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Romanian policy related to the urban public transport, in socialist and contemporary periods

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Abstract. *Despite all the long experience, the evolution of public passenger transport in the Romanian historical space has not always been a favourable one. In this context, the necessary balance between supply and demand has rarely been achieved, with most of the negative situations being caused by decisions of a financial or political nature. The communist authorities have created a framework more conducive to the development of this type of activity. The volume of activity increased more than eight times between 1950 and 1977. Unfortunately, after 1977 until now, with a small exception, indicators specific to the activity of public passenger transport, at urban level, indicate an involution of the sector. Now, the number of cities with public passenger transport has reached half of that of 1977. The causes were multiple, recalling only: The poor managerial performance of local public transport companies, the lack of a strategic vision at national level to support both this type of activity and the support industries etc. The detailed analysis of these situations, together with the presentation of the milestones of the evolution of the sector, during the two periods, socialist and post-December, were the subject of the present work. The investigation was made, in relation to all types of public passenger transport, from the urban level, taking into account the surface activity (trams, trolleybuses, buses, maxi-taxi) and underground (metro). The current approach was based on statistical analysis of quantitative information and interpretive analysis of data (cumulative analysis of quantitative and qualitative data).*

Keywords: Urban mobility, Urban public transport, Passengers, Transport networks, Public transport vehicles

Introduction

2020 year is the milestone of two centuries since the first appearence of the omnibuses (multi-placed carriages) drawn by horses was held in Paris, London and New York. Although it is not a very old activity,

urban public transport have proved his public utility. Moreover, at present we cannot imagine a city without such activity. In the Romanian historical space urban passenger transports appeared in the late '20s of the 19th century, developing and modernising, in syncope, until the present. Even though the major milestones of the world's history of public passenger transport are also found at national level, the gap between their emergence and development on both sides, international and national, has almost permanently widened. Fortunately, in recent decades, in some chapters, such as the modernity of the transport vehicles, Romania has begun to diminish this spacing.

Local public transport services comprise all actions and activities of economic and social interest, generally carried out at the level of administrative-territorial units, under the control, management or coordination of local public administration authorities, in order to ensure local public transport of passengers (in short, public transport). This mode of transport, of public use, has certain features, such as: accessibility, mass character, periodicity and uniformity. The development of passenger transport, and especially the urban one, has been imposed due to the economic, political and socio-cultural development of society, adapting to the requirements and conditions of the various historical stages.

In the Romanian historical space, the development of this transport system, at territorial, local levels, was uneven, unbalanced. By far, the most significant developments were recorded in Bucharest and Timişoara, while in other urban agglomerations the public transport of passengers evolved shyly and very slowly. From its appearence, until its significant development, from the socialist era and to the massive reduction in the post-1990, public transport activity was influenced, especially by the political decisions that exceeded social and economic requirements.

Literature review

During the almost two centuries of public transport evolution inside the Romanian historical space, there have been numerous reports of this type of activity. Unfortunately, in most of them, the materials were made in the form of articles, news or notes and too little in the format of monographs, scientific studies or editorial

volumes. This was the main reason for the poverty of data that could be collected, regarding this activity, most of the authors being local or passionate persons about the evolution of different modes of transport, with no experience of analysis in the field. Moreover, most of these brief analyses of the public transport of passengers are mainly found in the last half century.

Some of the more important titles, however, can be mentioned in this respect: *Guide of the worker in urban and interurban transport of persons* (Mercan S., Oprisan Al., 1980), *Straßenbahnatlas Rumänien – Atlas of tramways in Romania* (Günther, A., Tarkhov, S., Blank, C., 2004), *Characteristics of urban passenger transport* (Mihalache I., Păduraru I., 2015) a.s.o. Statistical data and partial analyses related to this type of activity are also found in *The Encyclopedia of Romania, Volume IV* (Gusti D., Coord., 1943) or more recently in: Transport – Chapter 9, of volume: *Romania, a century of history. Statistical data* (Isaic-Maniu A. and collective, 2018). Of course, the main characteristics of public transport can also be found in the Statistical Yearbooks, which appeared in the Romanian historical space over the years analysed, or in the records of some profile associations such as the Romanian Public Transport Union (RPTU), established in 1990. As a result, based on the existing evidence, the present paper found imperiously necessary to fill out the existing gap in the existing research literature and produce such a study.

Methodology

The present paper aims to analyse, comparatively, the policies specific to the public transport of passengers, supported by a communist, totalitarian regime and a society led by democratically elected authorities operating in an economic system based on free market relations.

It should be borne in mind that, so far, there is no comprehensive analysis to highlight the political and economic influence of the two periods analysed, in the development of public passenger transport, at urban level and of the national industry supporting this activity.

