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Małgorzata Rogowska-Sawicz

Wrocław University of Economics and Business

e-mail: malgorzata.rogowska-sawicz@ue.wroc.pl

ORCID: 0000-0003-1856-259X

The Development Potential of the City of Wrocław in the Context of Global Trends

Potencjał rozwojowy Wrocławia w kontekście globalnych trendów

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Abstract: The proper understanding and interpreting oncoming phenomena and processes seems to be a very important asset in building competitive advantage, not only in business but also in territorial units such as cities. Predicting future trends is especially important because most of the global population tend to live in cities. The aim of this paper was to present the concept of megatrends and to evaluate endogenic factors (social, economic and environmental) that can be crucial for forecasting (development process management).

Keywords: megatrends, city development.

Streszczenie: Właściwe zrozumienie i interpretacja nadchodzących zjawisk i procesów wydają się bardzo ważnym atutem w budowaniu przewagi konkurencyjnej nie tylko w biznesie, ale także w jednostkach terytorialnych, takich jak miasta. Przewidywanie przyszłych trendów jest szczególnie ważne w miastach, ponieważ mieszka w nich większość globalnej populacji. Celem artykułu było przedstawienie koncepcji megatrendów oraz ocena czynników endogenicznych (społecznych, ekonomicznych i środowiskowych). Może to mieć kluczowe znaczenie dla zarządzania procesem rozwoju miast.

Słowa kluczowe: megatrendy, rozwój miast.

1. Introduction

City development is a very dynamic process which includes and depends on many changeable aspects. A contemporary economy can be understood as a system in which everything is connected and interdependent, and this is important especially when looking at global processes that occur and influence cities. To better understand the ongoing processes it is helpful to look into the future and evaluate potential megatrends. Predicting the future can be useful for optimal preparation in the management process.

The aim of this paper was to present the concept of megatrends and evaluate endogenic factors (social, economic and environmental) that can be crucial for forecasting (development process management). The methods used in this paper were: a simple description of ongoing processes, statistical data analysis and comparison. All data presented in paper concerned 2021 compared to 2020 and previous years.

2. Megatrends and contemporary city development

One of the main challenges in global (and local) development management appears to be observation and proper interpretation of the occurring changes and phenomena. The identification of trends can enable the local community (and other scales of the development process) to design of development directions for the future .

In terms of this paper, the main question is what is the endogenic potential of the city of Wrocław in terms of global megatrends? This question is very ambitious and it is important to include different research methods attempting to give the right answer. This paper was based on the author's own elaboration and public statistics, and is only the initial part of the research.

Megatrends can be understood as economic, social, political and cultural phenomena arising from the process of civilisational development of humanity. These phenomena can be characterised by a high probability of occurrence (Muszyński, 2001, p. 19; Prandecki, 2012, p. 79). Megatrends can be also identified as transformational processes taking place in societies (Naisbitt, 1997) and forces that change the world (Horx, 2007). Megatrends can be positive or negative, depending on the assessment of their impact on social and economic reality (Komitet Prognoz..., 1995, p. 49). Trends with a negative impact are perceived as threats to the stabilisation of the existing order.

The most important megatrends in the modern world are indicated by numerous research reports and studies (CSIRO, 2012; Ernst&Young, 2015; European Commission, 2012).

They mention from a few to even several dozen megatrends.

