.

NOWA FABRYCZNA

“Nowa Fabryczna” was the first commercial building to be completed in the New Centre of Łódź. It is located right next to the Łódź Fabryczna Railway Station, in 31/37 Składowa Street. Completed in 2017, it offers 21.5 thousand square meters of usable floor area and may accommodate up to 2.5 thousand jobs. The building houses such companies as the Polish division of Cybercom, Whirlpool’s financial centre, McCormick EMEA Shared Services Centre as well as Fujitsu services centre. The company behind the project is Skanska

and the building was sold in 2018 for 52 million euro which only confirms the potential of Łódź’s commercial property market.



BRAMA MIASTA



“Brama Miasta” is a complex of office buildings in Kilińskiego Street, intended to form a city “gate” to those leaving the Łódź Fabryczna Railway Station, which is located right next to the project site.

Skanska is the investor and the investment cost is estimated at approx. 50 million euro. Building B (Stage I) was ready for use in Q2 2019 and offered 30 thousand square meters of Grade A office space. Building A (Stage II), which is set to be completed in Q2 2020, will add further 13,800 square meters of modern office space for rent. “Brama Miasta”, one of the most awaited buildings not only in the New Centre of Łódź area, but also in Łódź as a whole, is Skanska’s third project to be delivered in the city. The first one was “Green Horizon” and the second — another building in the New Centre of Łódź, “Nowa Fabryczna”. The buildings will accommodate approximately 10 thousand people in total.

“Brama Miasta” is a multi-functional space in the direct neighbourhood of the Łódź Fabryczna Railway Station. The purchase of the plot in 2015, for over 35 million zlotys, marked the symbolic beginning of large-scale property development projects in the region.



PRZYSTANEK MBANK

Another project offering office and commercial space is Ghelamco's "Przystanek mBank" completed in August 2017 which brought further 24 thousand square meters of modern office space to the market able to accommodate over two thousand persons.

The building cost PLN 100 million and it is now the headquarters of mBank. It is located in 74 Kilińskiego Street, right next to EC1. For the major lessee, the proximity of the Łódź Fabryczna Railway Station, offering train service to Warsaw, was one of the key factors determining the location of the building.

Source: UMK materials

NOWE SOHO

In 2016, Ghelamco bought the plot situated between EC1 and the railway station building, for a record-high price of 105 million złoty. The area is set to house office, commercial, residential and hotel facilities. The construction will start in 2020 and the complex will offer 100 thousand square meters of usable floor area.

Ghelamco's portfolio includes the construction of the "Warsaw Spire" complex and the European Square in Warsaw's Wola whose common areas are now used to house meetings and artistic events. Jeroen Van der Toolen, Ghelamco's CEE Managing Director, believes that the real estate in the New Centre of Łódź has an enormous potential for developing an equally attractive centre.



Nowe Soho Łódź visualisation

Source: Investor materials



CENTRUM BIUROWE FABRYCZNA

Fabryczna Office Center is a remarkable project developed in the very centre of Łódź by J.J.Invest.

The project of the building was prepared by the internationally renowned architects: MVRDV. The investment is planned to be constructed at Kilińskiego str. 59/63 and this 13-storey building will offer approx. 27 000. sqm of office space and another approx. 4 000 sqm of retail and services space. Construction works was planned for 2020.

TARGOWA 2

Another international real estate developer to have invested in Łódź is HB Reavis, which has bought the land in 2 Targowa Street from Enkev.

The site is set to house an office complex of approx. 30 thousand square meters with shops and services open to the public on the ground floors and a pedestrian-friendly area. Three historic buildings on the site, including a post-industrial chimney and a two-storey building with an Italian Renaissance attic, are there to stay. They are set to be renovated and to become an integral part of the project. This would be the second investment project to be completed by HB Reavis in Poland outside Warsaw.

Residential projects

The New Centre of Łódź is intended not only to be an office district, but to combine public, cultural and primarily residential functions.

The Primo estate is the first residential property development to be delivered in the New Centre of Łódź by Profbud. It is being constructed at the junction of Tramwajowa and Węglowa Streets, in a close proximity of the Nowa Fabryczna Office. The first stage of the project is slated for completion in Q4 2019.

Another residential project to be delivered in the New Centre of Łódź, “Perła Śródmieścia”, is carried out by Samson-Dom. The building is located opposite Sienkiewicza Park in 32 Tuwima Street, close to the new railway station. It will be home to 45 flats and its completion is also expected in Q4 2019.

48 Tuwima Street is set to house a property development project “Wiszące Ogrody” — a building with 39 flats of various sizes and layouts. The plans include 445 square meters of rooftop gardens covering the inner part of the real estate, accessible from the last, third storey.

At the end of 2015, Bank Gospodarstwa Krajowego bought an 806-square-meter site in 38/40 Składowa Street for 1.3 million zlotys, with the intention to develop a housing estate, right next to office buildings and the University of Łódź, with apartments offered through the government housing scheme.

Public realm investment

EC1 Complex



One of the major sites in the centre of Łódź is the complex of buildings of the former Łódź power plant, now home to cultural institution EC1 Łódź — City of Culture. The renovated and expanded EC1 complex is a cultural, arts and education venue and one of the first facilities of the New Centre of Łódź.

It houses also a library, gallery, recording studio, offices of cultural institutions, and conference rooms. However, the main point of interest is EC1 Centre for Science and Technology featuring a spherical 3D cinema — Łódź’s equivalent of the Warsaw’s Copernicus Science Centre — which attracts thousands of tourists. The old systems and equipment still in place, combined with new means of presentation, help learn about science and energy conversion. The usable floor area of the building, which was completed in 2013, is approximately 28 thousand square meters. The renovation of EC1 East cost 63 million zlotys.

The year 2016 saw the launch of the EC1 East’s planetarium — Poland’s most advanced facility of its kind and one of the most modern planetariums in Europe, every year visited by nearly 150 thousand people.

Since March 2016 EC1 has been also home to the division of the Centre for Comics and Interactive Narration, which is set to be located in EC1 South-East. The value of the project is 21.7 million zlotys.

Furthermore, as of 2020 EC1 is slated to launch a Kids Zone bringing the idea of education in motion to life.



Kobro Square

Kobro Square is intended as a public site to host large open-air events. It is the New Centre of Łódź’s most important public space of over five thousand square meters, located between the EC1 heat and power plant and the Łódź Fabryczna Railway Station. The area underneath the square has been equipped with all infrastructure necessary to organise open-air events, such as control and dressing rooms. The site includes also a three-storey underground car park with 311 spaces and an underground street which is set to link EC1, the railway station and neighbouring office buildings. The project is set to cost approximately PLN 120 million and be ready by 2022.



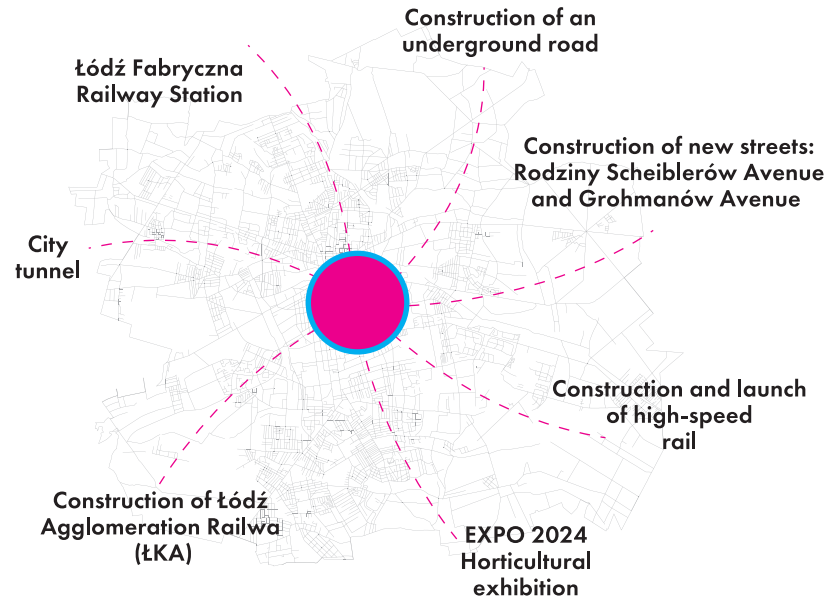
Infrastructure investments of key importance to the New Centre of Łódź

The central location of the New Centre of Łódź undoubtedly contributes to the successful development of this thriving district. Its area is set to benefit from a series of road investment projects to improve the traffic flow to and around NCL.

Construction of an underground road linking Łódź Fabryczna with the EC1 facilities is one of the key investment projects which boost the appeal of the New Centre of Łódź. Its objective is to ensure convenient and free-flowing traffic to the investment sites located between the facilities without any interference in the above-ground area.

Construction of the Nowowęglowa Street, which is an extension of the Grohmanów Avenue, is set to improve the accessibility of the Łódź Fabryczna Railway Station. An equally important project was the construction of the Rodziny Scheiblerów Avenue leading right to the Łódź Fabryczna car park.