In this context, it is envisaged to present the strengths and weaknesses of the two epochs, in terms of development of public

passenger transport, by presenting the evolution of the main indicators specific to this sector. The analysis will be made, in relation to all types of public passenger transport, from the urban level, taking into account the surface activity (trams, trolleybuses, buses, maxi-taxi) and underground (metro). It is also envisaged to present the supporting policies for this type of activity, at national level (diversification and intensification of the manufacturing activities of transport vehicles, for example) or local (the evolution of the main transport companies from cities with tradition in this field, such as Bucharest and Timisoara).

The research will be based on statistical analysis of quantitative information and interpretive analysis of data (cumulative analysis of quantitative and qualitative data). The database analysed will be from the national official documents (such as those of the INS), from the literature published so far or from various local statistical data sources (authorities or transport companies reports e.s.o.).

The main milestones in the history of passenger transport at international and national levels

In the historical Romanian space, the development of passenger transport followed the trends of the epochs, internationally registered, keeping the proportions given by the size of the demand and the conditions of transport supply in our towns. Some examples, in this context, are relevant:

• In 1820 the first omnibuses for passenger transport appeared in Paris, London and New York. In Romania, this type of transport was established eight years later, in Bucharest and later in other more densely populated areas.

• After the first tramcar (horse-drawn carriage) was put into use in New York in 1832, three years later this type of transport vehicle was also introduced in Paris and then in 1858 in Santiago (Chile) and 1860 in Sydney (Australia). In Romania, in accordance with these trends, the first tramcar was put into operation in 1868 in Timisoara.

• In 1873, the first electric tram was attempted, in San Francisco, U.S.A., but the success of this type of transport was recorded in 1881 in Berlin, Germany. After 13 years, the first electric tram also appeared in Bucharest.

• Urban public transport using motor vehicles powered by internal combustion engines was experimented internationally at the end of the 19th century, but large-scale development was achieved after the second decade of the next century. In Romania, on 30 May 1920, the first bus line was inaugurated, on the Constanta-Techirghiol route.

• The first electric bus used for urban passenger transport was introduced in 2000 in Shanghai, China. In Romania, this type of vehicle was introduced in 2018 also in Romania, in Cluj Napoca.

According to these benchmarks, the main stages in the evolution of passenger public transport, at the urban level of the Romanian historical space can be grouped into:

a) Exploration and initiation period. This first stage of development of passenger transport occurred in the first half of the 19th century, when the activity was carried out with horse-drawn wagons called "olace" and "menziluri". In 1828 the market carriage pulled by two or four horses appeared in large urban areas. In short time, urban passenger transport, in the Romanian historical space, used omnibuses and tramcars, larger and more complex than the previously mentioned vehicles. In addition, on the long-distance level, in 1848 the fast stagecoach service was established, and in 1850 the postal transports from Austria and Russia appeared.

b) Consolidation period. This phase was imposed by the rapid development of cities in the second half of the 19th century. The enlargements of some towns exceeded 30 km in diameter, and passenger flows, per hour and direction, ranged from 5.000 to 10,000 passengers (Walter T., 2019). During this period, the main feature was the sharp increase in the number of trams.

c) Period of technological momentum. The third stage was also dominated in Romania, as well as internationally, by the use of electricity on urban passenger vehicles. In this context, the first electric tram was introduced in 1894 in Bucharest. The trolleybus (electric bus coupled to electricity suspended wires) was introduced, for the first time, in 1904 in Sibiu, where, unfortunately, it only operated for three months.

d) The modern period, which began with the use of public passenger transport vehicles powered by internal combustion engines. In this context, on May 30, 1920, under the leadership of engineer Radu Stoika, the Constanta Transport Company, opened the first bus

line in Romania, on the Constanta-Techirghiol route. Between 1950 and 1980, the socialist regime quickly increased the size of vehicle fleets and networks specific to passenger public transport and put into operation in Bucharest in 1977 the first underground transport network.

e) Contemporary period, influenced by the principles of sustainable mobility. In this era, with the launch of the concept of sustainable development (the Brundtland Report of 1984), a continuous shift has been made from classical technical and technological solutions (fuel or diesel powered vehicles) to less polluting solutions based on clean technologies (electric vehicles, mostly but also solar a.s.o.). In particular, for Romania, the use of electric vehicles (trams, trolleybuses) took a strong momentum especially during the communist period (due to the restriction of transport activities using classical fuels, especially buses) and since the beginning of the 3rd millennium, when the purchase of electric or hybrid buses became not only useful but also necessary.

Influences of communist policy in the process of developing public passenger transport at urban level

After the end of World War II, population growth, industrialisation, and the diversification of service supplies led to the concentration of the population in increasingly larger urban centres. In these circumstances, the role of urban public transport became more important, with priority in meeting the demand for mobility of the population. The population growth in cities also led to the extension of the boundaries of these settlements, and as a result, the distances of travel increased, constantly demanding that public transport be adapted to the new requirements and conditions (both in terms of infrastructure and transport vehicles).