Table 1. Selected characteristics of megatrends

Megatrend/Trend	Characteristic
Deglobalisation	The COVID-19 pandemic accelerated this trend: interrupted supply chains, impeded flow due to closed borders or generally uncertain economic definition, increasing importance of the supply chain and supporting state computer production, also with graphical instruments; considering other trends, including increasing polarisation, reducing social causes, disillusionment with developed democratic systems, seeking registration/innovation neutrality by states; as to legal implementation due to transition climate change and geopolitical tensions – this trend will intensify even more in coming years
Resilience	The pandemic, climate or economic crises, the challenges we face, the nanosecond culture and frequent changes force societies to quickly adapt to the changing world. Resilience is becoming one of the most important competences of the future
Self-sufficiency	The pandemic and other events, and the resulting interrupted supply chains, the raw materials crisis, climate change, and the transition to a circular economy have made the trend known as self-sufficiency more and more visible. It assumes the autonomy – and on many levels (production of food, energy, water) – of individual units (cities, organizations, factories, individual households, buildings, etc.)
Social economy	Growing conflicts and social stratification, environmental changes, but also events such as the pandemic, generate an increasingly clear need to seek and implement solutions built on empathy and compassion, as well as the growing importance of the social economy. Consumers expect companies to be honest and have a positive social impact
Hyperlocality	Locality is synonymous with what is important, valuable and more authentic. Support for local entrepreneurs is becoming more and more common, while companies are increasingly relying on local supply chains to mitigate risk
Climate transformation	The climate is undergoing drastic changes and that these changes caused by human activity have been known for a long time; today, however, the narrative is changing – instead of the climate crisis (a story that often blocks action and causes stagnation, because „if there is a crisis and a catastrophe, nothing can be done”), climate transformation is increasingly talked about; it translates the challenge faced by humanity into concrete actions – the transition to a circular economy, a low or zero-emission economy, and is associated with many challenges: social, economic and legal
Migration	Various factors (e.g. climate change, economic and political crises) cause people to move around the world. To determine the indicator, by 2050 it is calculated to be 250 million people. The situation requires a strategic and multifaceted approach, at the level of IT and international cooperation, and not just ad hoc actions regarding additional refugees.
Clean energy	Increasing energy awareness and ecological lobbying make the interest in green energy sources grow constantly. The long-term goal is the transition to a low or zero-emission economy, which entails legal changes at the administrative level and the need for individual countries, businesses and other players to adapt to the new legal reality

Circular economy	This trend assumes that the value of products, materials and resources is to be maintained in the economy for as long as possible, in order to reduce the generation of waste to a minimum
Smart living	A trend referring to the use of technology in building independence from larger systems. Actions aimed at more intelligent management of resources are visible, e.g. water and energy
Silver tsunami	By 2050, one in three Europeans will be over 60 years old. The growing number of elderly people in society affects the functioning and design of cities, jobs, and products
Urbanisation	The number of city dwellers is constantly growing, contributing not only to the expansion of megacities, but also to the construction of new urban centres. The growing population of city dwellers also results in the sprawl of existing cities. One of the consequences of this phenomenon is suburbanisation, i.e. the assumption that more people live in suburban areas than in the city itself, and at the same time these people actively use city life
Re-City	The COVID-19 pandemic has redefined the city. Urban services, transport, workplaces and common spaces are undergoing transformation. The challenge is to reorganise cities so as to ensure a high quality of life for residents while ensuring their safety
Dematerialisation	The intensive shift to the digital world in all aspects of life is making the physical world disappear (e.g. cash disappears, physical stores, people in offices, etc.), and our approach to the value of a product, possession, purchase and use is changing
Digital inequalities	In its assumption, this concept assumes inequalities related to access to the network and digital exclusion. Around 40% of the world's population still has no access to the Internet. The development of the metaverse, which the largest bigtechs are currently working on, may become a factor deepening digital inequalities
Inclusivity and diversity	Inclusivity and diversity is a trend that indicates a growing need to be open to all social groups and support their activity

Source: own elaboration based on (Future Institute Report, n.d.).

The above list does not show all the megatrends indicated in the literature and reports, however, it is a concise basis for the analysis presented in the next section.

3. General conditions of Wrocław in 2021 – evaluation of statistical data and implemented projects

Demographic situation in Wrocław does not differ from the situation on the national scale. The negative tendencies enhanced by COVID-19 (increase in mortality rates) were balanced by the growing number of people arriving from Ukraine (after 2014, and the second wave after February 2022); Wrocław was also one of the three main cities in Poland which increased their population in the last 10 years. According to statistical data presented by GUS, Wrocław (next to Warsaw and Kraków) showed a population growth from 630 131 to 672 929 inhabitants (Narodowy Spis

Powszechny, 2021), which made Wrocław become one of the three biggest cities in Poland (overtaking Łódź).

The COVID-19 pandemic also had an impact on the economic life of Wrocław, although the scale of this impact in relation to 2021 is difficult to estimate precisely due to the lack of the latest data on the GDP for the capital of Lower Silesia. Estimated data shows that economic growth in 2021, compared to 2020, amounted to 5.3% and 5.7% (European Union and Poland), respectively, after a decrease of 5.9% and 2.5% in 2020 (stat.gov.pl). The Wrocław unemployment rate stood at 2.0% at the end of 2021, compared to 2.4% in the previous year. The total amount of economic units increased in 2021 up to 7% (in comparison to 2020) (Bank Danych Lokalnych, n.d.). Note the record number of 811 companies with foreign capital registered in 2021, which places the capital of Lower Silesia in second place in Poland after Warsaw.

