

Current dilemmas in the urban development of Timișoara (Romania)

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Abstract

The post-communist period meant for the city of Timișoara a complex and difficult stage of restructuring urban evolution, of moving from centralized development to development based on the principles of the market economy. The solutions were not simple, especially in the conditions of limited city resources, and often contradictory developments did not take long to appear. The present article tries to capture these contradictory developments and highlight the current urban development dilemmas that the city authorities together with the decision-makers must solve. It is primarily about the rehabilitation of the huge historical spaces that the city has inherited and at the same time the acute need for urban renewal. Secondly, the city of Timișoara is facing a huge increase in road traffic, for which expensive investments in road infrastructure are needed, but on the other hand, the city also needs numerous investments for public transport. And thirdly, Timișoara currently has a strong trend of urban expansion and cumulative density decrease at the same time as an underutilization of available spaces within the city.

Keywords: *Timișoara, urban development, historical heritage, road infrastructure, public transport, urban sprawl*

Introduction

The city of Timișoara, located in western Romania, is one of the cities that inherited a complex urban structure and that had a particular evolution during the 20th century. Timișoara had an important defensive role within the Austro-Hungarian monarchy until the beginning of the 20th century, and the Cetate (Citadel, eng.) located in the center of the city imposed a polynuclear urban development. The main urban cores of the city (Cetate, Fabric, Elisabetin, Iosefin) thus developed independently until the beginning of the 20th century, when the defortification and demolition of the Cetate walls took place (Oprîș, 2007). After the First World War, when the city became part of Romania, numerous urban spaces in the interstitial areas located between the old urban nuclei remained unbuilt until the middle of the 20th century; only in the 1970s the city will acquire a relatively continuous urban structure.

During the communist period, many available spaces were a great advantage for the city, as demolitions were not necessary for the large collective housing complexes built during this period (Oprîș, 1987). Historical cores with buildings of great architectural value remained almost intact, although, in the absence of rehabilitation works, their condition deteriorated greatly (Smith, 1996). In this context, concerns in the post-communist period centred on the issue of the rehabilitation of historic districts and the preservation of their associated cultural heritage (Andrusz, 1996). An inventory process carried out by the city hall in the 2000s found that Timișoara has an architectural heritage that includes 57 monuments and architectural ensembles and 23 groups of buildings and

areas delimited as architectural reserves. The 14,500 historical buildings built before 1940 today form the largest architecture reserve in Romania and one of the largest in Europe.

However, the post-communist period also generated another problem less revealed in specialized studies. Although there are still important spaces available for construction inside the city, statistical data show that the city of Timișoara is currently characterized by a decrease in urban density and an urban expansion towards the peripheries – a worldwide trend specific to most cities of the world according to World Bank studies. From this finding results one of the main dilemmas of the urban development of the city of Timișoara: urban densification or territorial expansion? Unfortunately, until now, a vision of the city administration or specialists (architects, urban planners, geographers, etc.) in this regard cannot be identified, and that is why the present work tries (without pretending to offer solutions) to identify the main current dilemmas in the urban development of the city of Timișoara. This article aims to analyze the following dilemmas related to the current urban development of the city of Timișoara: 1. *Protecting historical heritage and /or urban renewal?* 2. *More road infrastructure or public transport?* 3. *Urban sprawl or densification?*

Literature review

The problem associated with the concepts of densification, renewal and urban sprawl has been approached differently in the literature. Often these concepts are integrated into a more general discourse on urban dynamics and perceptions of processes in urban society. Some viewpoints (Musterd & Ostendorf, 2008)

suggest that Europe's urban policy paradigm is still being developed and is based, for the time being, on common beliefs on the issue of urban development. Urban sprawl is addressed in many cases through the prism of efficiency and equity, with some authors (Nechyba & Walsh, 2004) showing both the opportunities created by urban sprawl (greater space for housing), but also the difficulties arising from road congestion or inequality in the supply of public goods and services. Some authors also point out that spatial expansion of cities should not always be viewed as negative (Brueckner, 2000), this is actually the result of three strong market forces (population and income growth, reduced commuting costs); only distortions in the functioning of market forces are hampering land allocation between agricultural and urban uses, justifying criticism of urban expansion (Brueckner, 2000). At the same time, given that the urban land market operates freely, based on discontinuous development patterns, the emergence of higher densities is imminent (Peiser, 1989). The appearance of low-density areas through urban scattering affects the landscape (Peiser, 1989), and this multidimensional phenomenon can be measured by indices derived from various research disciplines such as ecology or fractal geometry (Frenkel & Ashkenazi, 2008).

The complexity of the concept of urban renewal has also given rise to a multitude of scientific approaches. In the case of this concept, too, there is a dissociation between two specific processes: one 'natural' process driven by the free market, the other marked by the action of the state, organizations or local communities wishing to intervene in urban renewal (Coach, 1990). Urban renewal is often associated with planned intervention for the regeneration of distressed urban areas (Carman, 1999) or as an alternative policy to 'clean up' slums (Hoffman, 2008), but the results have often been controversial, ironically leading not to the growth of distressed areas but to the development of central urban areas (Hoffman, 2008). In this context, it was inevitable that there would also be critical approaches, which blamed failures in the regeneration of distressed areas on liberal policies (Hayward, 1998). Beyond these diverse positions of approach, in the current period more and more often the idea is emerging that urban renewal is no longer a matter of choice, and understanding the urban renewal matrix can help planners and policy makers to bring this process closer to the stated goals of improving quality of life and favoring disadvantaged populations (Nachmany & Hananel, 2023).

The scientific approach to the problems of the urban development of the city of Timișoara was mainly done in the post-communist period. In a first phase, social issues such as ascertaining the multicultural and multi-ethnic character of the city and establishing a specific Central European identity were privileged. Thus, the city is rediscovered in new poses related to a certain urban behavior (Pavel, 2000), to a specific way of ethnic

integration (Pavel & Popa, 1999) or in the register of an exceptional entrepreneurial development (Popa, 2006).