The number of cities in which the communist state developed a public transport system increased almost eight times between 1950 and 1977, falling after the economic crisis caused by major economies of fuel and imports. Thus, at the end of 1989 there were only 177 cities with such activity (21 fewer than in 1977).

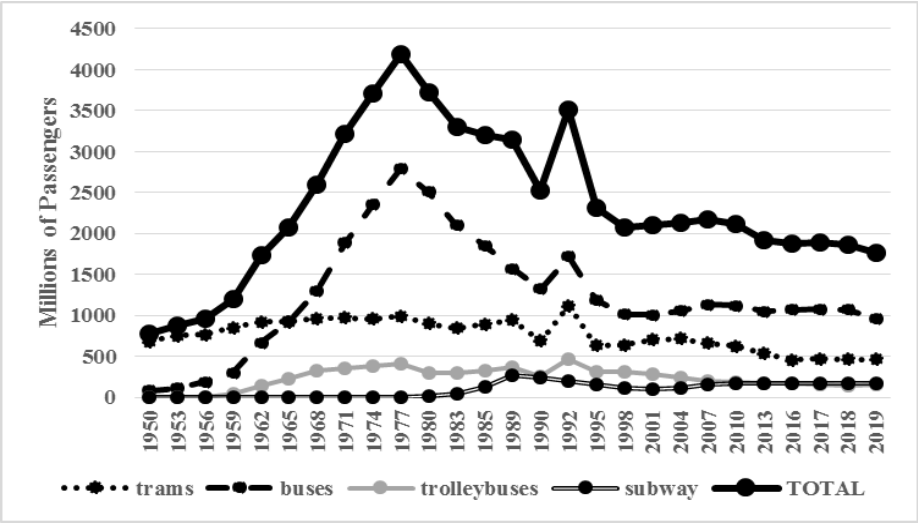
The length of the routes, specific to the types of transport vehicles, has evolved differently, depending on the current interests of the ruling party. Thus, if in 1950 the tram and bus networks had close

dimensions, by 1980, trams increased only 2.5 times, while on buses 41 times. As a share, the length of tram routes in 1950 represented more than 45% of the urban total, and for buses it was almost 54%, the rest (1%) intended for trolleybuses. Over three decades, this situation has changed radically, with the share of tram routes decreasing sharply, reaching 4.7 % and buses increasing to 92.8 %. After 1977, however, due to the policy of drastically reducing fuel consumption, bus transport was substantially reduced. The offer of transport, with all its components, was redirected to electric means of transport (mainly trams). Thus, the total length of the tram network, increased in 1989 to 1,493 km, from 854 km in 1980, and only 345 km in 1950. In this way the sustainable development of transport was encouraged, with no purpose declared by the authorities of that period.

Passenger public transport fleets have seen developments similar to those of infrastructure. Thus, in 1950, the tram fleet had a share of 78.5%, of the total, buses 20.6%, and trolleybuses 0.9%. Thirty years later this structure was overturned in favour of buses, which accounted for 75.5% of the total, compared with 15.4% on trams and 8.7 % on trolleybuses. After 1977, amid the aforementioned policy, the size of the tram fleet, at national level, increased from 2,377 vehicles in 1980 to 2,498 in 1989. For buses, the specific fleet dropped to a total of 12,845 vehicles in 1980, with only 8,617 units remaining in 1989. With regard to passengers transported, in 1950 the structure was favourable to tramway transport, which accounted for 88.5% of the total, followed by 11.2% buses and 0.3% trolleybuses. In the late 70s, this structure changed substantially in favour of bus transport, reaching a share of 67.3% of the total, followed by 24.3% trams and 7.9% trolleybuses. Unfortunately, overall, between 1977 and 1990, the number of surface public transport trips continuously decreased (Figure 1).

This development was caused by the sharp deterioration of the supply. In this way, there has been a reduction in the possibilities for displacement of the population at urban level and not only. Public transport was affected at the same time as the personal transport carried out by own vehicles (due to the lack of fuels, traffic restrictions, etc.). Slowly, the infrastructure was degraded, the fleet of transport vehicles has aged, been overused and has not been able to provide the requested transport capacity. Under these circumstances, surface public transport has experienced a massive discreditation

process in user demand. Not the same situation was for underground transport, existing only in Bucharest.



Source: Data and processing data after (Isaic-Maniu A. and collective, 2018), (INS, Statistical Yearbook of Romania, editions 2018 and 2019) and (INS, 2020)

Figure 1 – Dynamics of passenger public transport activity, by vehicle types, from 1950 to 2019

Inaugurated in 1977, it was a real success from the beginning, both due to transport conditions (low travel time, lack of traffic interferences e.s.o.) and competitive travel prices in relation to surface transport. Since 1980, urban passenger transport statistics have recorded the first data on passenger transport by the subway (Isaic-Maniu A. and collective, 2018). The total length of the subway route was at the end of the communist period, about 120 km single line (58 km of network) with 38 stations in operation (Bădiță C., M., 2018). There were nearly 400 subway wagons on this network, with about 272 million passengers travelling annually, 19.1 times higher than in 1980.