The list of broadly understood infrastructure investment projects, completed and planned, which spur the growth of this part of the city includes:



2024 EXPO Horticultural and the New Centre of Łódź

Hosting of the 2024 EXPO Horticultural, in close proximity of the New Centre of Łódź, will help promote this part of the city and broaden its entertainment offering. Investments will boost the attractiveness of the nearby areas and improve the quality of living for the city residents. The exit from the Łódź Fabryczna Railway Station will be located right next to the exhibition site, which is a globally unique arrangement.

Hosting a world-class fair such as the Horticultural exhibition will help strengthen Poland's position of a rapidly developing country and Łódź's position of an economic leader and thus attract the interest of investors and sponsors. The development of social and transport infrastructure and green spaces, accompanying the hosting of the exhibition, will encourage further development and promotion of the New Centre of Łódź located in the immediate neighbourhood of the fair. The location of the fair will enhance the prestige and significance of the district in the city and the country as a whole making the New Centre of Łódź not only an ideal site for businesses, but also a resident-friendly area.

A large space abundant with greenery, located in the centre of Łódź, will improve the comfort of living providing an accessible and appealing place to rest and relax. Local authorities are now all for modern, green solutions and the hosting of the Horticultural exhibition is a proof of that. In response to the growing awareness of environmental issues, in 2019 the City of Łódź established a Department for the Environment and the Climate. The proximity of the fair makes the New Centre of Łódź an attractive location whereas the green space ensures a place to relax in an easily accessible central location. For business people, the closeness to green spaces helps improve the working conditions and is an encouragement to introduce environmen-

tally-friendly solutions in the office.

One of the entrances to the fair will be located in the New Centre of Łódź. Direct transport links with many cities in Poland, ensured by the city tunnel and the modern Łódź Fabryczna Railway Station, should attract many tourists. The New Centre of Łódź and the exhibition area are complementary, despite different urban functions, and have a positive impact on each other.

Urban revitalization programme in the New Centre of Łódź

Łódź's urban revitalization programme is complementary to the development of the New Centre of Łódź which houses the historic building of the EC1 power plant, a model example of the new approach to the urban space, which is now home to the Centre for Science and Technology and a state-of-the-art planetarium. The urban revitalization programme is the City's strategic scheme and an impulse for large scale changes. The programme will benefit also the adjacent areas, such as the New Centre of Łódź.

Revitalization is not only about renovation and modernisation. The purpose of revitalization is to revive parts of the city which have fallen into decline by altering their functions and by working with the local community to help solve its problems. Improving property and developing public space create the most spectacular effects, however, revitalization understood as stimulation of the local community is a long and laborious process. To make it a success, one needs to engage residents, local authorities, cultural and educational institutions, universities, business and NGOs.

In Poland and throughout the world there have been numerous projects to revitalize not only single buildings, but whole districts and quarters. Revitalization schemes deliver measurable (not only financial) benefits to the city and to the

investor. This has been the case of Łódź's Manufaktura and Warsaw's Koneser the redevelopment of which helped revive the neighbourhood, attract new residents and employers as well as significantly increase the value of the property. This way the outlays required to redevelop the area paid off generating higher returns or higher rent.

The urban revitalization programme for Łódź has identified eight major quarters. Those relating directly to the New Centre of Łódź include:

Revitalization of the urban space in 3 and 5 Moniuszki Street and 10 Tuwima Street.

A project to open the Piotrkowska, Tuwima, Moniuszki and Sienkiewicza Streets quarter, by constructing a road linking Tuwima and Moniuszki Streets. It includes restoration of the buildings in 3 and 5 Moniuszki Street and reconstruction of the buildings in 10 Tuwima Street.

iProject "2" — Urban Revitalization of the Centre of Łódź — to redevelop the surroundings of Traugutta Street.

The work is set to be carried out on three streets: Traugutta, Sienkiewicza and Kilińskiego and will result in new impressive green space and street furniture. The project is set for completion in Q2 2020.



The existing buildings will be renovated and some of them are set to house offices and retail and service premises for businesses — there will be 57 new offices and 19 new retail and service premises in 77 Piotrkowska Street, 22 and 26 Sienkiewicza Street as well as 4 and 12 Narutowicza Street. Some of the projects are slated for completion in Q3 and Q4 2019. The area is located in the New Centre of Łódź — renovated buildings and streets will improve the living standards for the residents, boost the appearance of the city centre and maintain the historic qualities of the area.



Project "3" — Urban Revitalization of the Centre of Łódź.

The project is set to include regeneration of the neighbourhood of the Łódź Fabryczna Railway Station and Moniuszki Park. The projects include a thorough renovation of the stretch of Tuwima Street between Kilińskiego and Targowa Streets. The work is set to complete in Q3 2019.

Four buildings in Tuwima Street (nos 33, 35, 46 and 52) will also be renovated to house council flats, retail premises and ateliers. Moniuszki Park is undergoing restoration to become more attractive to the residents of Łódź and to form a green entrance to the Łódź Fabryczna Railway Station. It will include new alleys, a playground as well as benches, game tables and lighting. The project is expected to be completed in Q3 2019.

Greening projects in the area assume the development of public pocket parks, featuring playgrounds, fence, Wi-Fi and bicycle racks to appear in 40 Kilińskiego Street and at the corner of Narutowicza and Kilińskiego Streets.

All these changes will further boost the appeal of the New Centre of Łódź — renovated buildings will attract new residents and businesses and will reinvigorate the district.

Project "5" — Urban Revitalization of the Centre of Łódź.

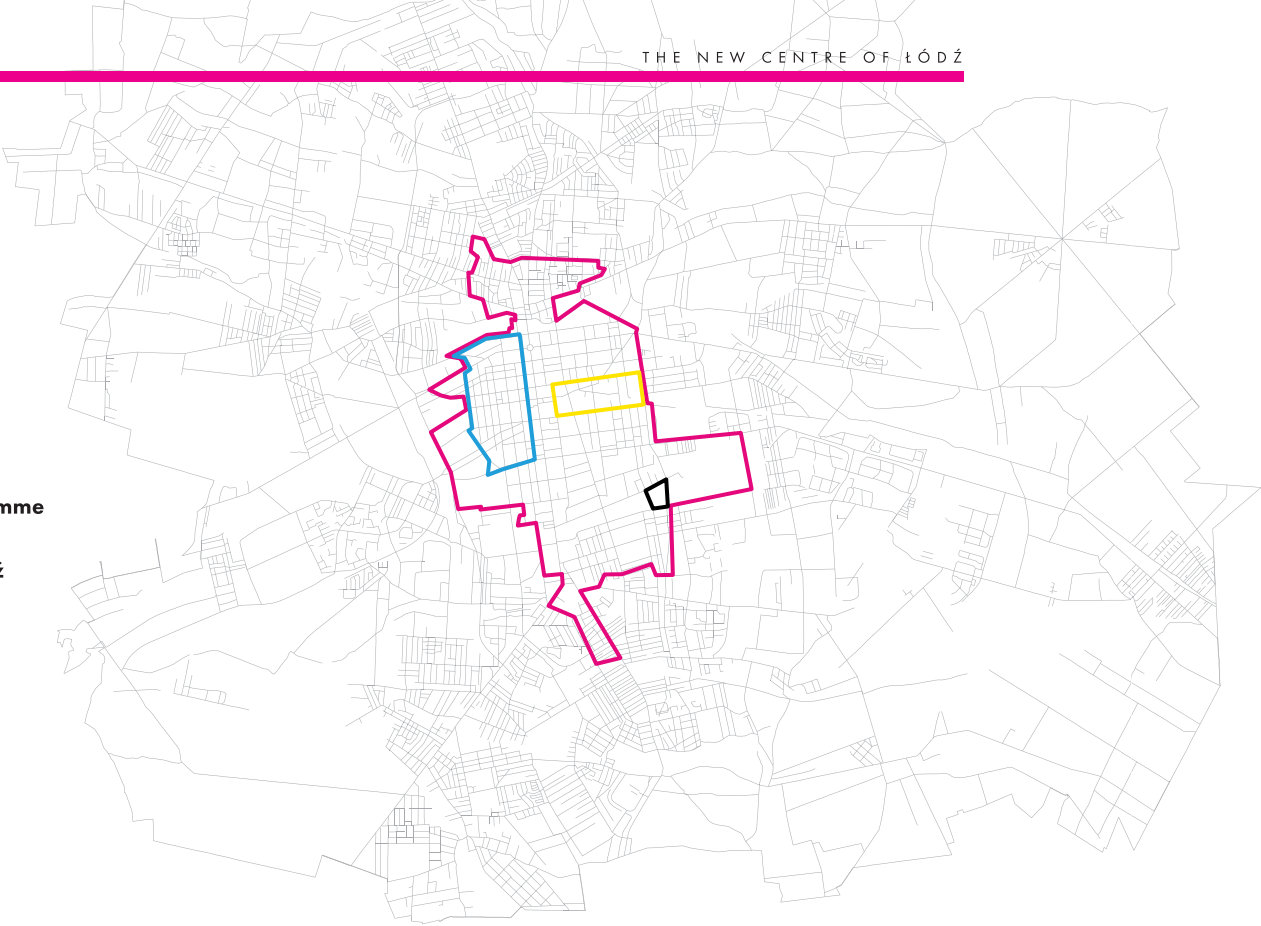
The area to be developed is located in the neighbourhood of the New Centre of Łódź. The work is set to include renovation of Sienkiewicza Park: construction of alleys, a playground, new plants and trees and restoration of a fountain.