In another parallel plan, the specialists from Timișoara City Hall have been developing since 2000 Development Strategies of the city where urban development problems are also archived (precarious infrastructure, insufficient mobility, undersized transport connections, etc.). Long-term studies (for example, Vision 2030, Timișoara, European metropolis) are also developed by groups of specialists (architects, engineers) in which the city's problems related to transport are especially inventoried and solutions are offered for the future. The historical heritage of the city is rediscovered and even corrected (Oprîș, 2007) in the context of increasingly pressing concerns related to the rehabilitation of historical neighborhoods.

Gradually, the scientific works that explore the problems of the current development of the city characterized by great diversity also appear. Thus, the rehabilitation of historical areas is viewed holistically (Radoslav et al., 2013), solutions are proposed for the development of urban transport (Ștefănescu et al., 2014) or the urban transformation is analyzed through the prism of the city's historical avatars (Pavel & Jucu, 2020). Also, the social problems of the city, the integration of composite structures in modern architecture are investigated – the case of the business center of the city of Timișoara (Vataman & Gaivoronschi, 2017) and, finally, studies appear about the evolution of the creative activities of the city (Potra et al., 2020) and the spatial development of the city's peripheries in the context of the current definitions of „smart city” (Drăgan et al., 2024).

Methodology

From a methodological point of view, the scientific approach to urban problems in the post-communist period of the city of Timișoara is limited to various study possibilities. The historical method aimed at the chronological analysis of the evolution of the city, both through the prism of the dominant morphostructural model, but also from the point of view of its adaptation to recent spatial developments (each neighborhood benefited from a certain method of intervention such as insertion or expansion). The indicators used in this historical context configured an analysis triangle such as the support component, human and economic-building.

In addition to the historical method, the diagnostic analysis took into account the highlighting, based on the statistical data obtained mainly from the Timișoara City Hall, of the characteristics of the historical neighborhoods, both from a constructive point of view (the state of degradation of the buildings, the state of the infrastructures), but also social (social categories, the level of income of the inhabitants) or relational-systematic (relationship between historic districts and other urban spaces).

The impact of the rehabilitation process of the historical areas of the city could be addressed through the field analysis that materialized in a series of conclusive observations marked by photographs and field checks of specific situations in which the space valued from a street point of view contradicts the precarious state of unreliable historical buildings. The field analysis also aimed at illustrating specific situations in which the rehabilitation of abandoned spaces ran into numerous legislative or real estate obstacles. The fieldwork was also essential in analyzing fundamental aspects such as the spatial relationship and the urban ambient generated by the pedestrian arteries emerging in the city center. Through systematic measurements and observations, results were obtained in terms of the functionality of urban public transport, waiting times at stations, and the speed of public transport (tram, trolleybus, bus). Part of the results on the spatial expansion of Timișoara were obtained by using a series of direct observations that focused on the characteristics of the new urban spaces, their territorial layout and also on the areas of conflict in terms of urban mobility (difficult transportation relations between the new residential spaces in the peri-urban area and the city center).

Geospatial analysis based on Google Maps and Google Earth 3D had a defining role, on the one hand, as a practical support for visualizing the urban evolution of the city in recent decades, and on the other hand, it also had a check-in role, for checking the attributes obtained in the field. Various cartographic representations were used, some obtained from the www.primariatm.ro website, others with different publications and specialized works as their source.

Results and discussions

Study area

The city of Timișoara is located in western Romania, being the main urban center of the historical Banat region. It evolved for hundreds of years under the Habsburg and then Austro-Hungarian monarchies, and became part of Romania in 1918, after the First World War. It is a city known for its Central European urban landscape, its multi-ethnic (Romanians, Hungarians, Germans, Serbs, Hungarians, Germans, Romanians, Serbs, etc.) and cultural diversity. During the communist period it became one of the most important industrial centers of Romania, tripled its population and reached a maximum of 350,000 inhabitants in 1990. In the post-communist period, the population decreased due to suburban migration, reaching 250,000 inhabitants in 2021, but it remained the third largest urban agglomeration in Romania (with almost 400,000 inhabitants, including the metropolitan area) in terms of economic dynamics, quality of life and GDP per capita.

In terms of urban structure, Timișoara has inherited a polycentric morphology, with several historical districts (Fabric, Iosefin, Elisabetin, Mehala, etc.) that gravitate around the central core, the old Vauban-style fortress built in the 18th century (Fig. 1). After the demolition of the fortress walls at the beginning of the 20th century, the city's expansion was mainly based on the empty spaces between the old urban cores. Even the large residential neighborhoods built during the communist period made use of these interstitial spaces without the need for demolition. The post-communist period led to the disappearance of some industrial areas, the localization of new industries in suburban areas and the emergence of large residential areas in suburban spaces.

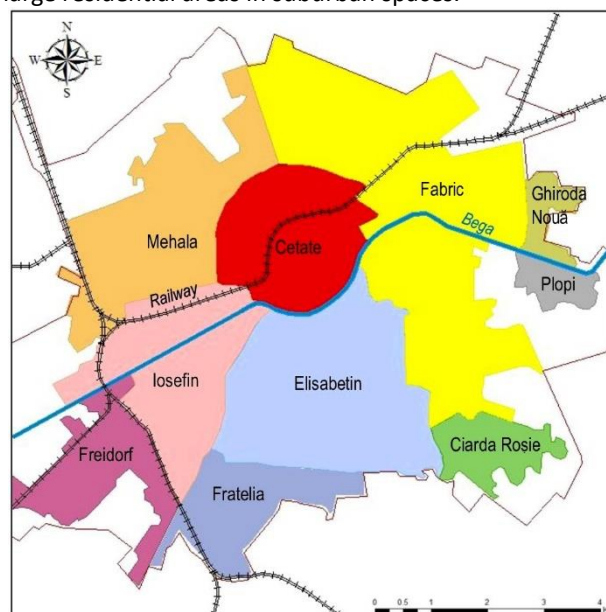


Figure 1: The districts of Timișoara (2024)

Protecting historical heritage and /or urban renewal?

