Sustainable urban mobility in Bucharest

Reducing Climate change and carbon emissions, by increasing overall wealth and quality of living for the citizens

The transportation of people and goods is one of the greatest challenges facing cities today, as it is responsible for over a third of global carbon dioxide emissions. The transport sector currently relies largely on fossil fuels. Achieving deep emissions reductions requires an integrated system approach. This includes promoting

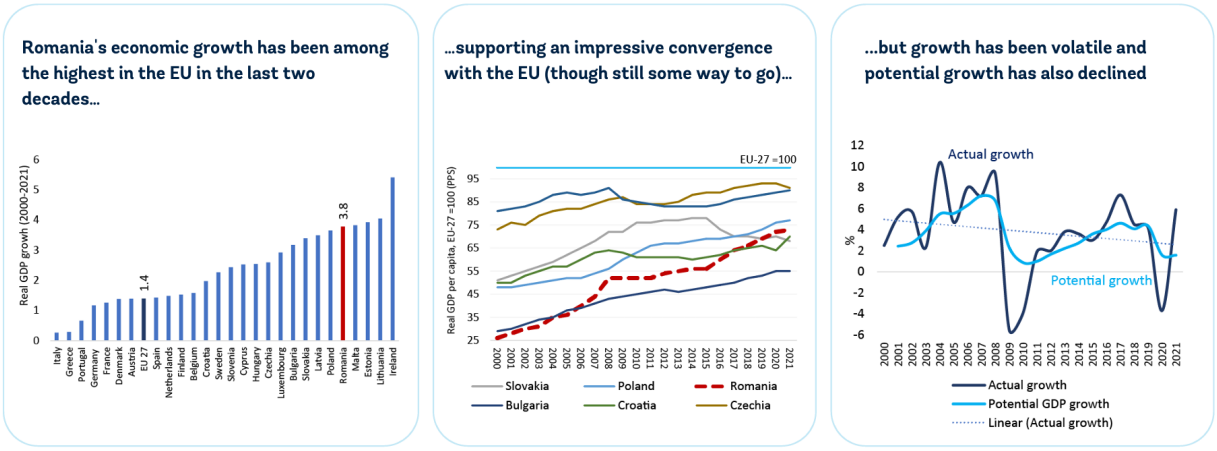
- overall vehicle efficiency, low- and zero emission vehicles and infrastructure;
- a long-term switch to alternative and net-zero carbon fuels for transport;
- increased efficiency of the transport system – by making the most of digital technologies and smart pricing and further encouraging multi-modal integration and shifts towards more sustainable transport modes.

There is no single fuel solution for the future of low-carbon mobility – all main alternative fuel options will be needed, but different options are more suitable for different transport modes.
Changes in behaviour and consumer choice to shift from private transportation to low-carbon public transport, shared mobility and zero-carbon mobility (biking, walking) are also key. Rethinking mobility will deliver tangible benefits, including clean air, reduced noise, and more liveable urban spaces, generating major benefits for citizens' health and quality of life and the European economy.[1]

Romania is a European Union member state located in the south-eastern part of Europe. Romania is positioned in the vicinity of several large markets, including the European Union, the CIS states and the Middle East and is also home to a third of the Danube as well as of the largest and deepest harbor at the Black Sea (Constanta).

Romania has made impressive strides in raising its economic performance and prosperity over the past two decades. However, the COVID-19 pandemic and Russia's invasion of Ukraine have tested the resilience of the Romanian economy and exacerbated its structural vulnerabilities, especially in terms of poverty and disparities in economic opportunity, persistently large gender gaps in labor force participation and employment, widening fiscal and current account deficits, and significant institutional constraints hindering the efficient use of resources.