Another greening project is the development of leisure and recreation facilities in the southern part of the Komuny Paryskiej Square. Other works are set to include renovation of buildings in Piotrkowska and Sienkiewicza Streets which will house retail and service premises and council flats.

As a result of the work, the neighbouring areas of the New Centre of Łódź will become more attractive and the quality of living will improve. At the same time, the areas which are not part of the New Centre of Łódź will no longer lag behind and will together form an elegant and cohesive city centre.



- Revitalized area
- Zielone Polesie programme
- The New Centre of Łódź
- Księży Młyn



The New Centre of Łódź – a connection between revitalization schemes and the 2024 EXPO

The area of the New Centre of Łódź forms a connection between the quarters included in the programme of Urban Revitalization of the Centre of Łódź and the areas set to host the 2024 exhibition. Both projects bring about a significant improvement to the quality of the area surrounding the business and cultural district which is being developed. Large scale infrastructure investments contribute to the development of the area and bring

about social changes. Engaging the residents and spurring them into action, creating a sense of belonging and responsibility for the surrounding area are among the major factors in the success of the restoration of the urban structures. This has a direct impact on boosting the attractiveness of the New Centre of Łódź and its immediate surroundings, not only as an office district, but also as a place to live.

A well-developed transport network (Łódź Fabryczna Railway Station, Łódź “underground”, transport system in the city and the surrounding areas, new roads), close proximity to Piotrkowska Street (the stately street of Łódź) and parks (Sienkie-

wicza, Moniuszki) make the New Centre of Łódź the most attractive area in the city surrounded by a range of new investment projects and green space in the very heart of Łódź.

Hosting the EXPO Horticultural 2024 in Łódź brings a number of economic, marketing, social, cultural and educational advantages to Poland globally, to Łódź as the host city and to the New Centre of Łódź as the new business district located right next to the exhibition site. The 2024 exhibition is scheduled to last five months. The value of the project is estimated at approximately 100 million euro and it may attract as many as four million visitors spurring further investment in the area.

The advantage to Łódź and to the New Centre of Łódź will be: more interest from investors and sponsors, new know-how and greater significance of the Polish business in foreign markets. It is also an excellent opportunity to present the successes of the city and the country, develop a global brand and foster business, social and academic relationships with other cities.

Summary

The New Centre of Łódź is an attractive space combining residential, business, commercial, transport and cultural functions. The focal point of the New Centre of Łódź is the underground railway station Łódź Fabryczna which is ultimately set to become a national multimodal transport node, combining rail and road transport, including buses, cars and city transport.

The railway station will have transport links with other parts of the city, such as Łódź Kaliska and Łódź Żabieniec stations, thanks to the city tunnel set to form a convenient train connection within the city. This way the Łódź rail hub will be cleared and the New Centre of Łódź will become easily accessible from other parts of the city and from the suburbs which use the services of the Łódź Agglomeration Railway (ŁKA).

A good transport network attracts further office development projects and thus the New Centre of Łódź is the site of a series of private property development projects, both office and residential. Surely, this new district of Łódź will hold strong appeal to the persons who live and work in the area. Once the journey time from Warsaw is cut to the intended 40 minutes, the New Centre of Łódź may become a realistic alternative to Warsaw’s more distant residential districts.



ŁÓDŹ—WARSAW — A SHARED GOAL

1 Łódź is a city which keeps developing, but which remains in the shadow of Warsaw. There is huge potential to be unlocked by collaboration between Łódź and Warsaw and by providing a complementary offer to that of the capital.

2 The differences in the costs of living in the two cities, manifested also in the cost to buy or rent a property, remain considerable and make Łódź an attractive place to live and work, provided that the job offering is appealing. As far as investors are concerned, this is an interesting perspective in terms of the costs of employment.

3 The idea of Warsaw-Łódź duopolis can be successfully put into practice. One example is mBank, one of the biggest banks in Poland, which operates and develops its structures in both cities.

4 Such division of functions and structures may be copied by other companies which operate on a similarly large scale.



DUOPOLIS — SUCCESS FACTORS

Transport network

As far as fast and convenient transport links between the cities are concerned, Łódź and Warsaw meet the expectations of a successful duopolis. The journey time between the centres of both cities by train is approximately 75 minutes and the infrastructure is going through modernisation. However, the key is the high-speed rail scheme combined with the development of STH and cutting the journey time to approximately 40 minutes.

The strategy for the development of the duopolis provides also for the use of a variety of transport means. With the A2 motorway the journey between the cities takes from one to one and a half hour. The cities are well aware of the expectations that the quality of the road and its capacity will be improved. Therefore in 2021 the road is set to start undergoing modernisation so that more traffic lanes are added. Convenient links with the capital are a huge asset, specifically when it comes to boosting the appeal of the city's office market.

Modern business centre

The New Centre of Łódź is a modern district in the city centre with offices, residential estates, retail and service premises and cultural establishments. Its heart is the modern Łódź Fabryczna Railway Station offering direct trains to Warsaw and destinations in the Łódź urban area. Once the intended city tunnel is ready, the station will gain access to the railway lines to cities in Poland and Europe and will become one of the major intermodal national hubs.

The New Centre of Łódź is coupled with Warsaw. It offers modern office buildings developed by international companies (e.g. Skanska, Ghelamco, HB Reavis). Presently, further 100 thousand square meters of commercial space is either under construction or planned. New investment projects and the rapid development of the district harmonise with the rich history of the area — regeneration schemes are a way to keep the spirit of the place alive and at the same time improve the quality of the surroundings.

Cost efficiency

The main differences lie in the costs of employment, renting costs and the competition. As far as the business services sector is concerned, there are still differences in salaries between Łódź and Warsaw, though not as noticeable as before.

The rent in office buildings in Łódź is very competitive. In Q2 2019, the rates in the city centre varied from 12 to 14 euro per square meter a month, whereas in Warsaw, in the Central Business District (the city centre) it was 20.5–24 euro per square meter a month. Outside the city centre, the average rent in Warsaw was approx. 11–15 euro per square meter a month and in Służewiec Przemysłowy (Domaniewska Street and the surrounding area) a square meter of Grade A office space cost 12–14.5 euro a month.

The Łódź—Warsaw duopolis, offering a lower cost alternative for investors, excellent logistics, availability of workforce and office space, generates a functional synergy. Due to cost efficiencies, companies are eager to locate their back office functions in Łódź, while the headquarters (front office) remain in the capital. This is how mBank now operates, hiring approx. two thousand people in Łódź.

Human Resources

Łódź is one of the major academic centres in Poland. The city is home to 19 higher education institutions and 30 research and development units. Every year there are approximately 20 thousand new graduates who enter the job market.

Łódź has realised that its potential lies in developing the business services sector. These are mainly financial and accounting, human resource and IT services. This process has accelerated, thanks to the development and modernisation of the road and rail infrastructure.

Complementary offering of the cities

The key reason supporting the collaboration is the cities' joint offering:

- in services: front office (Warsaw) and back office (Łódź)
- in industry: management and headquarters (Warsaw); R&D and IT (Łódź)
- in logistics: management (Warsaw); investment sites (Łódź and its surrounding areas).

An effective duopolis also involves a shared cultural, entertainment and educational policy and collaboration at all levels.

Comparison of the economic profiles of Łódź and Warsaw

For the duopolis to operate effectively, there must be a well-developed transport infrastructure and a complementary offering to businesses, employees and residents.

Łódź: Poland’s third largest city which has been moving up in rankings for economy. It is the capital of one of the most sought for regions among investors looking for new sites for their projects. Favourable economic conditions are driven by the central location of the city, the investment projects that are in progress and a well-developed transport infrastructure which translates into great opportunities to develop business. Sectors with the biggest presence in the city are now: BPO, SSC, IT, logistics and production.

Warszawa: the capital city and the heart of Central and Eastern Europe; Poland’s largest and most developed city (a well-developed infrastructure, home to headquarters of many well-known firms) whose location helps establish relationships with other cities in Poland and in Europe (Prague, Berlin and Brussels). It is also a big academic centre with approx. 240 thousand students a year. Warsaw is Poland’s leading financial and banking centre with a number of firms operating in the BPO, SSC and IT sectors.