Starting with 2010, the City Hall delimits 3 protected historical areas, namely the Cetate, Iosefin and Fabric neighborhoods. The study carried out by Timișoara City Hall in 2008 in these neighborhoods found several problematic characteristics: within these three neighborhoods there lived 50% of the city's population (approximately 150,000 inhabitants); most of the inhabitants had a close connection with the buildings in which they lived and did not want to move elsewhere; half of the inhabitants did not have their own income (children, elderly, unemployed); more than 2/3 of households had a maximum monthly income of 250 € (the minimum salary in 2008 was 140 euro). Also, the collected data showed that less than 10% of the historical constructions are partially rehabilitated, and of these more than 50% presented deficiencies in the rehabilitation method addressed; more than half of the historical buildings were in an advanced state of decay: 2/3 of the facades of the buildings were in an advanced

state of decay, 1/3 of the roofs were degraded, and 85% of the constructions had medium or severe moisture.

Even if there is no recent study or updated report on this matter, based on the economic evolution of Romania in the last decade and the projects that have been implemented in these historical spaces, we can appreciate that the situation has improved. The pedestrianization of the central historical area of Timișoara, (Cetate District), a process completed in 2019, had an extraordinary impact on the image of the city and the tourist attractiveness. The investment developed by Timișoara City Hall with community funding aimed at the rehabilitation of a public area in the Cetate District consisting of Union Square, Liberty Square, Sf. Gheorghe Square, Țarcului Square and 10 streets. The interventions aimed at restoring the pavements, replacing urban furniture and public lighting, expanding the green space and rehabilitating the technical-building infrastructure. The proposed architectural and urban planning solution was based on guiding principles aimed at ensuring the authenticity and identity of the urban spaces subject to the rehabilitation process (Crișan, 2004).

This project had a special role in strengthening policies to expand public space and consolidate it from south to north, by uniting historical squares and a system of connecting street.

The project took into account a characteristic fact of the city related to its evolution over time: both the historical districts (Iosefin, Traian) and the areas that have recently developed (the student district or the mall area) formed their own public spaces with specific characteristics, own identities and well-defined functional links with the neighborhoods (Sturza & Mihăilescu, 2013). Within this complex network of public spaces, those in the Cetate neighborhood have a major representational character and, from this point of view, best represent historical Timișoara and its position within European cities. The proposed architectural and urban planning solution mainly aimed at the rehabilitation of 3 emblematic public spaces in the central historical area of Timișoara: Piața Libertății (Fig. 2), Piața Sf. Gheorghe and Piața Unirii, as well as 10 adjacent streets.



Figure 2: Liberty Square before and after rehabilitation (source: www.timpolis.ro)

Although successfully completed, the rehabilitation project of the central historical area did not include the rehabilitation of the numerous historical buildings in this area. Although the City Hall offers a financial assistance scheme (non-refundable financial support of 20% and repayable financial support within no more than 10 years – without interest – of 80% of the value of eligible works), the rehabilitation process of historical buildings under the responsibility of property owners remains extremely slow due to very high, practically prohibitive costs for a wide category of owners with low incomes. The pace of rehabilitation of historical buildings experienced a certain intensification in the period leading up to 2023, when Timișoara held the title of „European Capital of Culture”, but even so, only the rehabilitation of some emblematic buildings in Union Square and Victory Square was achieved.

The problem of the rehabilitation of historical buildings is problematic in all Romanian cities and especially in the city of Timișoara, which has the largest number of

historical buildings (14,500). The starting point of this issue is in relation to the ownership system of historic buildings (Hirt, 2013). Immediately after 1989, the law gave tenants in state-owned homes (apartments located in historic buildings were almost entirely state-owned) the opportunity to buy these spaces at modest prices. In this way, almost all the historical buildings in Timișoara have become the private property of citizens who do not have the financial resources characteristic of a building owner in the central area. Although the state financing of the rehabilitation of historical buildings is circulated in the mass media as a solution, it is almost impossible for the state to have huge financial resources for the future rehabilitation of all historical buildings in Romania. The solution we see is related to a gentrification process, which in Western European cities where it developed organically without state intervention, (Stanilov, 2007). This process will bring to historic centres high-income owners who will have the financial capacity to rehabilitate historic buildings (Bertaud & Renaud, 1995). In the central

area of Timisoara, the gentrification process is just beginning. Only the spaces suitable for company headquarters were taken over by new owners.

In the other protected historical areas of the city (Fabric, Iosefin) the process of rehabilitation of historical buildings is even slower. Outside public spaces that have recently been rehabilitated, most historic buildings are in a state of continuous decay. In the Fabric neighborhood, a process of concentration of creative activities (Potra et al., 2020) in the fields of culture and art is observable, especially in the old disused industrial spaces, unlike the Iosefin neighborhood where practically nothing happens. Taking into account that these two neighborhoods are not located in the central area of the city, it is difficult to see a gentrification process in the near future. Taking into account that these two areas have had an industrial character in the past, there are enough available abandoned spaces, suitable for new real estate projects. Greater flexibility of the authorities in imposing building bans in protected historical areas and in „preserving the character of area” would boost the process of urban renewal in these less attractive spaces. Because many times, urban planners (especially architects) are tempted to ignore social-economic and market dynamics and resort especially to aesthetic principles when developing planning principles (Turlea, 2008).

More road infrastructure or public transport?

Regarding public transport, Timișoara has an important tradition, being the first city in Romania with an electric tram, as early as 1899, and the first trolleybus line since 1942. Until 1990, Timișoara had the second longest tram network, after the Capital city, later, after the closure of some lines, ranking 3rd with 88 km, after the city of Arad.