An important milestone of the communist policy was the development of the local industry of public transport vehicles (trams, buses, trolleybuses, subway trains). If by the early 1950s the means of transport were imported, later the communist regime was able to lay the foundations and develop the national industry for such vehicles. As an example, in 1954-1955 at the Central Manufacturing Section of

the Bucharest Transport Enterprise (ITB), the first bus and trolleybus models, which were based on a Romanian conception, were made. Starting with 1955, it was decided to produce tram wagons at the "Electroputere" Craiova Factory, in order to make a series of high-capacity wagons, on bogies. In the second half of the 50s, the Craiova Factory produced 303 such wagons called Electroputere V-54 (EP V-54). Later, in 1970, at the ITB's Central Manufacturing Section, the prototype of the double articulated high-capacity tram was developed, which could carry up to 300 passengers. After one year, the double articulated wagon, called V3A, was put into service. This type of tram was produced with a rhythmicity of 40-50 units annually, so that by 1985 586 cars were made. Since that year the construction of new types of wagons was started, by modernising the previous model, for different public transport companies in the country (Constanţa, Ploieşti, Cluj, Brasov, Brăila, Botoşani and Oradea). At the same time, the Astra Vagon Factory in Arad was initiated, in the middle of the 70s, the process of manufacturing the subway wagons needed in Bucharest. Thus, the IVA model was design, and produced between 1978 and 1989 in 504 units, comprising 252 complete trains (Ando A., 2009).

Development of public passenger transport at urban level after 1989

Since 1990 the number of cities with public passenger transport has declined continuously, with only 115 cities left in 2001 and only 97 in 2007.

Compared to the general economic decline in Romania since the late '80s and continued for a long time after 1990, the public transport service, at urban level, had fluctuating developments. Thus, there was a shy rehabilitation between 1990 and 1995, after which a period of relative stagnation followed until 2000. After 2001, a diversification of this service was noted, especially due to the influence of the decentralisation process and its takeover by local councils (URTP, 2003). Unfortunately, this has not led to the development or efficiency of the work as intended. Moreover, in some cities, often of small size, the general economic problems of the localities have led to the dismantling of public transport in favour of other types of transport. For this too, but not only, in the whole

activity, after 1990, almost all the representative indicators of urban passenger transport have had negative evolutions. Looking at, for example, the number of passengers transported via trams, if there were 1.1 billion travellers in 1992, there were 708 million by 2000 to only 469 million (almost one third compared to 1990) in 2019. Moreover, in the period 1990-2019, the entire activity of urban passenger transport decreased by more than 30%, from a volume of more than 2.5 billion travel in 1990, to just over 1.7 billion in 2019 (Figure 1). This trend has been felt for almost all types of surface public transport. Different was the sinusoidal evolution recorded in bus transport.

Thus, according to the evolution presented in Figure 1, the activity of public passenger transport, at urban level, was very close in 2019 to that recorded in 1962.

Since 1990 the surface transport fleets and networks operated by them have seen comparable evolutions. Thus, for trams, if at national level, in 1992, 2,416 units served a network of 1,023 km, in 2000 their number decreased to 1,929, and the total length of the specific network to 994 km (Isaic-Maniu A. and the collective, 2018). In 2018, the situation was even worse. The number of trams serving a network of 837 km was only 1,203 units, or half of the number in 1990 (INS, 2019, pg. 249). The same thing happened with public transport through trolleybuses. Thus, if in 1992, 885 vehicles served a 667 km network, in 2018 the number of trolleybuses reached only 537 and the specific network fell to less than 467 km. Unfortunately, between 1990 and 2018, at national level, also the number of buses for urban public transport decreased by almost 20 %.