Łódź and Warsaw business districts comparison - economic data

	Łódź (Łódzkie Voivodeship)	Warsaw (Mazowieckie Voivodeship)
Labour market indicators — region (Statistics Poland — July 2019)	1) 2,466,322 2) 5.6 percent 3) 357 thousand 4) 4,699.48 zlotys	1) 5,403,412 2) 4.5 percent 3) 1,526 thousand 4) 6,036.91 zlotys
Labour market indicators — Łódź (Statistics Poland — July 2019)	1) 685,285 2) 5.2 percent 3) 137.7 thousand 4) 4,874 zlotys	1) 1,777,972 2) 1.4 percent 3) 1,081 thousand 4) 6,393 zlotys
Number of business centres — Q1 2018	85	238
Number of jobs in the business services sector — 2018	23,200	56,300
Development plans — cities identified as potential locations for new investments in 2018	15 percent of investors consider Łódź as the potential site of new investments in 2018	30 percent of investors consider Warsaw as the potential site of new investments in 2018
Real estate market (Q2 2019, JLL)	1) 496,700 square meters 2) 117,300 square meters 3) 82 4) 12–14 euro/square meter/month 5) 12.1 percent	1) 5,543,700 square meters 2) 743,000 square meters 3) 523 4) 20.5–24 euro/square meter/month (CBD) and 11–15 euro/square meter/month outside the centre 5) 8.5 percent
Future availability of staff (2019)	• 19 • Higher education institutions: • Number of students: • Number of graduates: - Engineering studies: - Financial studies: - IT studies: - Linguistic studies:	• 63 • 235,875 • 61,674 - 22,945 - 25,222 - 16,017 - 9,314

Source: Antal — Investment potential of Łódź 2019 and Investment potential of Warsaw 2019.

Salary differences in the SSC/BPO/ITC sectors — ANTAL’s 2018 report

	Łódź		Warsaw		Percentage difference	
SSC/BPO	min	max	min	max	% min	% max
GL Accountant (2–3 years of experience)	6 000	8 000	7 500	9 000	25%	13%
GL Team Leader (team of 5–15 persons)	7 500	13 000	10 000	15 000	33%	15%
AP/AR Accountant (2–3 years of experience)	4 200	6 500	5 500	7 000	31%	8%
AP/AR Team Leader (team of 5–15 persons)	7 500	11 000	9 000	12 000	20%	9%
CS Junior Specialist (no experience)	3 000	4 500	3 500	5 500	17%	22%
CS Team Leader (team of 5–15 persons)	5 500	8 500	7 000	10 000	27%	18%
Payroll Specialist (1–3 years of experience)	5 500	7 000	5 500	7 000	0%	0%
Payroll Team Leader (team of 5–15 persons)	8 000	13 000	9 500	15 000	19%	15%
IT	min	max	min	max	% min	% max
1st Line Support (2 years of experience)	3 500	5 800	4 000	6 000	14%	3%
IT Administrator (3 years of experience)	6 000	11 000	7 500	13 000	25%	18%
Business / System Analyst (3 years of experience)	7 000	12 000	9 500	15 000	36%	25%
Developer (3 years of experience)	7 000	14 000	10 000	17 500	43%	25%
Tester (3 years of experience)	6 000	11 000	7 000	13 000	17%	18%
Team Leader (team of 5–15 persons)	8 000	17 000	10 000	19 000	25%	12%

Though the pay gap is narrowing, it is still there. The average gross pay in the corporate sector in Łódź is approx. 1,500 zlotys lower which remains a significant amount. However, as far as the modern BPO, SSC and IT sectors are concerned, the differences are becoming less marked and the pay for certain positions is at a similar level. This means that the importance of the above industries in regional cities such as Łódź is increasing, as although income may be comparable, the costs of living in smaller locations are much lower.

Sample goods and services

	Łódź	Warszawa
Prices of flats in the primary market per square meter ¹	5,853 zlotys	8,932 zlotys
Prices of flats in the secondary market per square meter ¹	4,596 zlotys	8,609 zlotys
Average monthly cost to rent a 60-90 square meter flat ²	2,338 zlotys	4,495 zlotys
Monthly cost to rent a room in a student hall of residence ³	350 zlotys	450 zlotys
Cost of a monthly public transport pass for an adult, no discount, zone 1, if there are zones	90 zlotys	110 zlotys

Source: 1) House prices database, National Bank of Poland, Q2 2019, 2) Average rental rates in selected cities in August 2019, Report by Bankier.pl, 3) Report by the Polish Bank Association “Portfel Studenta” (October 2018) and Deloitte analysis.

A comparison of a sample of selected goods and services clearly shows that the costs of living in Łódź are lower compared to Warsaw — on average from 40 percent lower (in case of properties from the primary market to 50 percent lower (in case of properties from the secondary market).

w PL wersji 0,83 i 0,72

The average price to rent a flat in Łódź is over 40 percent lower than in the capital. This means that when salaries are at comparable levels, the purchasing power of money in Łódź is higher than in Warsaw, which translates into the quality of living for the residents. The difference is clearly visible when it comes to buying property. In Łódź an average salary can buy 0.83 square meters of property and in Warsaw — only 0.72 square meters.

As far as the cost to rent a room in a student hall of residence is concerned, it is on average 78 percent of that in Warsaw. A zone-one adult travel card, with no discount, is 19 percent cheaper in Łódź.

The New Centre of Łódź and Służewiec Office Area

A certain point of reference for the New Centre of Łódź is the business district located in Warsaw’s Służewiec in the area of Domaniewska Street.

The difference between the companies operating in the BPO, SSC and ITC sectors in Warsaw and in Łódź is significant. However, Łódź may provide a complementary offering which will serve as a lower cost alternative for companies which will opt for the front office — back office formula and derive benefits from the emerging duopolis.

A comparison of the New Centre of Łódź and the business district located in the Domaniewska Street area in Warsaw in terms of business services shows certain similarities. They are both home to companies operating in the BPO, SSC and ICT sectors which provide them with growth opportunities. The New Centre of Łódź, which is still developing and has approximately ten times less office area, has already attracted several international companies which decided to locate there. This is evidence of the potential the New Centre of Łódź holds and its assets (such as an excellent transport network and competitive rent). A close look at the New Centre of Łódź and the Warsaw Domaniewska Street business district shows that right from the beginning the former was designed based on a Master Plan for the entire 100 ha. This means that chances of creating a well-balanced and user-friendly urban space are high.

Łódź and Warsaw comparison

	The New Centre of Łódź	Służewiec Office Area
Location	An area located in the very centre of Łódź, near the Łódź Fabryczna Railway Station	An area located in Warsaw Służewiec, some seven kilometres away from the city centre
Approximate travel time using public transport from the centre of Warsaw in peak hours	1 hour and 10 minutes	40 minutes
Number of employees (estimated)	approx. 4,500	approx.100,000
Office space	Approx. 75,000 square meters (Q1 2020; source: Deloitte) (approx. 140,000 square meters in the pipeline)	Approx. 1,100,000 square meters (Q1 2019; source: Knight Frank)
Average pay in the city, SSC/BPO	5,000 – 7,000 zlotys	6,000 – 8,000 zlotys
Business processes	Accounting, HR & Payroll, Banking, Customer service	Accounting, HR & Payroll, Banking, Customer service, Logistics

Source: Antal, December 2018

Selected SSC/BPO/ICT companies located in the New Centre of Łódź and the Domaniewska Street area

The New Centre of Łódź	Służewiec Office Area
1. ADAPTIVE SOLUTIONS & ADVISORY GROUP	1. 7N
2. CYBERCOM	2. BNP PARIBAS SECURITIES SERVICES
3. FUJITSU	3. DAIKIN
4. BSH	4. DSV INTERNATIONAL SHARED SERVICES
5. BFF Banking Group	5. F5 NETWORKS
6. WHIRPOOL	6. HICRON
7. MCCORMICK SHARED SERVICES	7. INTIVE
	8. LINGARO
	9. MONEYGRAM PAYMENT SYSTEMS POLAND
	10. NOKIA SOLUTIONS AND NETWORKS
	11. NATIONAL WESTMINSTER BANK (RBS)
	12. PANDORA SHARED SERVICES
	13. PROSERVICE FINTECO
	14. ROCHE GLOBAL IT SOLUTION CENTRE
	15. SCHNEIDER ELECTRIC
	16. TELEPERFORMANCE
	17. T-MOBILE EPC SHARED SERVICE CENTER
	18. UNICREDIT SERVICES
	19. ZOETIS POLSKA

Source: Deloitte analysis based on Antal and publicly available data

The assets of the New Centre of Łódź and the room for development allow one to conclude that the Łódź district is gradually becoming competition for Warsaw and an actual alternative for business service providers operating in the Domaniewska area in Warsaw.