The new demographic situation coupled with economic development and changing housing behaviour, put immediate pressure on transport and parking infrastructure. According to the Timișoara Quality of Life Barometer 2022, 66.5% of respondents choose the car for traveling on a typical day, followed by 19.8% who prefer to walk and 18.9% who choose public transport. Moreover, according to the same study, since 2016 the number of respondents who choose their personal car has doubled compared to those who choose public transport, that decreased by half. Even if from a statistical point of view Timișoara has 655 km of streets, of which 99% are modernized (2019) and an estimated number of 4000 traffic lights, this fact does not necessarily lead to greater traffic fluidity. The TIMPARK3 system (for managing and monitoring parking spaces in Timișoara municipality) accumulated in 2023 a total number of specially arranged parking spaces of 67,327, of which only 520 are supervised. The lack of monitoring with the help of technology makes it impossible to quickly adopt a public smart-parking system that integrates traffic data, consumer behavior, signaling vacancies in real time and implicitly adopting appropriate pricing policies. More than

39 thousand parking passes were released in 2023, representing 16% less than in 2022, which meant a reduction in the market amid the increasingly frequent adoption of telework.

As a solution for increasing the fluidity of traffic, the city hall started several large projects for the realization of road infrastructures. It is about the widening of two road passages (Jiul and Popa Șapcă) (to which two others built from scratch were added: Michelangelo and Iulius Town, the latter in public-private partnership (Fig. 3). Apart from these, multiple road widening works, car park achievements, rehabilitation of important connecting arteries etc. took place. However, road traffic within the city continued to be problematic.

In Timișoara, concerns for the development of public transportation started in the 2000s, being the first city in Romania to succeed in the rehabilitation of 50% of the total length of tram infrastructure in 2008. It was also during this period that the fleet of buses and trolleybuses was renewed and an ambitious project to renew the tram park was started. The results of these projects did not take long to appear: in 2010, the number of transported passengers increased by about 35% compared to 2002. In the following period, the development of public transport in Timișoara also addressed other directions such as alternative transport (cycle lanes), the introduction of public transport on the Bega Canal (with vaporetto) and finally, from 2021, the renewal of the tram fleet.

Statistical data of recent years show that the public investment made available 434 bicycles and accumulated in 2019 a number of 24,191 registered users, which means 55.7 users per public bicycle per year. Given that in 2019 there were 251 working days, this indicator shows a very low consumption, at most recreational, starting from the premise that a user reserved the bicycle for a whole day. In terms of public transport, in 2020, 60% of the number of passengers went by tram, the most environmentally friendly public transport option. Trolleybuses and buses had about the same share, sharing the same market (around 20%). According to estimates, more than 286 thousand trips take place daily by tram. For the last 10 years, tram transport has been the only one that has gained 30% more passengers, although it's the number of trams dropped by half, reaching 73. Compared to the „triad” of public transport (tram, trolleybus, bus), the daily number (reported at 365 days) of vaporetto users is 558, which indicates recreational rather than functional consumption. Despite a slower pace of navigation, and competition with bicycle routes, the advantage is represented by the possibility of connecting the city from one end to the other.

If we also consider the insufficient traffic frequency, the lack of dedicated road lanes for public transport and traffic jams that make the average speed of trams, trolleybuses and buses around 10 km/h during peak hours, it can be appreciated that public transport in the city of Timișoara has not become a viable alternative to traveling

by personal car. City authorities have not yet opted to prioritize public transport in favor of individual transport, continuing a two-pronged approach with investments in both modes of urban transport. The dilemma cannot be solved easily because, on the one hand, as verified in many cities around the world, the multiplication of road infrastructures does not lead to a decrease in traffic and, on the other hand, for efficient public transport, it is not enough only to renew the fleet of vehicles but, above all, a restructuring of the network according to the needs of users (Bouzarovski et al., 2011).

If the network of bus lines was mostly adapted to the current transport flows of the city, the networks of trolleybus and tram lines kept the same configuration from the period before 1989. The tram network in Timișoara had an efficient configuration before 1989, being designed (as in all polycentric cities with double-Gaussian density in the communist states) to ensure the movement of workers between the large bedroom districts and the industrial areas of the city (Sheppard, 2000). As such, at the moment, when these inner-city industrial areas have disappeared, or have reduced much of their number of employees, tram lines, although equipped with modern vehicles, remain underutilized by passengers. The analysis of the current location of the main centers of interest and the new peri-urban neighborhoods (Giroc in the south of the city, Dumbrăvița in the north of the city), of the directions of entry-exit from the city (Fig. 3) shows that the city's large transport flows have reoriented predominantly north-south.



Figure 3: The Michelangelo Passage inaugurated in 2015 (source: www.mediafax.ro)

A study conducted by Solly Angel for the World Bank in 2005 showed that, from a sample of 120 global cities, almost all of them registered a decreasing density between 1990 and 2000, no matter the country they were located in, whether their population increased or decreased; most of them had an urban area that grew faster than the population. Using the same methodology used in Solly Angel's study, the authors of a study carried out by the World Bank for cities in Romania in 2015 collected similar data from 8 important cities in Romania (the seven growth poles designated in accordance with

the Regional Operational Program, plus Bucharest), during the same period of time. As the table below shows (Table 1), cities in Romania do not differ from the world norm, with densities decreasing by up to 28% in Brașov and 20% in Iași. The study shows what has happened in these 8 cities in terms of urban density over the last decade, comparing changes between 1992 and 2012. As expected, the density continued to decrease, by up to 50% in Brașov and by over 30% in Bucharest, Constanta, Craiova and Iași. Of course, this evolution has clear and important implications for public policy initiators in Romania, from the design and management of transport infrastructure, to the design and implementation of economic development strategies (Young & Kaczmarek, 2008). Much of the decrease in the density of cities in Romania can be explained by general demographic trends, given that, in almost all cities in Romania, the population has decreased in the last two decades. However, the decrease in density was much more pronounced than the decrease in population. In fact, the decrease in density was, in some cases, an order of higher magnitude (for example, Craiova).