In 2020, Wrocław was the third city in Poland in terms of GDP (after Warsaw and Kraków), with 67 633 mln PLN generating 34 % of regional GDP, and also third in terms of GDP per capita (after Warsaw and Poznań) with 100 131 PLN (*PKB – rachunki regionalne...*, n.d., p. 23).

Table 2. GDP in selected cities in 2020 (current prices)

Cities	Total				Per capita			
	in millions PLN	position	in % of region's total	in % of total	PLN	position	region = 100	Poland = 100
Kraków	80 111	2	42.3	3,4	99 946	4	181.3	163.2
Łódź	54 306	8	37.6	2,3	80 086	9	134.5	130.8
Poznań	66 488	4	28.5	2,8	120 985	2	181.9	197.6
Szczecin	29 217	28	33.9	1,2	730 39	12	141	119.3
Warszawa	323 632	1	78.2	13,8	173 885	1	135.7	284
Wrocław	67 633	3	34.6	2,9	100 131	3	149.2	163.5

Source: (*PKB – rachunki regionalne...*, n.d., p. 23; stat.gov.pl).

There were no major changes in 2021 in the economic structure of Wrocław according to the PKD classification (compared to 2020). It should be emphasised, however, that the share of the sector connected with Information and Communication increased significantly from 9.4% to 10.3%. This is important for Wrocław's economy and for the city's budget, because the salaries of employees employed in enterprises included in this section are the highest compared to other sections, amounting to PLN 10,256 on average in 2021, i.e. 12.0% higher than in 2020. and as much as 59.2% higher than the average monthly gross salary in 2021 (Urząd Miasta Wrocławia, n.d.).

The development of technological parks and startups also serves to increase the role of the modern based-on-knowledge-sector. Wrocławski Park Technologiczny S.A. is one of the largest undertakings of this type in Poland. According to the Polish Startups 2021 report published by the Startup Poland Foundation, Wrocław ranks

second in Poland in terms of the number of registered startups (Polish Startups Report, 2021). Meanwhile, a comprehensive international study conducted by Startup Genome, evaluating 100 different indicators (e.g. efficiency, financing methods, communication, presence of talent, experience and knowledge), places the ecosystem of Wrocław startups in third place in the country (Rankings, 2021).

The investment projects of the Wrocław local government also had a positive impact on the processes taking place in the local economy. Their total value (without investment of municipal companies) amounted to PLN 864.2 million, and was PLN 232.8 million, i.e. 36.9%, higher than in 2020 (Urząd Miasta Wrocławia, n.d.). As in the case of income from PIT and CIT taxes, the increase reached just over 30%. Over 50% (PLN 459.4 million) of the city's budget investment funds were allocated to projects in the area of transport and road infrastructure. A significant pool of funds was also allocated to housing (PLN 132.9 million) and education (PLN 91.2 million) (Urząd Miasta Wrocławia, n.d.). The total expenditure on municipal management in the past year reached the level of almost PLN 200 million.

One of the most visible trends is connected with environmental issues such as global warming, renewable energy sources, and clean air. In Poland, the impact of renewable energy sources is still low comparing to the EU average. In 2020, the share of energy from renewable sources in total energy, primary energy was 21.6%, (2017-14.3%) while for the EU-27 this was 40.7 (2017 – 32.8%) (*Energia ze źródeł odnawialnych...*, n.d., p. 15). Wrocław in recent years has invested in transport modernisation (towards green transport) and reducing communicational traffic by the consistent bike policy implementation. In 2021, a total of almost 26 km of new bicycle routes were built, including 13 km of bicycle paths, nearly 1 km of bicycle lanes and over 10 km of pedestrian and bicycle routes (Urząd Miasta Wrocławia, n.d.). One of the most important investments was the construction of a bicycle route along the streets of Jedności Narodowej and Rychtalska to ul. Oleśnicka – this route has become a convenient and safe connection between the city centre and many housing estates in Wrocław (Urząd Miasta Wrocławia, n.d.).