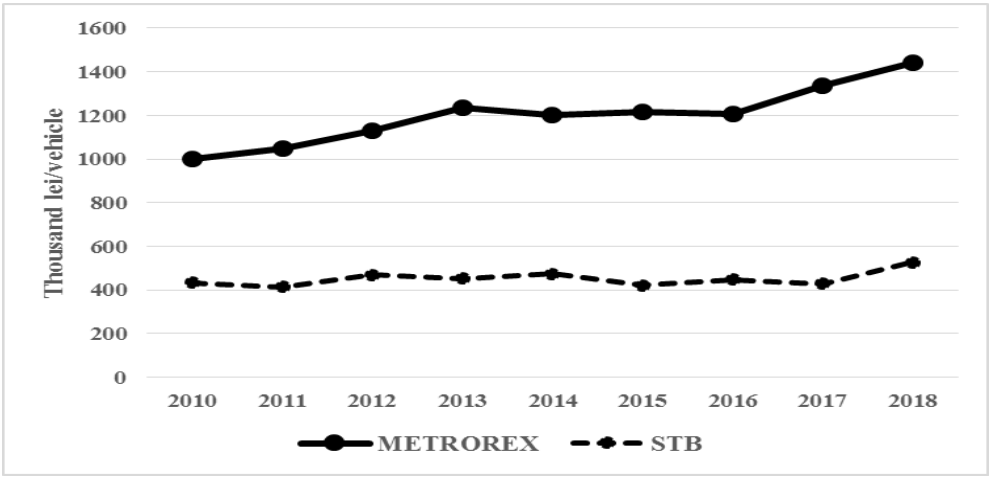
In that time period, for underground transport, still existing only in Bucharest, the developments were non-linear. Thus, if by 1998, the functional network remained at the level of the existing one in 1990, until 2018 it increased only to about 171 km. On September 15, 2020, after nine years of work, the route M5 was also put into service on a distance of about seven kilometers, on double track, between the sections of the Râul Doamnei and the Eroilor. That route has 10 stations, a depot and a connecting gallery (METROREX, 2020). The subway trains fleet experienced a slight increase. From 438 pieces in 1990, to 594 in 2018, with a peak reached in 2007 (704 wagons). Regarding the volume of activity between 1990 and 2004 there was a period of decrease. Subsequently, to date, a period of

stagnation of the annual travel volume has been established at a level of almost 180 billion passengers (Figure 1).

Locally, during the analysed period, the public transport of passengers had different characteristics and evolutions, depending on the conditions offered by those areas and the specific influence factors (level of economic development, policy of local authorities, experience gained previously in this type of activity, etc.).

In Bucharest, for example, there were always two great players on the specific market, namely STB (formerly ITB or RATB) and METROREX. Although, overall, the activity of the STB, with low investment, recorded a much higher volume of passengers transported than that of METROREX (differences in routes and size of vehicle parks being obvious), underground transport was certainly more cost-effective. In this context, the difference between the efficiency of vehicle operation in public passenger transport activities, carried out on the surface (STB) and underground (METROREX) has increased over the last decade from 2.3 to 2.7 in favour of METROREX (Figure 2). However, the efficiency of the use of investments in underground transport was very low, even though the volume of investments was much higher, compared to STB. This development was recorded both against the background of poor management and an inefficient or even non-existent activity of attracting development/modernisation funds from external sources, which could support a greater growth of the sector.

The policy of modernisation/development of the vehicle fleets for public transport was different, from city to city. Thus, in Bucharest, the general strategy was to purchase new vehicles from import. At the opposite pole, in Timişoara, at least until the middle of the first decade of the XXIst century, local authorities preferred the acquisition of second-hand vehicles or even donated vehicles, mostly from Germany. Subsequently, a policy for the acquisition of new means of public transport, manufactured in Romania, mainly at the Astra factory in Arad or imported, was also implemented here. In fact, the manufacturer of Arad remained the largest national manufacturer of vehicles intended for public passenger transport. This can be highlighted, for example, by the number and size of contracts undertaken by the company in 2018.



Source: (METROREX, 2020b) and (STB, 2020)

Figure 2 – Evolution of the average income/transport unit, obtained from urban public transport companies in Bucharest, from 2010 to 2018

Thus, in August, Cluj-Napoca City Hall awarded Astra Factory a contract for the delivery of 22 new trams. In September, Oradea City Hall concluded a contract worth more than 74 million lei for the provision of 10 trams, and in December, Galați City Hall awarded the same company a 24-month contract for the purchase of at least eight and a maximum of 18 trams. Recently, on 8 September 2020, after numerous delays, the City Hall of Bucharest has designated as the winner, for the purchase of 100 modern trams (Imperio), 36 meters each, with fully lowered floors and five double doors, the association between Astra and CRRC Qingdao Sifang, (ECONOMICA.NET, 2020). Apart from ASTRA, however, the Romanian public transport industry went into an accelerated decline after 1990 with many companies disbanded.

An important aspect of the policy specific to the development of urban public transport in recent years has also been the focus on environmentally friendly solutions. Alongside concrete purchases of clean vehicles[1] (electric, hybrid or at least EURO 6), the intention to encourage, as a matter of priority, electric transport (trams and

[1] As an example, from 7 July 2020, several Mercedes-Citaro hybrid buses have been put into circulation in Bucharest, from a batch of 130 vehicles deliverable to the capital by January 2021 (STB, 2020).

trolleybuses) was within the European policy to support sustainable urban mobility.