Table 1: The evolution of density in the main cities in Romania (1992-2012)

The city	Population density (persons/ha)			Density evolution (%)
Brașov	101	73	52	-48.4
București	104	90	70	-32.7
Cluj-Napoca	76	67	58	-23.6
Constanța	84	71	56	-33.7
Craiova	76	65	47	-37.6
Iași	95	77	62	-34.6
Ploiești	83	76	61	-26.7
Timișoara	69	60	55	-20.6

Source: *Enhanced Spatial Planning. Final Report, The World Bank (2015)*

One of the main explanations for the decrease in urban density is the atomization of households. Around the world, households have decreased in size as incomes have increased and family units have become smaller. The World Bank study shows that in Central and Eastern Europe, the decrease in the size of families was more pronounced than in the rest of the world. Romanian cities experienced a similar decrease in the size of families, but less obvious than in other Eastern European cities (Luděk & Bouzarovski, 2012). There is an obvious correlation between the decrease in the size of households and the increase in the income of the population (Szelenyi, 1996). The easier it is for people to buy or rent a home, the more homes will appear (Crowley & Reid, 2002). Obviously, the growth rate of new housing units in Eastern European cities was strongly influenced by the economic development recorded by the countries in the region. As

Romania moves on the path of development, it is possible that households will continue to decrease in size, which will continue to fuel the expansion of the built-up area of cities (Dumitru, 2016).

As for the city of Timișoara, it inherited from the communist period a much smaller administrative area than other cities comparable in population: 130.5 km² compared to Constanța (167 km²) or Cluj-Napoca (165.2 km²). However, since 1995 the limits of the urban area provided for in the General Urban Plan (PUG) of 1991 have been exceeded. The plan of the city of Timișoara currently has a tentacular allure, and the next step will be the occupation of intertentacular spaces and the telescoping of new tentacles. It is still being planned „free zones”, „logistics platforms”, „industrial parks”, „technology parks” lye on hundreds of hectares. The city cooperates and will continue to do so with the surrounding communes because almost ¾ of the administrative territory of Timișoara is already occupied (Gheorghiu, 2002).

There has also been a strong increase in population density in the peri-urban area of the city. Practically today,

the city of Timișoara is surrounded by several communes with a large population, rivalling with some other small or medium-sized cities. For example, Dumbrăvița commune had a population of 2,712 inhabitants in 1992, and two decades later, in 2022, it had 20,747 inhabitants. Similarly, population density has also increased strongly from 142 inhabitants/km² in 1992 to 1093 inhabitants/km². Similar developments were recorded by other communes located in the peri-urban area of Timișoara, such as Giroc, Moșnița Nouă, Ghiroda, Săcălaz (Fig. 4). Most of these demographic gains within the peri-urban area are due to the increase in the number of housing units that doubled or tripled the past two decades. Based on these dynamics, it can be stated that a peri-urban ring with an area of over 200 km² with a population of over 100,000 inhabitants and densities between 300-1000 inhabitants/km² has taken shape around the city of Timișoara. Compared to this explosive population dynamics in the peri-urban area, according to the data of the last census (2021) the population located within the city decreased, reaching about 250,000 inhabitants, compared to over 300,000 inhabitants registered in the 2011.

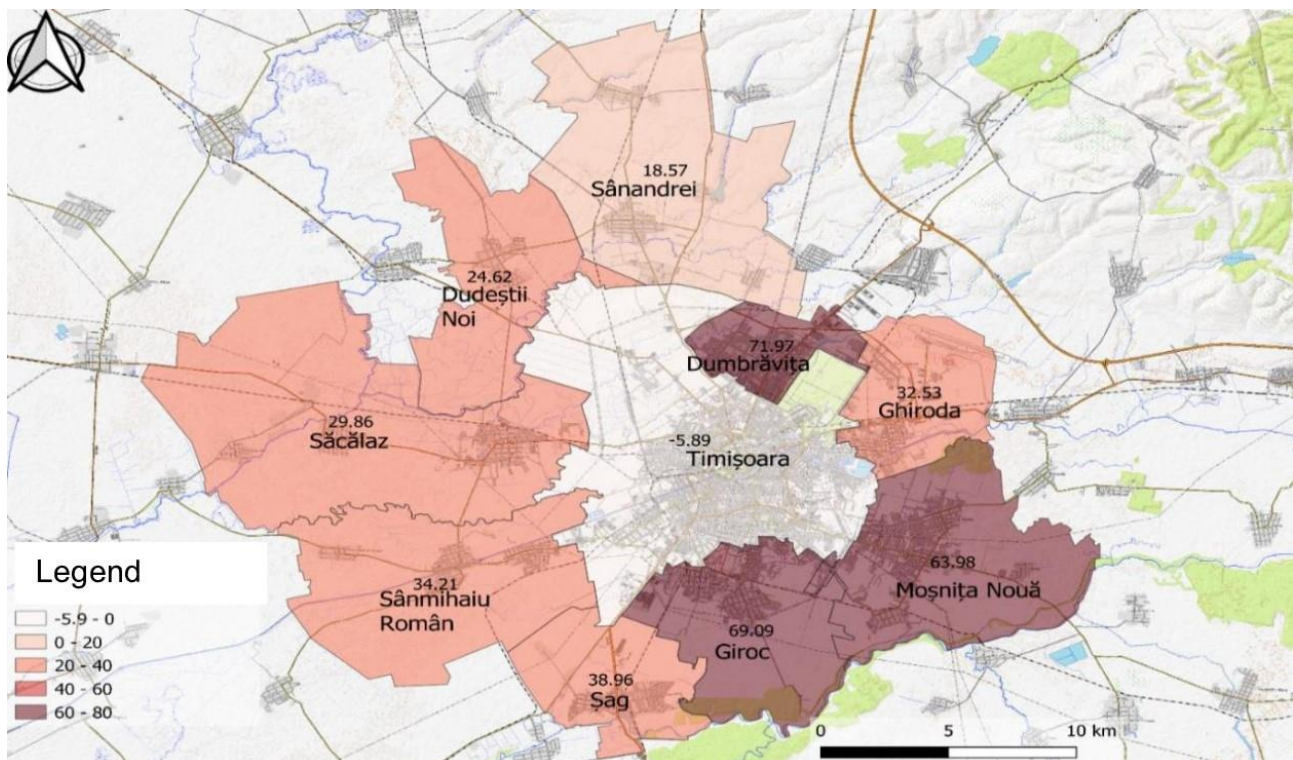


Figure 4: Population dynamics in the peri-urban communes of the city of Timisoara (2011-2022)