When looking at the local budget, Wrocław's real budget revenues were 10.5% higher in 2021 than in the previous year. A significant increase in investment outlays was possible thanks to an increase in the city's budget revenues in 2021, in particular from PIT and CIT taxes, by 16% [stat.gov.pl]. In nominal terms, the budget revenues of Wrocław amounted to PLN 6,193.6 million last year and increased by 19.7% compared to 2020 (when they amounted to PLN 5,175.4 million) (Bank Danych Lokalnych, n.d.). Budget revenues in 2021 reached PLN 6,193,646,461, while expenditures amounted to PLN 6,010,342,069, which gives a budget surplus of PLN 183,304,392. Obtaining a positive budget result in relation to the originally planned deficit was primarily due to the transfer in December 2021 of a supplementary subsidy constituting a partial compensation for the income that the Wrocław municipality was to lose in 2022 as a result of the introduced tax reform (Urząd Miasta Wrocławia, n.d.). In connection with the implementation

of tasks co-financed from EU funds, the city budget received PLN 126,981,312 (in 2021), of which PLN 107,552,105 were proceeds from the implementation of infrastructural projects, and PLN 19,429,207 from the implementation of social projects (Bank Danych Lokalnych, n.d.).

In the period 2018-2021 (excluding 2020, when a large number of companies could not operate due to the pandemic), Wrocław's PIT and CIT income increased by an average of 14% annually. The growth rate of income from these reflected the financial condition of the economy, both at the local and national level (Urząd Miasta Wrocławia, n.d.). In 2021, an increase in income from PIT and CIT was noticeable compared to the previous year, which is the result of the economic recovery that took place after numerous restrictions in the functioning of business entities caused by the pandemic.

In terms of digitalisation Wrocław completed work on the Digital Transformation Programme of the Wrocław Town Hall and municipal organisational units for the period 2021-2027. As part of the programme's implementation, digitisation projects were selected, such as: a system for managing real estate managed by the municipality of Wrocław, a system for managing the urban greenery resource in Wrocław (stage II), a system of mobile applications and panels for managing social services to be implemented in the 2021-2027 financial perspective (Urząd Miasta Wrocławia, n.d.).

Moreover, in 2021 the work on artificial intelligence AI and the use of this technology in the development of cities and metropolitan areas were continued. As part of the digital transformation, the implementation of an integrated system for handling municipal waste management and a system for managing the urban greenery resource began. The city Internet network was expanded (e.g. the replacement of equipment and increasing the level of security of applications, systems, websites and mobile devices), as well as the Spatial Information System and the IT network of MAN Wrocław. In cooperation with the SatRevolution, satellite detection was launched as a support tool in the verification of areas subject to potential taxation (Urząd Miasta Wrocławia, n.d.). For activities related to the SmartCity idea, pilot projects were launched as part of CityLab Wrocław in the field of: monitoring bicycle traffic using innovative technologies that allow counting cyclists and pedestrians through the use of a camera that automatically analyses the image thanks to a built-in intelligent algorithm (in cooperation with T-Mobile); testing the micro-transport service, supporting the coordination of transport for people with disabilities organized by MPK in Wrocław (in cooperation with Bleeps); care of qualified midwives (in cooperation with MCT); organisation of educational workshops for children with various disabilities using LEGO robotics kits – the RoboSfera project (in cooperation with Planeta Robotów). As part of the SmartCity activities, the program of detecting parking spaces for cars of people with disabilities and tourist coaches was continued. In 2021, the project of a telemedicine point for seniors in Wrocław was completed. As part of the Integrated Territorial Investments of the Wrocław Functional Area in 2021, a project for providing public e-services was

settled with an allocation of almost PLN 34.2 million. The projects implemented by the municipality of Wrocław were: Integrated Queuing System for servicing clients of the City of Wrocław City Hall; Integrated system for servicing municipal waste management in Wrocław; construction of a system for managing the urban greenery resources in Wrocław (e-platform Zieleń in Wrocław – stage 1); digital and process transformation in the Strategy and City Development Department of Wrocław City Hall; System for Coordinating the Activities of Wrocław City Guard. The projects implemented as part of ITI WrOF by the municipal companies of Wrocław in 2021 were: the development of MPWiK SA e-services, and the implementation of e-services (Urząd Miasta Wrocławia, n.d.). Currently, several dozen e-services are available in Wrocław, allowing for the efficient and effective service of residents in many cases. In 2021, the interest in e-services among residents remained at a high level. The number of applications addressed to the city authorities and the IT Services Center via the ePUAP internet platform amounted to almost 169,000 (Urząd Miasta Wrocławia, n.d.).