The projects located in the New Centre of Łódź carry much more significance to the city than those in the Domaniewska district in Warsaw — this is manifested in the average pay which in the business service sector is considerably higher than the average for Łódź. There are also significant differences in terms of the numbers of new jobs as — due to the demographic differences between the cities — the impact of a potential new project on the city is markedly different. In Warsaw one thousand new jobs accounts for less than 0.6 per mille of the city population whereas in Łódź it will be 2.5 times more (approx. 1.5 per mille of the city population). Therefore, every next office development project is much more important for Łódź than it is for Warsaw and its job market. Considering the economic factors, such as the unemployment rates (1.4 percent in Warsaw and 5.2 percent in Łódź), it is clear that a new employer in the Łódź labour market may have a significant impact on the way the city functions and therefore becomes an important partner in all talks with Łódź authorities and public institutions.

The rent for a Grade A office in Łódź and in the Domaniewska Street area in Warsaw is now (Q2 2019) at a similar level of 12–14 euro per square meter a month. However, the costs of living in Łódź are lower than in Warsaw and it is easier to buy or rent property in a convenient location. A smaller city means also a more peaceful life which more and more people are starting to notice and appreciate.

The New Centre of Łódź, a district designed from scratch, providing access to

green space and appropriate transport network, managed to avoid traffic problems. The New Centre of Łódź offers fast public transport and ultimately railway links to other city districts (Łódź Agglomeration Railway) and immediate proximity of the green space set to host the Horticultural exhibition. Clearly, the district has more to offer in terms of lower costs and higher quality of life — with better transport links and access to green space, theatres and cinema, restaurants and entertainment venues which the Domaniewska Street business district lacks.

Łódź – an investor-friendly city

Łódź is a very good partner of business entities which decide to invest in the city and it undertakes numerous initiatives aimed to help entrepreneurs solve their problems. One of such initiatives is the student activation programme, which has been designed to facilitate meetings with employers (“Meet the Employers in Łódź”), launch marketing campaigns at universities or encourage young graduates to build their career in the city (“Młodzi w Łodzi”). Aware of the importance of alliances between high-level educational institutions and enterprises, the city has been organizing and sponsoring training courses aimed to familiarize both students and lecturers with the idea and forms of such partnerships.

The City of Łódź has appropriate organizational units that provide support in the recruitment of employees and presentation of employers to students, also by means of initiatives that encourage young people to study, work and live in Łódź.

Łódź is a pro-active city, offering a wide range of credits and incentives for prospective investors, who may expect:

- The availability of the all-Poland tax incentive programme covering new investment projects under the Act on Supporting New Investment, with attractive terms offered for the Łódzkie Voivodeship. The support may take the form of an exemption from corporate or personal income tax that may be claimed by entrepreneurs launching new investment projects (also related to SSCs) within the territory of the city or the Łódzkie Voivodeship — under decisions issued in the Special Economic Zone of Łódź once the necessary conditions have been satisfied. Investors may receive state aid in the form of an exemption from corporate or personal income tax at a rate depending primarily on the amount of the investment. The actual support will depend on the entity’s size and may represent even 55 percent of eligible costs in the case a small enterprise). An obvious advantage of the Special Economic Zone (SEZ) of Łódź over the solutions made available and changes introduced under the Act on Supporting New Investment in Poland of 10 May 2018 (Journal of Laws of 2018, item 1162) is the fact that the city already has an existing and well-developed transport infrastructure network which facilitates access to the zone, offers investment support provided by the City of Łódź and frequently the availability of land with existing utilities. The introduction of the Polish Investment Zone in the new perspective entails changes in the functioning of Special Economic Zones, for instance through their extension over the entire territory of the country.

- An exemption from real estate tax, allowed by the municipal authorities.
- Benefits offered by the programme of support for investment projects which are a priority for the Polish economy between 2011 and 2030.
- Recruitment support tools offered by the local government’s Employment Office.
- Other incentives for investors — support in procedural matters (“fast track”), a dedicated investment support manager assigned to each investment process to provide assistance with any formalities and cooperate directly with the City of Łódź as well as support in the investor’s employer branding initiatives on the job market.

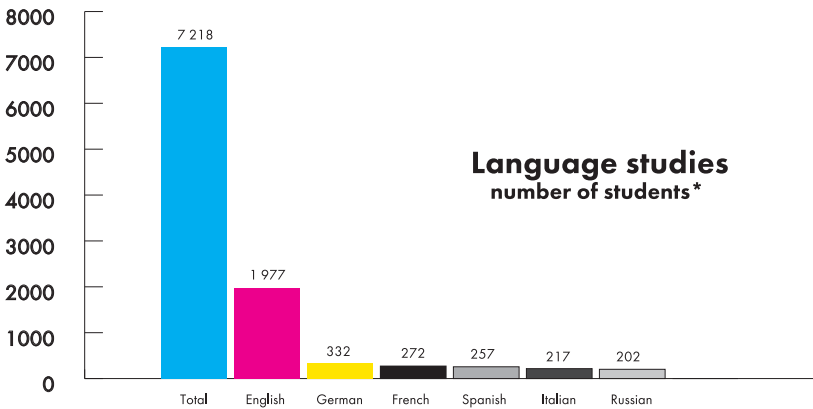
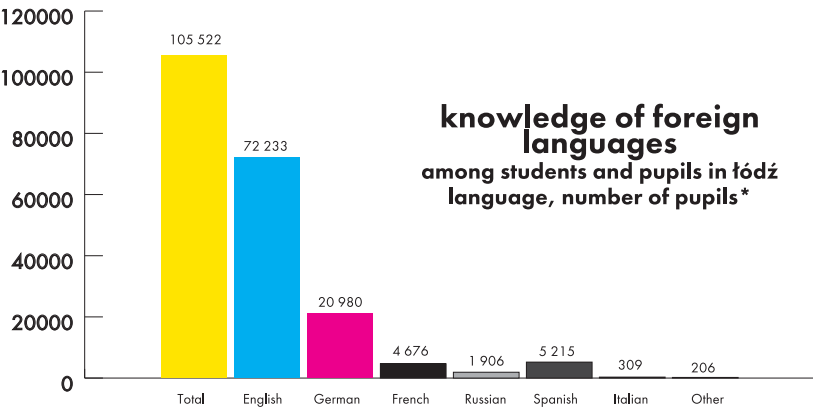
In 2018, the Special Economic Zone of Łódź attracted 30 new investors, which translates into 1.5 billion zlotys of declared capital expenditure and 800 new jobs. For comparison, in 2017 the number of new investment projects was 26 and their total value was 1.3 million zlotys. It is one of the most thriving economic zones in Poland. In the prestigious ranking prepared by the fDi Magazine in 2019, the Special Economic Zone of Łódź topped the list of the best SEZs for the SME sector, in addition to being recognized as the second best in Europe and eighth worldwide. It has attracted a wide range of household appliance manufacturers operating in Poland, which has translated into the creation of 6,000 jobs in the region by such employers as Miele, Whirlpool or the BSH Group.

The innovative Special Economic Zone of Łódź is the first one to introduce the 5G technology in the plants of its investors. What is more, the Automation and Robotics Technical College, first and only in Poland, was opened in September 2019 in cooperation with Ceramika Tubądzin, Delia Cosmetics and Miele

Technika. The college has been recognized as an experimental school by the Ministry of National Education and the graduates will be granted the title of an automation and robotics technician. Additionally, the Special Economic Zone of Łódź has launched a number of recognized initiatives, including the Strefa Rozwoju programme offering vouchers and training to business entities, which is sponsored by the European Union, and Startup Spark — an accelerator designed to enable the sharing of experiences and connecting young entrepreneurs with international corporations (to include Ericsson, Procter&Gamble, Siemens as well as such Polish companies as Indigo Nails, Ceramika Paradyż or Bluerank). The number of start-ups participating in the latest edition of Startup Spark 2018 was 66 and the support value was 16 million zlotys

Availability of staff

Research shows that residents of Łódź know foreign languages. There are now over seven thousand students of languages.



Source: Łódzki Informator Gospodarczy 2019 (UMŁ, as of 31st December 2018)*

Duopolis — assessment of capabilities

Collaboration between Łódź and Warsaw seems inevitable and in the next few years we may witness the beginning of a multifaceted and close partnership between two large cities which together attract investors and cooperate at various levels. The proximity of the two cities and the rapid growth of the road and rail infrastructure will facilitate convenient business trips and every-day commuting in both directions. Łódź’s offering — with high-quality office space at competitive prices, good transport links, availability of workforce, lower salary levels and costs to rent — may become complementary to that of Warsaw.

The collaboration between the two cities has strong appeal to the representatives of the BPO, SSC and R&D industries. Investors who wish to locate their business in central Poland have not one, but two large cities to choose from, and their joint offering may become one of the most attractive offers in the CEE region. The Łódź — Warsaw duopolis may become one of the biggest business centres in Central and Eastern Europe. With comprehensive and versatile business service offering, multilingual customer services, financial and accounting and HR processes, financial analyses, and IT-supported research and development the duopolis responds to the majority of the needs of investors and ensures excellent logistics. Thanks to such form of collaboration between cities Łódź can be seen in a totally new light as part of a powerful urban area.

With the costs of employment and the costs to rent office space in Łódź still lower and the cultural and educational offering increasingly attractive, the duopolis may not only be an interesting idea, but also an actual alternative for employers.