Urban sprawl in Romania's cities is a natural process after the decades of the communist period in which cities had to remain in the belts of administrative areas (Borén & Gentile, 2007). People's wish to have housing of better quality than those provided by blocks of flats built before 1989, a major factor. However, this huge dynamic in the peri-urban area of Timișoara could not fail to generate a series of inherent spatial development problems (Dragan

et al., 2024). First of all, the pace of expansion of utility networks (water, sewage, electricity, etc.) could not keep up with the pace of construction generating from this point of view poor standards in terms of accessibility (Nedučin & Krklješ, 2017). Secondly, for now, a coherent public transport network has not been created to ensure good connectivity of the peri-urban area with the city center, a fact that has generated an increase in the use of

personal cars and implicitly numerous traffic problems within the municipality. Thirdly, the growth of housing units has not been accompanied by the necessary social infrastructure (kindergartens, schools, hospitals, etc). In order to benefit from these infrastructures, residents of peri-urban areas must commute to Timișoara; consequently, in addition to traffic problems, there is also an overload of social infrastructures within the city (Enyedi, 1998).

On the other hand, this peri-urban expansion comes in the context in which the city of Timișoara has vast urban spaces in its hinterland that are under-utilized or unused. A typical polycentric city, Timișoara has inherited vast poorly densified (including the central area) or semi-rural spaces since the 19th century (Fig. 5). Also, about 35% of

the city's surface is occupied by industrial spaces inherited from the communist period that are currently abandoned or semi-abandoned, and their conversion process is still reduced (Mihali, 2013). Even if some small industrial sites (Fabric and Iosefin) have been converted in recent years, the big industrial platforms are still on hold. In this context, the question arises whether the expansion of the urban mass of the city (by about 150% in the last two decades) does not contradict the need for densification, for rational use of intra-urban space, absolutely necessary for sustainable development that would ensure greater efficiency of public transport, utilities and would also generate a certain development from within the city (Sandu & Groza, 2017).