The economic growth has been among the highest in the EU in the last two decades, but growth has been volatile, according to the Systematic Country Diagnostic performed by World Bank. Nevertheless, growth has been volatile, due to governance and institutional constraints, that remain the challenges for Romania development. These constraints slow down a stronger and more inclusive growth, delivery of high-quality public services to all citizens, improvement of living standards for Romanians across regions, creation of better jobs in the private sector, and capability to adapt and mitigate climate change and natural disasters.[2]

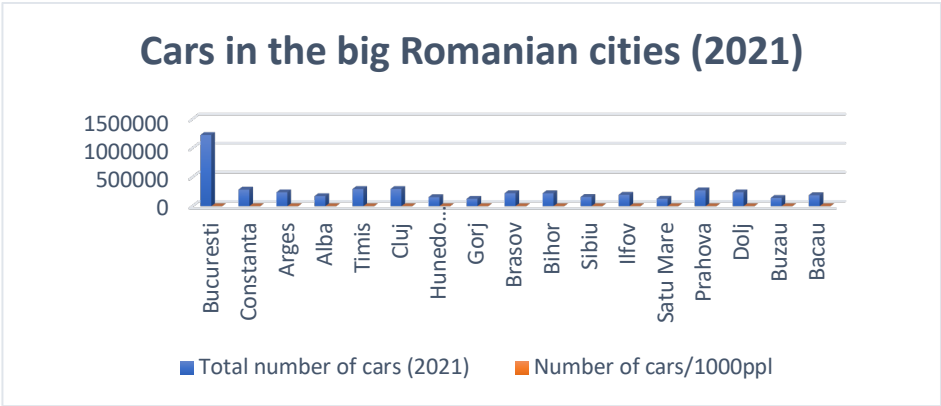


Source: Eurostat, AMECO, World Bank calculations

One of the directions for the country to preserve a strong and sustainable growth it to invest in Environmental sustainability (mitigation of climate change) of the economic activity. This can be achieved by accelerating decarbonization and ensuring energy security; reducing environmental degradation (water, land, atmospheric).

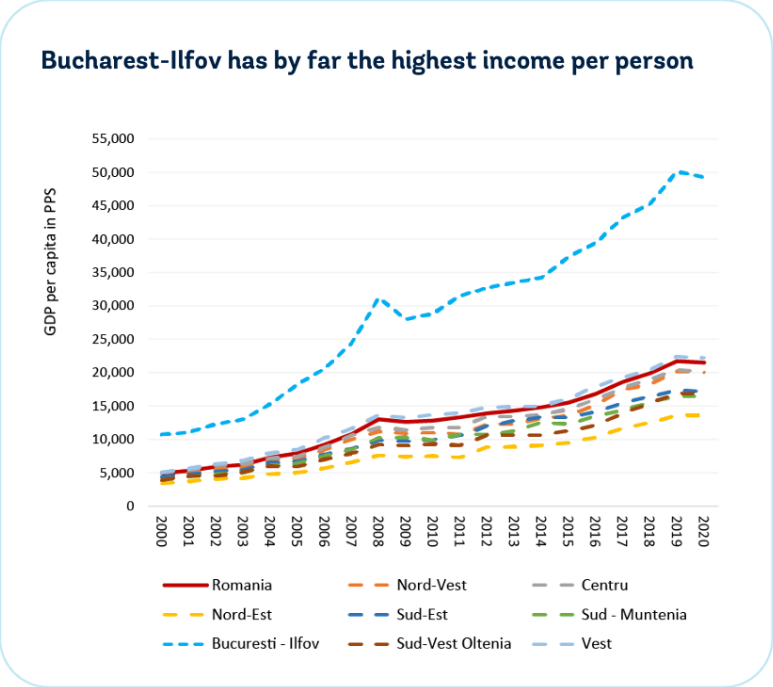
Mobility represents all the different ways to get people and goods from one place to another. Implementing sustainable mobility is a way of reducing environmental degradation.
The goal of sustainable mobility is to increase efficiency (and thereby reduce CO2 and other harmful emissions), improve safety and enhance the quality of life in the large metropolitan areas that will be home to more and more people over the next 30 years. It concerns all forms of land, sea and air transport, for both passengers and freight.