In terms of the increasing trend of social participation in public policies, it is worth to mention Local Activity Centers (CAL). At the end of 2021, there were 19 CALs in Wrocław, co-financed by the municipality of Wrocław. In 2021, six such centres were established. Their activity consists in the implementation of original programmes, addressed directly to the residents of the area and reflecting their needs, passions and interests. Wrocław Civic Budget has a stable position in the city management model. Due to the large number of votes cast (89,933 in 2021), the process of selecting the submitted projects is a valuable survey of the preferences of the residents of Wrocław regarding the importance of public tasks of the local government. As in previous years, people in Wrocław most often chose projects concerning the development of urban green areas (Urząd Miasta Wrocławia, n.d.). Out of 368 projects submitted in 2021, 173 were allowed to be voted on. Ultimately, 20 projects were selected for implementation (Urząd Miasta Wrocławia, n.d.).

Wrocław is the third city in Poland (after Kraków and Warsaw) in the group of the ten largest cities, in terms of the number of employees in the SSC/BPO sector (shared service centres/outsourced centres). According to the ABSL report on the Business Services Sector in Poland 2021, there were 201 such centres in Wrocław at the end of the first quarter of 2021, employing 52.5 thousand people. According to the Business Services Sector in Poland 2021 conducted by ADSL, the COVID-19 pandemic brought a significant acceleration of the trend of increasing work flexibility, forcing organizations to change their approach to remote work (Business Service Sector in Poland, 2021). As a result, one can see the emergence of new, hybrid models combining remote work with work that requires a presence in the office and face-to-face interaction. Among regional cities, Wrocław currently has the highest indicator of existing office space (after Kraków) (1,253,080 m²), while in terms of office space under construction, Wrocław in 2021 was ranked fourth (134,560 m²), after Katowice, Kraków and the Tri-City (Trójmiasto) in 2021,

21,800 m² of office space was commissioned in Wrocław, which is a continuation of the downward trend recorded since 2020 (Business Service Sector in Poland, 2021).

In recent years many projects and programs have been implemented to adapt to climate change: Catch the rain, I like rain, Szare na Zielone, Grow Green, Wrocław Participatory Budget projects (mostly including the implementation of green areas), FoodSHIFT2030, BioCanteens, C-Change – Culture and art in the fight against climate change, Wrocławska Tapówka, Green Culture, Green Educational Calendar. Preparations have also been made to apply for the Mission of 100 climate-neutral and smart cities by 2030. Intensive work was also carried out on the plan of greening Wrocław, a set of actions leading to increasing the amount and diversity of greenery in the city (Urząd Miasta Wrocławia, n.d.). The percentage of the population living within 300 m from green areas, in relation to 2017, increased in 2021 (as of December 31, 2021) from 77.1% to 81.24%, respectively.

Another important aspect is waste management. The level of preparation for the reuse and recycling of municipal waste was at 30.28% in 2021 (according to the applicable standard, the minimum level of recycling is 20%). The level was calculated in accordance with the new formula applicable from 2021. In previous years, the level of preparation for reuse and recycling of the following categories of municipal waste: paper, metals, plastics and glass was in line with the standard applicable in a given period and amounted to: in 2015 it was 25.8%, in 2016 – 24.29%, in 2017 – 30%, in 2018 – 35%, in 2019 – 51.0%, in 2020 – 52.16% (Bank Danych Lokalnych, n.d.).

4. Conclusion

The paper presents selected megatrends important in Polish conditions. The list of important changes that occurred in European countries can be very long. The selected trends are appropriate in local development conditions and concern social, economic and environmental aspects. The main social trend is connected with ageing society and all the problems connected with that process. From the environmental point of view, the global population (not only European) must be prepared for a rapid shift towards green energy, and tackle the problems resulting from global warming. It is also worth mentioning deglobalisation that can be observed after the pandemic (and is connected with the geopolitical conflict between the USA and China), as well as artificial intelligence and virtual reality introduced into our different areas and with increasing scope. All this provides possibilities for development, but also lots of threats and unknown phenomena.

The presented analysis showed statistical data and different projects conducted in recent years (mainly in 2021) in Wrocław, connected to ongoing global processes. It is just a small step towards the further research that could be carried out in this field.

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