The duopolis may not only help unlock Łódź’s potential, but also aid further

economic growth of Warsaw. The synergy benefits to be gained from the collaboration attract investors interested in locating their businesses in Central and Eastern Europe. This collaboration will be beneficial to businesses, able to cut their operating expenses and gain better access to qualified staff, and to employees who will be able to manage their costs of living through working at the duopolis.

New investment projects in the Łódź — Warsaw region are also an opportunity for the tourist industry, hotels, restaurants and cultural establishments. Furthermore, the duopolis and the rich educational offer of its universities as well as the interest in direct cooperation with businesses, e.g. help in recruiting staff and ensuring that future employees are well prepared to take up jobs, provides good conditions for the development of business. The location of the Łódź — Warsaw duopolis in the very heart of Central and Eastern Europe provides also opportunities for development of transit (logistics and warehouse industry) additionally supported by the intended Solidarity Transport Hub and the so-called Belt and Road Initiative. The Belt and Road Initiative is a strategy to reinstate the economic exchange between China, Far East and Europe which flourished centuries ago covering 65 countries whose collective GDP is 21 trillion American dollars and which includes 60 percent of the world’s population. Under the initiative, Łódź is a point of transit on the way to Western Europe. Although the Belt and Road Initiative is still nascent, trains from China’s Chengdu already arrive at Łódź. Once the duopolis is in place, Warsaw could also benefit from the programme.

A duopolis, providing for business integration (joint offering) as well as academic exchange (joint classes, complementary education), cultural collaboration (combined museum and theatre programmes, easier logistic arrangements and organisation) and tourism offering may bring benefits to

both cities and change the perception of Łódź and central Poland. This kind of a duopolis may be seen as highly attractive for potential residents from other parts of Poland and abroad.

Opportunities for small and medium enterprises offered by the duopolis

Small and medium enterprises usually operate locally sourcing raw materials, goods and employees from their local area and considering such area to be their major, if not the only, market for products and services. Often, their efficiency depends strongly on the resources available in the city or in the voivodeship. The potential offered by the region usually has a certain impact on the choice of the line of business. The SME sector varies in terms of geography, forms and specifics of ownership, scope of operations, purposes, growth opportunities and cooperation with those around. All this has an impact on their success at the national and international level — whether SMEs will grow largely depends on the situation in their markets and on the economic condition of their country.

SMEs skilfully adapt to changes in the marketplace. Swift decisions and short response time is the effect of a close link between the owners and the management with owners often directly involved in the company's operations. The owner's ambitious plans for growth add dynamics, innovation and modern qualities to the entity.

Increasing collaboration within the Łódź — Warsaw duopolis as well as such projects as the Solidarity Transport Hub, modernisation and expansion of the road and rail transport network, wide scale regeneration programme carried out in Łódź, the New Centre of Łódź, hosting of the 2024 exhibition and the Belt and Road Initiative **contribute significantly to the development of small and medium enterprises:**

The duopolis provides an opportunity for synergies to be created between two strong business centres which collaborate with each other: movement of capital, human resources, exchange of knowledge and experiences, collaboration between higher education institutions and businesses.

Infrastructural projects, e.g. development of the road, motorway and rail networks or the Solidarity Transport Hub strengthen the duopolis and form one of its key pillars. They also offer more opportunities for the growth of the entire logistic and warehousing industry in Łódź.

The New Centre of Łódź, the cross-city line and the regeneration programmes enhance the investment appeal of the region. They also provide opportunities for SMEs which may benefit from collaboration in the project or from their deliverables.

The Solidarity Transport Hub and the accompanying infrastructure as well as the intended Belt and Road Initiative are world-scale projects which will help exploit the full potential of the region. The area of the duopolis will include a huge transport hub (rail, roads and flights) offering SMEs an opportunity for the development of all kinds of associated services.



Source: UMT materials Geyer's White Factory

Business Case Study: mBank

mBank is an example of a large financial institution which decided to exploit the potential of the duopolis in its operations. It is Poland's fourth biggest banking institution in terms of assets.

The brand was established in 2000 by Sławomir Lachowski who has been always closely connected to Łódź. Currently, mBank provides a range of retail, investment, corporate and private banking services. Since 2003, mBank's major shareholder has been Commerzbank, Germany's second largest bank, which holds 69.33 percent of shares quoted on the Warsaw Stock Exchange (as at the end of March 2019). Since 2007 the bank has been operating in the Polish, Czech and Slovak markets.

The year 2003 saw the opening of CERI International Processing Centre in Łódź, though the history of the company started as early as in 1996 when it launched operations as a processing centre for BRE Bank. In 2003 it was the first company to provide business processing services in the Polish market. In 2012 the company was taken over by Commerzbank AG. In 2013 the name mBank was applied to the operations so far carried out by Bank Rozwoju Eksportu — BRE Bank SA (established in 1986) and Multibank (the retail brand of BRE Bank). Presently, the name mBank is no longer assigned only to the e-banking division as following the rebranding it is the name of the entire bank.

mBank provides retail services in the New Centre of Łódź. In Traktorowa Street it has an operations centre, CERI, which provides the entire bank with business



Source: UMT materials Przystanek mBank office building

processing services. The bank's IT division is also located in Łódź, but it is mainly involved in retail sales. The bank has transferred to Łódź nearly all of its back-office services thus consolidating processing which before was partly carried out in Katowice.

In 2016 Commerzbank opened a new unit, Group Risk Controlling & Capital Management, which carries out analyses and manages risk. "Thanks to our colleagues from mBank and CERI we knew from the very beginning that Łódź may offer both well qualified staff and a favourable business environment. We are happy to start our operations in the region which has already been home to our other brands", says Angeliki Krisilion, divisional head at Commerzbank AG.

In 2017 the bank's management decided to rent the entire 100-million-zlotys office building constructed by Ghelamco and Budomal. Thus mBank's new headquarters in Łódź are now "Przystanek mBank" — 24-thousand-square-meter building located in the New Centre of Łódź. It accommodates over two thousand employees who before worked at six different locations in Łódź. The reasons for the consolidation was mBank's existing strong presence in Łódź, the proximity

of Warsaw and the availability of talents combined with cost optimization. After the move to "Przystanek mBank", the organization has now two headquarters, in Warsaw and in Łódź.

Nearly all back-office operations are carried out in Łódź, specifically those relating to retail banking: credit-card related complaints, lending processes, IT, finance, marketing and legal support and the call centre. Part of the business processing relating to the Slovak and Czech markets is also carried out in Łódź.

Jacek Popiołek, Director of Real Estate Management Department, involved in the “Przystanek mBank” project in Łódź says: “Operating in two cities creates challenges, specifically relating to the organisational culture and differences between the two parts of the bank. However, we have managed to turn such potential challenges to opportunities. (...) We have set up our Łódź headquarters in the most convenient location possible in terms of transport links with Warsaw. We are close to the Łódź Fabryczna Railway Station from which the centre of Warsaw can be reached in little over an hour. (...) We believe though that the links between Łódź and Warsaw will become even closer. For this to become possible, the journey time between the two cities should be even shorter. The major means of transport should be the rail, because road capacity is rather limited in both cities. Łódź may benefit considerably from the cross-city tunnel which will reinstate the high-speed rail project. We will see what the future brings.

Representatives of mBank emphasize the significance of transport links between the cities. **Fast, convenient and reliable transport service is at the core of collaboration between the entities in the duopolis. Location in a suitable place in Łódź, right next to the Łódź Fabryczna Railway Station, was the key argument. The New Centre of Łódź has all the assets: good transport service, availability of talents and high quality office space.**

The development of mBank’s headquarters in Łódź was accompanied by changes in the bank’s communication system. Advanced video conference calls were introduced which helped cut the number of trips and intensified and strengthened cooperation between the employees in Łódź and Warsaw offices. This minor operation, which was strictly technological, has helped deliver the idea of the duopolis.

In 2019, mBank decided to relocate and consolidate also the offices in Warsaw —

the choice of the new site was not random and was dictated by the ease of access to the Warsaw Central Railway Station which guarantees fast and effective transfer to the bank’s second headquarters in Łódź. When the Solidarity Transport Hub project is completed, the total journey time (including the time necessary to walk to and from the headquarters should be cut to 60 minutes).

mBank keeps growing and there are plans to further develop the operations centre in Łódź. In the opinion of mBank’s COO and member of the Management Board Krzysztof Dąbrowski “mBank has close links with Łódź and it is the bank’s intention to keep growing in the city”.

mBank operates based on the formula of a duopolis, i.e. it has two major interconnected headquarters in Poland, as it is fully aware of the potential profits arising from the synergies. The success of the project was possible through:

- easily accessible and fast transport service between the headquarters — the proximity of the offices (approx. 75 minutes);
- high quality office space in a prestigious location (the New Centre of Łódź);
- access to qualified staff;
- cost savings through differences in the office space rent and salary rates;
- making use of cost efficiencies in Łódź — lower cost of living, lower costs to buy or rent property.