Unfortunately, the impact of the international crisis in early 2020, caused by the pandemic with the new coronavirus, had also a major negative effect on mobility in Romania. Thus, work and projects, initiatives in the field of public passenger transport, at urban level, have been delayed or even blocked. For surface public transport, the decreed state of emergency reduced, on average, by 40% the vehicle fleet normally used for the smooth operation of this activity (Nastaila V., 2020). In this context, in March and April 2020 the number of passengers transported was 50% to 75% lower than in the previous period. The average daily traffic at subway stations in Bucharest was also halved compared to March 2019. Thus, if in March 2019, on average, the Aurel Vlaicu station, *the corporate pole*, was transited by over 23,000 passengers, in March 2020 the number was about 11,000 passengers (Vasiliu A.E., 2020). Before the pandemic, there were 600.000-700.000 journeys daily, on average, and currently only around 300,000 (Bolocan V., 2020). The strong decline in passenger numbers was largely due to a sharp decrease in traffic on the M2 section, in the Berceni-Pipera relationship.

Trends in the future development of passenger public transport in the major Romanian agglomerations

In line with the above, the Romanian policy on urban public transport has been at least unconvincing, inconsistent. That is why a substantial, even paradigmatic change was needed to step up efforts in this direction. Fortunately, this action had the full endorsement of the European community, which initiated and imposed a new concept: Sustainable urban mobility.

Unlike traditional transport planning approaches, the new concept has put particular emphasis on the involvement of citizens and all other specific market actors, on policy coordination between sectors (transport, land use, environment, economic development, social policies, health, safety, etc.), between different levels of authority and between neighbouring authorities. Sustainable urban mobility plans, however, require a long-term vision that takes into consideration the wider costs and benefits of society in order to "internalise the costs" and increase the importance of evaluation.

From this perspective, a Sustainable Urban Mobility Plan aims to develop an urban transport system that basically proves that:

- Provide all citizens with transport options that allow access to essential locations (destinations) and services;
- Improves travel safety and security;
- Reduce noise and air pollution, greenhouse gas emissions and energy consumption;
- Improves the efficiency and cost-effectiveness of passenger and goods transport;
- Contributes to increasing the attractiveness and quality of the urban environment and urban design for the benefit of citizens, the economy, society in general.

According to the national legislation[2], the Sustainable Urban Mobility Plan (PMUD) is a complementary documentation to the peri-urban/metropolitan territorial development strategy and the general urban planning plan (PUG). This is also the instrument of territorial strategic planning that correlates the spatial development of the localities and the periurban/metropolitan area of them with the mobility and transport needs of persons and for goods.

Following the integrated approach supported by the European Commission, the elaboration of PMUD was necessary in order to finance urban transport projects, within the Regional Operational Programme 2014-2020 and the Great Infrastructure Operational Programme 2014-2020.According to these provisions, many cities or even regions in Romania developed PMUDs in the period 2014-2017, which gave the authorities a strategic vision regarding both the de facto situation and the prospects for the development of the main mobility vectors in the areas analysed. An important emphasis was placed in these documents on local public transport, aiming to plan its development and modernisation, between 2016 and 2030.

The overall structure of such a PMUD was made up of three large parts, namely:

I. Analysis of the existing situation, in terms of mobility;
II. Development of a detailed urban mobility plan containing elements relating to the adoption of a transport model and the

[2] Law 350/2001 on spatial planning and urban planning, republished with subsequent additions and amendments in December 2013, and Order no. 233/2016 approving the methodological norms for the application of Law no. 350/2001.

assessment of the impact of its implementation on the urban area analysed (at economic, social, environmental, technical-street network levels, for example)

III. Detailing an action plan for the different areas of applicability and monitoring its implementation.

Romania is at the beginning of the implementation of integrated urban mobility plans, and early 2018 outlines the size and orientation of investments carried out in some cities: Cluj buys 22 trams, 55 trolleybuses, 115 buses (of which 30 electrics); Bucharest analysed the introduction of the entry fee to the central area, with the own cars (later abandoned at the beginning of 2020); Reşiţa decided that by December 2025, 50% of taximeters would be electric. At Ramnicu Vâlcea was travelling by natural gas buses (UrbanizeHUB, 2018).

Timişoara, for example, was the only city in Romania with five variants of surface public transport, of which four functional: Trams, buses, trolleybuses plus the seven *vaporettos* purchased by the municipality. In 2018, Timişoara also introduced the multifunctional card system in the city, with various applications, including public transportation.

Also in 2018, as part of a large-scale European project "Social dialogue in the urban public transport sector in certain countries of Central and Eastern Europe", a workshop was held in which social partners from the Czech Republic, Hungary, Romania and Slovakia met with others from Western partner countries (UITP, 2019). Representatives of Ploiesti Municipality, Aiud Municipality, Bucharest-Ilfov Association for Intercommunity Development (ADIBI), METROREX S.A., Bucharest-STB SA Transport Society, Cluj-Napoca Public Transport Company, Local Transport Oradea, representatives of the trade unions USL Metrou, Transportation Union from Bucharest and Ploiesti Transport Union participated from Romania. The participants discussed the future of mobility in cities with the president of the Budapest Transport Company, the Ploiesti City Hall adviser, Aiud city administrator and the Bucharest-Ilfov Intercommunity Development Association in Romania.