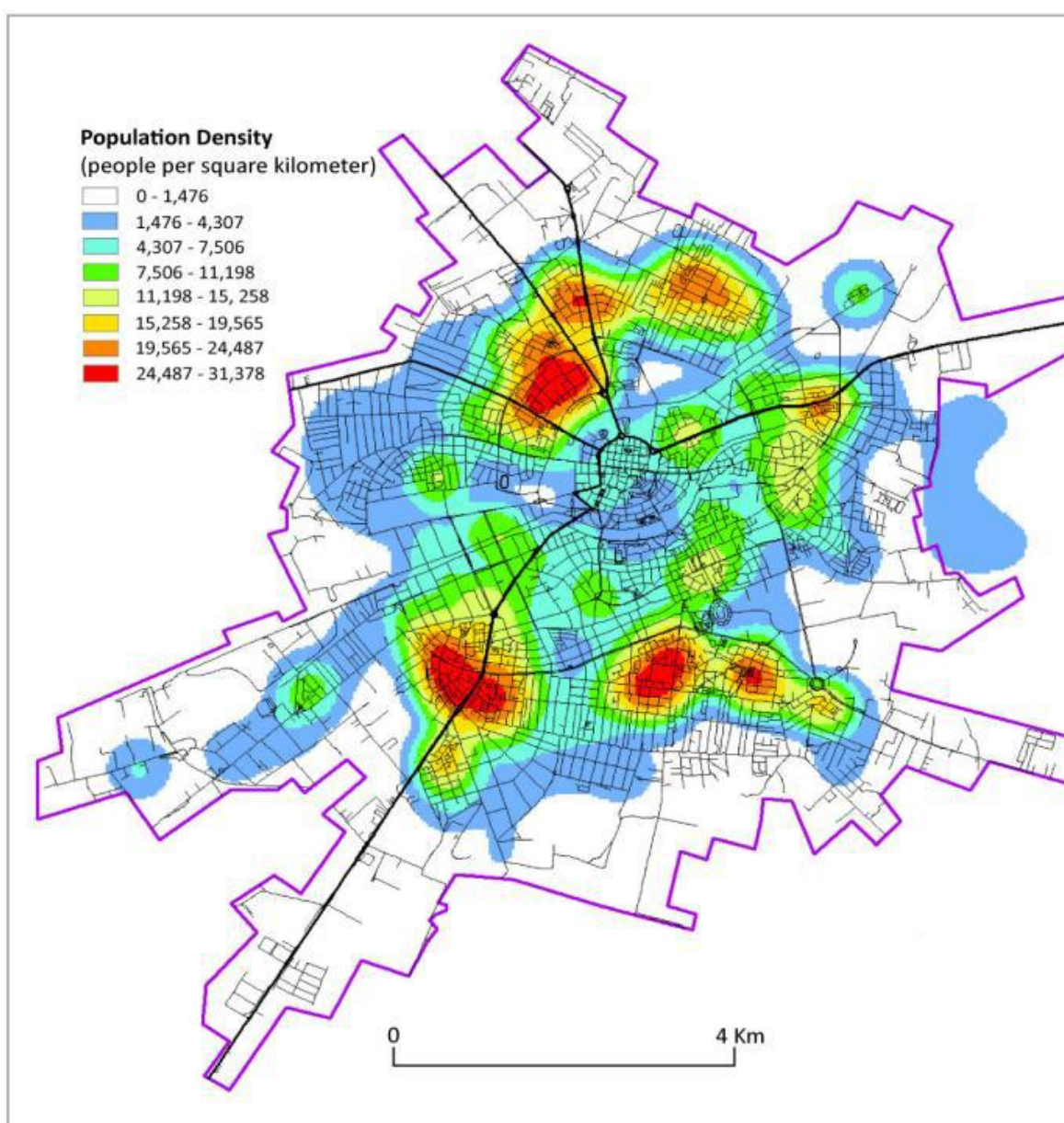


Figure 5: Population density in the city of Timișoara

Source: *Enhanced Spatial Planning. Final Report, The World Bank (2015)*

Conclusions

The urban dynamics of the municipality of Timișoara in the decades of the post-communist period generated numerous questions related to the direction in which the development of the city must be oriented. The post-communist transition and the lack of resources specific to the '90s generated a chaotic development that materialized in numerous contradictory directions. It was only after 2000 that there was a reflection on the future of the city's development embodied in numerous documents, projects and development strategies developed largely under the auspices of the city hall. But even these documents, absolutely useful, were not without inconsistencies that inevitably gave rise to some dilemmas in relation to the urban development of the municipality of Timișoara. We have tried to analyze some of these in this paper, although there are certainly others. For example, we have not engaged in the analysis of the future of the city's industrial function and there are currently numerous questions that call into question the vision of a strong industrial city of Romania, which marked Timișoara for almost two centuries, against that of the future, of a modern city of services.

Timișoara today must solve the problem of protecting the huge inherited historical heritage and at the same time renew the old urban spaces – not a simple mission in the conditions of the city's limited resources. But the experience of other cities in Europe can be of use for this purpose. The development of tourism (for now below potential) can bring additional financial resources both for the rehabilitation of protected buildings and for the process of renewing historical urban spaces. Harnessing the city's smart and promoting its outstanding tourism potential is a solution that already works in many European cities. Also, perhaps a reevaluation of what needs to be protected from the many historical spaces of the city would be useful. There are numerous spaces of a semi-rural character that have been included in protected historical areas only for the reason of „preserving the character of the area”, without taking into account the dynamics of the real estate market and the prospects for socio-economic development of the city. A closer study of the reason for declaring the protected historical areas would be necessary and would contribute to attracting investors in the urban renewal process of the respective areas.

At the European level, several directions have crystallized in terms of urban mobility and in this sense the development of infrastructures such as: non-polluting public transport, pedestrian arteries or cyclist tracks is prioritized. Even though the problem of traffic jams is difficult to solve, there are numerous examples of cities that have managed to convince enough citizens to use public transport at the expense of their personal car. The city of Timișoara has not yet decided whether to continue

focusing on solving road traffic problems or encouraging public transport. Recent investments in road infrastructures have not had remarkable results in solving traffic jams. That is why a new approach is needed, in which public or alternative transport benefits from a qualitative development based on the noticeable improvement of transport times and the increase in the frequency of circulation of public transport means.

The current decisions on the expansion of the city can have important repercussions in the future due to the fact that the shape of the city is very resistant and difficult to change once it has been outlined. Thus, urban growth models must be carefully monitored at every stage of city growth. Throughout history, local authorities have tried to control the size of cities, as a method of solving some of the consequences that came with their growth: congestion, pollution, crime, health problems, social discrepancies. Such policies have usually failed, including in countries with centralized planning. Big cities create their own success. The existence of large markets and important human resources naturally attract companies and capital. Population growth in big cities trains companies and capital, in a virtuous circle that will encourage the development of the city. In this way, the local authorities that manage the big cities will have the main task of solving the negative externalities of the market (such as congestion, pollution and high prices for land and rents).

Therefore, there is no question of limiting the territorial expansion of the city of Timișoara. However, the process must be monitored in such a way that this urban growth is not done in a chaotic way, and the internal space resources are used in the most efficient way. From the experience of some large cities (for example, Barcelona), it has been proven that dense models of urban development are more efficient and can prevent the phenomenon of urban sprawl. In addition, a closer assessment of proposals for real estate developments on the outskirts of the city would have the effect of greater investor interest in the conversion of derelict industrial premises within the city.

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References

- Andrusz, G. (1996). Structural Change and Boundary Instability, in G. Andrusz, M. Harloe, & I. Szelenyi (Eds.), *Cities after socialism: Urban and Regional Change and Conflict in Post-Socialist Societies*. Malden Blackwell, 30-69.