Marked benefits of the presence in Łódź and of the consolidation of back-office processes include primarily: efficient transport service from the capital, convenient location of the office in Łódź, qualified and well-prepared staff. In the opinion of mBank’s management, with the Łódź — Warsaw duopolis in place, the investor has a choice whether to

fill a position at the headquarters in Warsaw or in Łódź. This provides much more flexibility and more choice.

Krzysztof Dąbrowski believes that Łódź should try to improve its image among the residents of Warsaw who have never been to Łódź and who do not realise how big the city is, what potential it has offering access to well-qualified staff (the city has a population of nearly 700 thousand people) and being so close to Warsaw which streamlines business operations.



Source: UMT materials

The front office — back office model

The division of functions into the front and the back office is possible in the case of almost every company whose scale of business is sufficiently large. The back office services market in Poland is growing rapidly and it is estimated that every fourth company uses such support. Such solutions are typically looked for by entities from the commercial, construction and manufacturing sectors as well as the dynamically developing telecom and financial industries.

Poland is becoming a thriving business services hub. The centres established by the leading European financial institutions (to include Credit Suisse, UBS, HSBC, RBS, BNP Paribas and Unicredit) and by their American competitors (such as Citi, Franklin Templeton, BBH or Goldman Sachs) have created jobs for several dozen thousand people. It is estimated that this number may double within the next 3 to 5 years.

The front office is the actual and symbolic “door” through which customers enter the company. Typically, it is representative space where visitors form their first impression of the organization. Specific front office functions will depend on each company’s business profile — they may include sales (for retail bank branches) or advice. Front office means mainly management functions which are responsible for strategic growth, proposals, negotiations or customer relationship building. In financial services organizations it accounts for the major part of revenue and receives information about clients, which is subsequently distributed to the relevant business units. On the other hand, back office functions ensure that the business operates efficiently, for instance by providing IT or payroll administration services. Typically, they are fulfilled in specialized country or regional centres responsible for supporting the frequently dispersed customer service (front office) functions.

Excellent quality of customer service would not be possible without an effective back office function, whose employees do not face third-party clients but instead focus on the handling of complex processes that determine the operational efficiency and productivity of the front office. Back office may be linked with production processes. Its employees coordinate the flow of documents and information as well as fulfilling day-to-day office tasks, such as archiving, invoicing, maintaining personnel and payroll records, debt collection or administration of CRM systems. As far as manufacturing companies are concerned, these may also include processes relating to the supply of IT applications or ready-made products, that is logistics, coordination of relationships with vendors and sales representatives, HR management, warehousing or storage functions.

The benefits of integration of front and back office functions include reduced administrative costs, faster task fulfilment, better access to information as well as automation of recurring processes. Organizations which are considering the division of their processes between their offices located in the duopolis, i.e. in Łódź and in Warsaw, may follow best front and back office practices that have already been adopted by others.

The implementation of the front office — back office division in the duopolis to achieve cost efficiencies to generate savings, but also to a large extent to increase the availability of highly-skilled workers. Flexible working arrangements in place to ensure free access to various resources depending on the location are becoming increasingly important. An important factor which influences decisions regarding the situation of front and back office functions is the prestige of the location at the city, country or regional level (e.g. the capital, a growing city, an attractive investment or tourist location etc.), access to clients and the competitive environment.

Excellent transport connections between the two cities are a prerequisite for putting the idea of a duopolis into practice. One of the benefits of this solution is the availability of the human resources of the other city (the transport link is fast and convenient enough to guarantee that working there will not be a problem) as well as its office, warehousing and manufacturing space (higher quality coupled with cost efficiencies). The effectiveness of the transport connections between cities which have established bilateral cooperation is crucial and fully opens up the opportunity to draw on the strengths of each of them, while eliminating their potential deficiencies and inconveniences.

Sample back office processes

- administrative support (invoicing, HR support, personnel and payroll administration, CRM system administration etc.)
- provision of IT applications
- remote customer support (e.g. a hotline or a call centre)
- risk
- internal control
- analysis and reporting
- technical service
- procurement and logistics
- manufacturing functions (textile, clothing, automotive or construction industries)

Sample front office processes

- management
- strategic decisions
- customer relationship building
- advice and direct customer service
- negotiations and proposals
- marketing
- product launch on the market

A potential business services project based on the idea of a duopolis

Functional cooperation between Łódź and Warsaw in the duopolis formula may deliver numerous benefits and open up enormous opportunities for institutions which decide to operate in both locations. Such cooperation may be based on the **front office – back office** model, but also works as an **R&D (production or logistics)** as well as with the functions separated (e.g. shared **IT services in one city and shared R&D or financial services** in another one, due to staff availability). Łódź is not able to compete with Warsaw as far as the prestige of the location is concerned as it is the capital that is the seat of the overwhelming majority of government agencies, financial institutions and business entities. This applies specifically to Poland where the role of Warsaw is utterly central and dominant. However, situated within a short distance from and having good transport connections with Warsaw, Łódź is capable of complementing the capital's value proposition for investors. This is shown by the example of mBank, which has its offices in both cities and draws on their strengths as well as on the convenient transport services.

An offering based on presence in two big cities would be attractive to sufficiently large enterprises and branches of foreign corporations which, due to the scale of their business need structural solutions.

Front office / back office

– if a company is able to establish a separate back office or teams for which the location in the capital is not significant or most significant in terms of the company's operations. Lower commercial rents and payroll costs are strong arguments supporting decisions to relocate some office structures to the business centre that is situated closest to Warsaw. What is more, the incentives available to those willing to invest in Łódź are considerably higher than in Warsaw (up to as much as 35 per cent of eligible expenses). Undoubtedly, those planning new office projects should consider the New Centre of Łódź in the first place.

R&D / logistics and production

– with the management function in Warsaw, companies may consider investment sites in Łódź or its immediate surroundings to locate their logistics or production projects. This also helps gradually locate the R&D functions next to industrial plants. Award-holding Łódź Special Economic Zone as the location of one's business is only natural.



Source: UMT materials

The main benefits to be gained from operating in two locations include:

- Greater access to highly-skilled workers in the region (talent pool).
- Hiring flexibility depending on the needs and skills available in a given city.
- Potential cost savings driven by the recognition of the existing pay differences.
- The duopolis opens up an opportunity to further increase the attractiveness of jobs offered to workers from less developed countries and to address workforce shortages. It could provide opportunities to attract employers from across the Eastern border: Ukraine, Belarus, Armenia, Georgia, Moldova, Russia or Kazakhstan.
- Wide range of areas for development.
- Potential cost efficiencies also in terms of office space rents or land purchases — significant differences in rent and land prices between cities.
- Easier scalability of operations arising from concurrent expansion of business in two markets
- The ability to use each other's experience, the existing business facilities, a larger customer base and prestige.
- A lower cost of living (differences between the prices of flats for sale or rent in Łódź and in Warsaw).
- Taking advantage of the Belt and Road Initiative (land route from China to Europe). Being part of the Łódź – Warsaw duopolis, the cities would be able to use this hub together in addition to deriving benefits from the transit system.
- The duopolis initiative and the related strong focus on the implementation of transport projects may allow the conurbation to become the largest transport hub in Central and Eastern Europe. The planned state investment involving the construction of STH with an airport hub between the two cities, railway investment projects and modernization of motorways will be an additional element cementing the idea of the Łódź – Warsaw duopolis and boosting the strength of the new economic hub.
- Combined cultural, tourist and entertainment offer for employees to provide them with a wider range of opportunities of spending free time.

Several conditions have to be satisfied for the successful operations of entities in the duopolis formula, in which case they will be both possible and reasonable from the business point of view:

- The cities where a company is planning to implement such an operating model need to fulfil conditions that are necessary for putting the idea of a duopolis into practice (for instance, access to a well-developed transport infrastructure, mainly railways, local governments that are ready to implement administrative and formal solutions aimed to facilitate their cooperation, a common tourist, cultural, business and investment offering that is both consistent and complementary, the free movement of workforce etc.).
- The entity has a plan in place to divide processes and tasks between both its locations so as to avoid duplication of function, but at the same time enjoy the benefits of their complementarity (e.g. front office – back office).
- Operations carried out in two different locations have to offer more business benefits than a single office.

Who may derive benefits from the duopolis model?



Financial institutions
/banks



Telecom
/ICT companies



IT companies



Outsourcing
centres



Legal services
/SSC



R&D and production
or logistics

A large company considering relocation to the CEE region could receive one proposal from the Łódź — Warsaw duopolis based on the above models. The main seat or some business processes could be situated in the capital of Poland, which is a prestigious business, scientific and cultural centre and where numerous recognized companies have already launched their operations. The majority of strategic decisions would be made and key client and governing body meetings would be held there.