Following these debates, the Association for the Bucharest and Ilfov Region stressed the interest in integrating transport services in Bucharest-Ilfov, between the four regional public transport operators and the awarding of coordination to the Commission for Public

Functions for a maximum period of two years. The implementation of a service monitoring system, fleet management and the integrated ticketing system for public and private operators was also proposed. By improving the level of service and integration of tariffs, the association anticipates an increase in connectivity between Bucharest and Ilfov, a change in passenger habits and an increase in modal shift. In this context, greater cooperation with civil society was also envisaged because the population is generally highly resistant to change. Another important project was to facilitate more efficient access to/from the Magurele innovation centre (Magurele Laser Valley).

For Ploiesti, it was considered essential to create good travel conditions through urban public transport. The use of funds dedicated to this type of projects, from the EU, was envisaged for the modernisation of the fleet, actual vehicles being very old.

Among the general conclusions of this meeting we emphasise:

- Lack of and ageing workforce in public transport activities, as well as lack of investment that affecting all cities. It is therefore necessary, among other measures, to introduce social aid for workers in the field.
- Automation of transport will increase the safety of passenger movements. But there's the question of the reaction to the sharing economy.
- Synergy between different types of urban public transport should be used. Smart cities will increase the scale of modal shift for environmental reasons.
- Mobility trends are: electric mobility, autonomous driving and car sharing.

Another important problem in increasing the attractiveness of public passenger transport at urban level has always been the correct dimensioning of the price of travel. The price may encourage or discourage passengers in choosing public transport. If we make the ratio between the price of the monthly subscription, for public transport and the average net monthly salary, we get a value that can highlight the importance given by the community to public passenger transport. In this context, a lower value of the report obviously means encouraging the use of public transport.

A recent study (PICODI, 2020) revealed that public transport in Bucharest is well calibrated, the relatively low price values for the single ticket and the monthly subscription being in line with the low level of net average salary (compared to cities of similar size in other European countries). However, taking as a benchmark the value of the quota of Transport (CT), in 2019, public transport in Bucharest was more expensive than in Rome (2.38%), Vienna (2.64%), Brussels (2.10%) or New York (2.40%). For Bucharest, the price of a monthly, cumulative ticket for the subway and all types of surface public transport was 120 lei and represented 3.00% of the average net salary recorded in the city. However, at national level, Bucharest does not have the most expensive public transport. Comparing the CT value of ten cities with well-developed passenger transport, Constanta is the most expensive, and Craiova is the cheapest (Table 1).

Table 1 Comparison of CT value in some cities in Romania, in 2019

No.	CITY	Transport Ticket Price (lei)	Transport Monthly Subscription (lei)	Average Net Salary (lei)	CT (%)
1	CONSTANTA	1.50	125.00	2,707.00	4.62
2	PLOIESTI	2.50	122.00	2,872.00	4.25
3	CLUJ	2.50	138.00	3,470.00	3.98
4	ORADEA	3.00	80.00	2,469.00	3.24
5	GALATI	2.00	90.00	2,854.00	3.15
6	**BUCHAREST**	**1.30**	**120.00**	**3,991.00**	**3.00**
7	TIMISOARA	2.50	93.00	3,142.00	2.96
8	BRASOV	2.50	85.00	2,931.00	2.90
9	IASI	2.50	80.00	3,121.00	2.56
10	CRAIOVA	2.00	65.00	2,759.00	2.36

Source: Data and processing data after (PICODI, 2020) and (Statistics Romania, 2020)

In this situation, in order to increase the attraction in the public transport of passengers in Bucharest, CT should fall below 2.5%, which means either a decrease in ticket prices or a substantial increase in citizens' incomes. From a transport perspective, this can only be achieved by making work more efficient, which includes major investments.

Therefore, in the coming years, most cities in Romania will have to access EU funding programmes, mainly those geared towards

sustainable mobility, such as the Regional Operational Programme, Priority Axis 3: Supporting the transition to a low-carbon economy, namely Priority Axis 4: Supporting sustainable urban development, enabling them to invest in urban transport and bicycle tracks. The EU contribution to the financing of urban transport projects usually accounts for up to 85% of the related eligible expenditure.

What is important is that these investments are made according to the needs of citizens and citizens. It is important for local government to understand that investment in integrated urban mobility and the use of innovative technologies must have the ultimate goal of creating a positive impact on the quality of life of people, protecting the environment and sustainable development of the business environment and communities. The community must come first.