- Bertaud, A., & Renaud, B. (1995). Cities without Markets: Location and Land Use in the Socialist City, *Washington, DC: The World Bank*.
- Borén, T., & Gentile, M. (2007). Metropolitan Processes in Post-Communist States: an Introduction. *Geogr. Ann.*, 89B(2), 95-110.
- Bouzarovski, S., Salukvadze, J., & Gentile, M. (2011). A Socially Resilient Urban Transition? The Contested Landscapes of Apartment Building Extensions in Two Post-Communist Cities, *Urban Studies*, 48(13), 2689-2714.
- Carman, N. (1999). Three Generation of Urban Renewal Policies: Analysis and Policy Implications, *Geoforum*, 30(2), 145-158.
- Coach, C. (1990). Urban Renewal. Theory and Practice. *Springer*.
- Brueckner, J.K. (2000). Urban Sprawl: Diagnosis and Remedies. *International Regional Science Review*, 23(2), 160-171.
- Crișan, R. (2004). Reabilitarea locuirii urbane tradiționale [Rehabilitation of traditional urban housing]. *Paideia*, Bucharest.
- Crowley, D., & Reid, S. (Eds.). (2002). Socialist Spaces. Sites of Everyday Life in the Eastern Bloc. *Oxford: Berg*.
- Drăgan, A., Crețan, R., & Bulzan, R. (2024). The Spatial Development of Peripheralisation: The Case of Smart City Projects in Romania. *Area*, 56(1).
- Dumitru, A.M. (2016). Apartamentul de bloc între spațiu de locuit și „acasă” [The Apartment Block between Living Space and "Home"], in De la stradă la ansambluri rezidențiale Opt ipostaze ale locuirii în Bucureștiul contemporan [From the street to residential complexes. Eight juxtapositions of housing in contemporary Bucharest]. *Pro Universitaria*, Bucharest.
- Enyedi, G. (1998). Social Change and Urban Restructuring in Central Europe. *Budapest: Akademiai Press*
- Frenkel, A., & Ashkenazi, M. (2008). Measuring Urban Sprawl: How Can We Deal with It? Environment and Planning B. *Urban Analytics and City Science*, 35(1), 56-79.
- Gheorghiu, Th.O. (2002). Locuire și neașezare [Living and Non-Housing]. *Paideia*, Bucharest.
- Hayward, S. (1998). Legends of the Urban Sprawl. *Washington*, Iss. 91, 26-32.
- Hirt, S. (2013). Whatever Happened to the (Post)socialist City?. *Cities*, 29-38.
- Hoffman, A. (2008). The Lost History of Urban Renewal. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 1(3), 281-301.
- Luděk, S., & Bouzarovski, S. (2012). Multiple Transformations: Conceptualising the Post-Communist Urban Transition. *Urban Studies*, 49(1), 43-60.
- Mihali, C. (2013). Identitatea urbană, între ficțiune și valoare [Urban identity, between fiction and value], in Augustin, I, Mihali, C., Identitatea urbană [Urban identity]. *Paideia*, Bucharest.
- Musterd, S., & Ostendorf, W. (2008). Integrated Urban Renewal in The Netherlands: a critical appraisal. *Urban Research & Practice*, 1, 78-82.
- Nachmany, H., & Hananel, R. (2023). The Urban Renewal Matrix. *Land Use Policy*, 131, Elsevier.
- Nechyba, T.J., & Walsh, R.P. (2004). Urban sprawl. *Journal of Economic Perspectives*, 18(4), 177-200.
- Nedučín, D., & Krklješ, M. (2017). Post-socialism and Urban Transition: Transforming the Socialist City. *Facta Universitates, Series: Architecture and Civil Engineering*, 15(3), 347-357.
- Oprîș, M. (1987). Timișoara – mică monografie urbanistică [Timisoara – Small Urban Monograph]. *Technical Publishing*, Bucharest.
- Oprîș, M. (2007). Timișoara. Monografie urbanistică [Timisoara. Urban Monograph]. *Brumar*, Timișoara.
- Pavel, S., & Popa, N. (1999). Integration and Assimilation in the Urban Environment of Timișoara. *Danube-Criș-Mureș-Tisa Euroregion. Geoeconomical Space of Sustainable Development*, 319-327.
- Pavel, S. (2000). Comportamentul urban și climatul urban în Timișoara [Urban Behavior and Urban Climate in Timisoara]. *Regionalism and integration*, 137-141.
- Pavel, S., & Jucu, I.S. (2020). Urban transformation and cultural evolution of post-socialist European cities. The case of Timișoara (Romania): From ‘Little Vienna’ urban icon to European Capital of culture (ECOC 2021). *City, Culture and Society*, Elsevier, 20.
- Peiser, R.B. (1989). Density and Urban Sprawl. *Land Economics*, 65(3), 193-204.
- Potra, A., Ivan, R., Pavel, S., & Ancuța, C. (2020). Temporary Uses of Urban Brownfields for Creative Activities in a Post-Socialist City. Case Study: Timișoara (Romania). *Sustainability*, 12, 8095.
- Radoslav, R., Branea, A.M., & Găman, M.S. (2013). Rehabilitation through a Holistic Revitalization Strategy of Historical City Centres—Timișoara, Romania. *Journal of cultural heritage*, Elsevier
- Sandu, A., & Groza, O. (2017). Analyzing the Spatial Patterns of the Urban Development in Post-socialist Cities from Eastern and Central Europe, 17th *International Multidisciplinary Scientific GeoConference SGEM 2017*, HAL SHS
- Sheppard, E. (2000). Socialist cities?. *Urban Geography*, 21(8), 758–763.
- Smith, D. (1996). The Socialist City, in G. Andrusz, M. Harloe, & I. Szelenyi (Eds.), *Cities after socialism: Urban and regional change and conflict in post-socialist societies*. *Malden: Blackwell*, 70-99.
- Stanilov, K. (2007). The Post-Socialist City: Urban Form and Space Transformations in Central and Eastern Europe after socialism. *Dordrecht: Springer*.
- Stefănescu, P., Mocan, M., Ștefănescu, W., & Neculai, P.V. (2014). Trip Planners Used in Public Transportation.

- Case Study on the City of Timișoara. *Procedia - Social and Behavioral Sciences*, 124, 142–148.
- Szelenyi, I. (1996). Cities under Socialism - and after, in G. Andrusz, M. Harloe, & I. Szelenyi (Eds.), *Cities after Socialism: Urban and Regional Change and Conflict in Post-socialist Societies*. Malden: Blackwell, 286–317.
- Turlea, C. (2008). Arhitectura și spațiile publice [Architecture and public spaces]. *Cadmos*, Bucharest.
- Vataman, A., & Gaivoronschi, V. (2017). Integration of Composite Structures in Modern Day Architecture: Case Study of City Business Centre, Timișoara, Romania. *IOP Conf. Series: Materials Science and Engineering*, 245.
- Young, C., & Kaczmarek, S. (2008). The Socialist Past and Postsocialist Urban Identity in Central and Eastern Europe. The Case of Lodz, Poland. *European Urban and Regional Studies*, 15(1), 53-70.
- *** (2005). Enhanced Spatial Planning. Final Report. *The World Bank*
- *** (2008). Prudent rehabilitation and economic revitalization of Timișoara's historic districts. *Timișoara City Hall*
- *** (2008). Vision 2030. Timișoara - European metropolis - high-tech with historical and cultural roots. *Timișoara City Hall*
- *** (2015). Competitive cities. Reshaping Romania's economic geography. *The World Bank*
- *** (2022). Timișoara Quality of Life Barometer. *Timișoara City Hall*