The supporting office, the back office or the place in which some parallel business processes are run, which would hire the majority of employees, would be situated in Łódź. Taking advantage of the cost differences and the availability of staff and a wide range of new build stately office space (with rates and conditions much less favourable in Warsaw), a company could ensure its growth in both locations. Within a few years, the cities will enjoy excellent transport links (40 minutes by rail) streamlining movement between the headquarters. All support processes, such as administration, accounting, personnel and payroll or logistics tasks, could be performed in Łódź. Two different physical locations in the duopolis coupled with the division of processes between the front office and the back office functions would increase the attractiveness of the offering considerably.

The investor could expect significant cost savings (payroll costs, office rents), higher quality (access to a wider group of specialists), flexible working arrangements (hiring where the talents are available), a larger customer base, employee satisfaction (lower costs to purchase or rent a flat, higher quality office space) as well as the prestige of the largest BSS centre in Central and Eastern Europe.

It is worth noting that one of the major global trends in the labour market are the changing global patterns — a growing number of employers make efforts to meet the expectations of their staff (remote working or location flexibility, i.e. working from several locations). The duopolis is a response to such trends.

DUOPOLIS — a city of the future

Some arguments in favour of the duopolis

1. Łódź is a natural junction of all routes in Poland — together with Warsaw it forms a region in Central and Eastern Europe with excellent transport links, which may and should be further improved.
2. The potential of Łódź and Warsaw is different. As far as human resources are concerned this means a certain complementarity — in Warsaw there are shortages of certain skills which Łódź could provide. This also works the other way round — some employers in Łódź hire staff who live in Warsaw and commute or work from home. Flexible working arrangements are one of the key strengths of the partnership between the cities which e.g. mBank, with headquarters in both cities, uses to good advantage.
3. Among Łódź's assets are the pharmaceutical and biotechnological industry — the numbers and quality of graduates and the knowledge centre opened in Łódź may be of great interest to Warsaw employers.
4. The cities also offer different opportunities in terms of tourism, culture and education, which should be combined to create a wider offering and achieve synergies. Łódź's and Warsaw's joint efforts to promote tourism in the region would certainly attract more interest from tourists than if the cities worked separately.
5. Due to its functional and spatial constraints, Warsaw is getting increasingly clogged — it is hard to book a date, location or hotel to hold e.g. a fair or conference. Łódź could become the capital's congress partner with events taking place in turn or at the same time (cities linked with high-speed rail). Such partnership would help increase the number of events to be hosted.
6. Warsaw's potential for rapid growth is limited. Economic ties with Łódź, an area

with nearly a million inhabitants, may boost the region's appeal and attract large, international capital providers, which so far stayed away.

7. Warsaw should realize the opportunities provided by merging of the two urban areas and support the integration. The duopolis may have a positive impact on the position of both cities in Europe or even globally (considering the function of STH), though Warsaw will always have the leading role.

Duopolis — a chance for a global project

1. The population of Łódź and Warsaw is over 2.5 million and once the cities have been actually combined, they would create one of the biggest agglomerations in Europe.
2. The duopolis could form a region with a very strong economy, specialized in technology/IT, medicine, pharmaceutical and creative industry. Such area could become Poland's flagship project and help enter the international markets. With so many inhabitants, the hub could serve as evidence of Poland's strong competitive position in the world.
3. The duopolis is also an opportunity for a more attractive offer for large, global investors. At present, Poland competes with southern countries, such as Bulgaria or Romania, but also with Portugal and Spain to attract new investors. Creating strong agglomerations is a challenge, but also the only chance for Europe to compete with China.
4. The duopolis project is further fostered by reindustrialization of Europe — an idea arising from the transfer of large parts of production outside the continent. Over time, such operations become increasingly less cost effective (cost of employment and doing business in Asia continue to go up) and this could guarantee secure production of strategic goods, e.g. drugs and control of the supply within the European

Union. In order for the duopolis to become a European region for modern production, there must be a joint national and European policy.

5. Central Poland should become a natural choice for investors wishing to operate in Central and Eastern Europe.
6. Two big infrastructure investment projects — the transcontinental Solidarity Transport Hub with high-speed rail and modernized A2 as well as the city tunnel in Łódź — open up excellent opportunities.
7. The duopolis could become a macroregion for innovation, in strategic documents referred to as the EU Central Megalopolis, focused on R&D projects and innovations, or a start-up region with a wide range of national and European incentives and arrangements additionally encouraged by a convenient location in Poland and Europe and the proximity of the capital.
8. The cities must collaborate, with the support of central administration, to deliver the duopolis. Otherwise, Poland may be excluded from the global race.



DUOPOLIS PROJECT

A CITY OF THE FUTURE

The duopolis as the idea of combining the functions of the two cities has higher chances of success than other existing projects of that kind. Having a strong economic centre, with a high-speed rail line connecting the cities with an airport between them, is certainly an incredibly interesting vision. Ultimately, the cities may come to share the seats of government institutions, and implement a joint tourist and cultural strategy. At the same time, the quality of living for the residents of both cities may improve substantially.



Offering to the business

- Duopolis as a powerful economic zone stretched between tow cities, with STH located between
- Created enhancement instruments such as tax and subsidies for selected industries
 - Greater opportunities of recruiting staff
 - Cost optimization possibilities
 - Joint offer for strategic foreign investors
- Full transport integration, common airport for łódź and Warsaw
 - Increasing SME companies activity area
- Back-front office division, R&D - production, headquarters - operational activity



Congress centre

- Creation of "congress duopolis" to attract European and global scale events



Development of tourism

- Joint and more attractive tourist offer
 - Larger hotel base
- Combined promotion of the region and cities
 - New thematic routes



Academic collaboration

- Joint studies for students in terms of implementing duopolis concept and selected industries
- Cooperation of universities, e.g. one university programme
 - two diplomas/double diploma
 - Student exchanges
- Establishing cooperation between business and duopolis (R&D)



Convenient travelling

- A2 motorway
- System integration
- "Green" bicycle route [tu btw o co chodzi?]
 - Ecological solutions promotion
- Ensure timely transport due to rail transportation as opposed to individual transport means
- Access to Warsaw city centrer form łódź in time typical for further districts in the capital
- utilization of the target central airport equally by both cities, łódź and Warsaw may use transcontinental aviation infrastructure



A joint cultural, entertainment and sports offering

- Joint organization of major sport and entertainment events
- Common festival policy - simultaneous or interchangeable editions in two cities. A positive example given by the FilInteractive Festival organized by Media Klaster foundation
 - Creating the most artistic center in Poland based on largest number of artistic universities among biggest cities in Poland
- Establishing cooperation between museums, theaters and philharmonics. Mutual "guest" performances, jointly implemented repertoire.

General idea is to profile cultural offer in the way so it is complementary to both residents and tourists, so they would want to visit both cities.



Choice of lifestyle for the residents

- Choice in line with preferences of the nature of living and working place
- Freedom of choice of children's education place
- The possibility to use recreational areas and cultural offer in both cities and between them
- Possibility to conveniently use sport and recreational infrastructure of both cities, e.g. Copernicus Science Centre, EC1, Orientry, Park of Poland
- Joint programmes regarding clean air, public areas and presence of green spaces in the city
 - Sharing legacy of EXPO Horticultural 2024



ON THE WAY TO THE DUOPOLIS: KEY MEASURES

1

Development of a common value proposition based on the idea of a duopolis — need for a strategic and political agreement.

2

Making use of the existing documents, e.g. the SPH Blueprint, Central Poland Development Strategy by 2020 with a Perspective to 2030, Integrated Strategy for the Development of the Warsaw-Łódź Functional Area by 2030 to achieve the intended goals.

3

Involvement at a national and European levels — development of a formal duopolis, e.g. in the form of a metropolitan union or an economic area comprising the two cities and other towns between them.

4

Development of an economic region specialized in the European scale in key industries. Choice of the target industries depends on the further analyses and, above all, mutual arrangements between duopolis parties. From market point of view and strategic documents, IT, medicine and pharmacy, logistics and transport in the broad sense should be considered

5

Support for infrastructural projects and commitment to engage the cities and the duopolis in their delivery (e.g. SPH).

6

Integration of the public transport system in the cities — a single public transport ticket system combined with railway tickets.

7

Commitment to the delivery of multicontinental projects — **the Belt and Road Initiative** which may be an additional asset for investors looking for potential sites.

8

Launch of the cooperation of academic centres to develop the idea of the duopolis as well as of university partnerships and adjusting the university syllabuses to suit the needs of the industry and provide the market with necessary skills.

9

Launch of a dialogue between tourism organizations, cultural establishments and private entities to develop a **joint tourism, cultural and entertainment offering**.

10

Marketing initiatives aimed to **increase the duopolis's popularity** in the job market, among the inhabitants of the region and other stakeholders.

It seems that in the long run, the duopolis is an indispensable project of key importance to the development of Łódź and Warsaw.

For Poland, putting the idea into practice may create an opportunity for developing an innovative and specialized region in Europe and even globally, if one considers the SPH and the Belt and Road Initiative. The duopolis has been identified in a number of official strategic documents. The benefits are clear and measurable, however, there must be cooperation at European, national and especially regional levels for the project to succeed.

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