Results and discussions

Based on the analysis of the indicators specific to the public transport activity, at the urban level, it has emerged that for Romania, the communist authorities have created a framework more conducive to the development of this type of activity. This was point out by increasing the number of cities with such a mode of transport as well as improving the supply of public transport (increased transport capacity, more complex routes, etc.). Unfortunately, after 1977 all these tendencies have been halted and an opposite process of deteriorating transport supply and reducing its quality and attractiveness has begun.

After 1990 there was a short period of growth of public transport activity, at urban level, of about 2-3 years, after which the trend was continuously descended. The data recorded in 2019 confirmed this development. The level of public passenger transport activity, at urban level, was, in that year, close to that recorded in 1962 and much lower than the maximum value achieved in the socialist period (in 1977). The causes were multiple. Among the findings of this study are: the mismanagement of local public transport companies, the lack of a common (national) strategic vision supporting both this type of activity and the supporting industries (specific vehicles, infrastructure components, etc.), a sharp and rapid increase in people's own transport vehicles, sufficient and correct non-

budgeting of public passenger transport activity, at urban level, from the various funds available (at Community level, for example) a.s.o.

Fortunately, recently, under the pressure of the European Commission, local authorities in Romania have developed Sustainable Urban Mobility Plans and have started a more sustained development process of passenger transport, through the acquisition of green vehicles, the adaptation of specific transport networks and the introduction of intelligent transport solutions. However, this activity must be continued by re-imposing an upward trend in the number of cities that develop a local passenger transport system, compared to the evolution of the socialist period, but adapted to the new economic conditions.

Conclusions

As a corollary, we can say that, throughout the national territory, in the socialist period there were two distinct stages of evolution of passenger transport at urban level. The first, until 1977, continuously increasing for all indicators (vehicle fleets, specific networks, activity volume a.s.o.). As an example, the total volume of activity increased more than 5.4 times between 1950 and 1977. The evolution was largely based on the increasing importance of transport via buses, minibuses and maxi-taxi. This underlines the openness of the communist regime to develop a modern type of transport, more adaptable to demand (the routes can be changed without too many additional costs).

The second stage conducted between 1977 and 1989 was characterised by an accelerated decline, amid the disastrous economic policy of that period (which unfortunately extended in the post-December period). The drastic reduction in consumption, especially fuel consumption, has invariably led to the reduction of public transport via buses. At the same time, the offer of transport by trams remained almost constant. Moreover, the quality of the transport supply has deteriorated sharply, which has reduced the attractiveness of this mode of transport.

The only notable achievement, in the last period of the communist regime, was linked to the deployment of the Bucharest Subway network, unique in Romania. This mode of transport was particularly supported by the regime of that period, so they were put

into service about 120 km by the simple line, on which almost 300 million journeys were made annually, or about 25 million a month. Unfortunately, no other subway network has been built in the country. However, neither should the support of the communist regime for the development of domestic enterprises manufacturing vehicles of public transport for passengers be minimised. Despite all the unfavourable developments in the last 12-13 years of the socialist era, for the entire period analysed (1950-1989) the regime's policy was one of supporting the development of urban passenger transport.

The same cannot be said for the following period. The post-December society called for a process of permanent modernisation of this type of transport. However, Romania has been confronted with complex socio-economic problems which, together with political orientations misappropriated to realities, have led to a permanent reduction in the importance of public passenger transport from urban areas. This was also encouraged by the increasing demand of the population for the purchase of personal vehicles for transport (mainly cars). In this context, serious local problems have arisen, such as saturation (excess congestion) of traffic, major pollution (air and noise) etc. These premises should have supported the intense development of public transport but, abnormally, the evolution of this mode was not at all favourable. The most obvious example is the decrease in the number of cities with such a service, which in 2007 reached half of that recorded in 1990. Clearly, the negative evolution of this service from qualitative and quantitative perspectives is also highlighted by the continuing decline in the number of national registered travellers. Thus, while in 1990 they used public transport at national level about 2.5 billion people, by 2019 the number of people was reduced by almost 30%. During this period, the biggest decreases in activity were observed in electrical transport, contrary to international trends aimed at implementing sustainable transport policies, especially in areas with large congested populations. For these reasons, the recorded regression made the activity of public passenger transport, at urban level, almost identical in 2019 to that recorded in 1962.

A revival of the development of this type of service occurred, at least theoretically, after 2014 when, driven by EU policy in the field, most urban areas, in order to have access to project funding from

Community funds, had to draw up Sustainable Urban Mobility Plans (SUMP). These, achieved until 2018 are currently in different implementation phases, but the results are not remarkable. Even though the economic developments supported by a free economic market could be conducive to the development of a modern and efficient public transport system, the reality has shown that policies adopted after 1990 were more ineffective than in the socialist period. The hope for the future in this area comes from the European Commission, which in December 2019 adopted the Green Deal, which strongly supports the development of green transport, with public transport of passengers, especially at urban level, playing a major role in this scenario.

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