In the period 1991-2012 the degree of motorization of Romania has increased by 3.5 times, mainly due to the increase in the number of private cars. In comparison with the same period, the European average has known a 36 percent increase (Eurostat, Motorisation rate, 2014). This phenomenon is extremely worrying if we take into account the gravity of vehicle/engine toxic emissions for the environment and for the human health. It got to a very bad situation where, for example, in a city as Bucharest, concentration of traffic-related pollutants, such as carbon monoxide, nitrogen dioxide and lead, carried to a decreasing with two for five years for the life expectancy of the citizens compared to the national average, much lower than the European one[3]



Source: https://www.analizeeconomice.ro/2022/02/topul-judetelor-dupa-numarul-de.html

Bucharest (the capital and Romania's largest city) has been the top FDI (Foreign Direct Investment) destination in the country for more than a decade. Bucharest- Ilfov has the highest GDP per capita from the entire country.



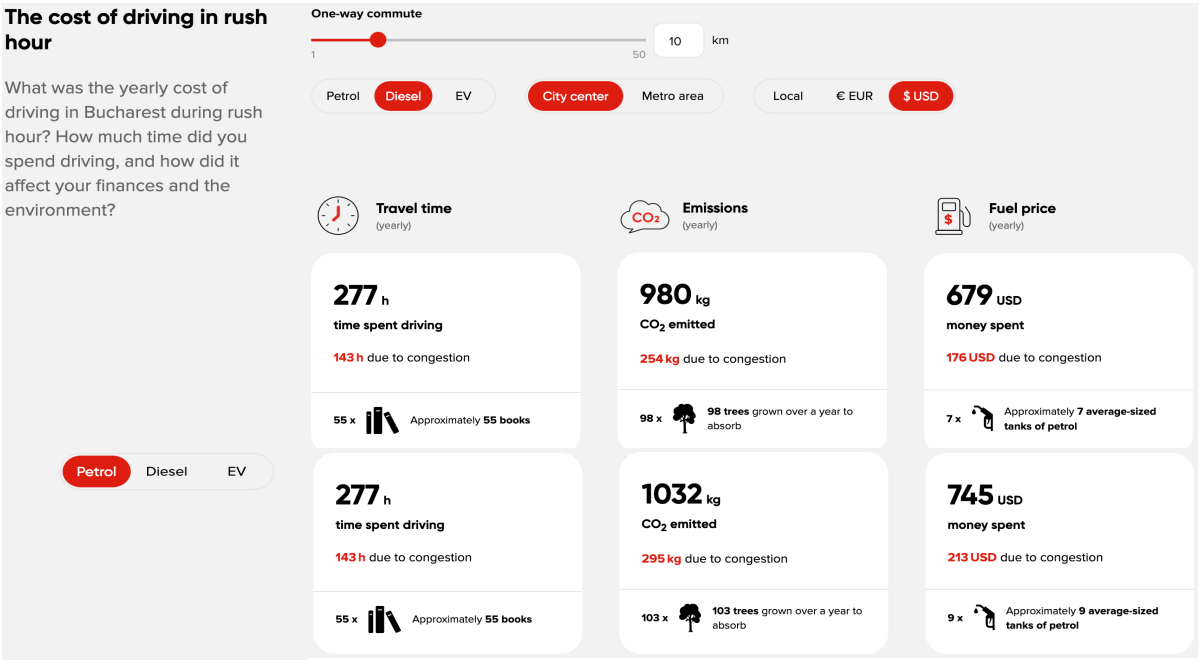
Source: Eurostat

One of he most attractive Romanian cities is faced with the big issue of the highly congested traffic.
The demographic and economic growth of Bucharest is impacted by the fact that people spend daily many hours stuck in traffic. The street network of the city was designed at a time when cars were in much lower numbers than in the present, when a personal motor vehicle, besides its practical usefulness, is also a status symbol that Romanians would hardly part with. In addition, the taxation of used car imports made the number of cars increase exponentially after the EU accession, while their age is the highest on the continent. Thus, besides the crowding, the level of NOx emitted by cars reached alarming levels, with the city of Bucharest, the city being already subject to infringement procedures by the European Commission.

The capacity of the streets in Bucharest is undersized, compared to the number of cars that transit daily the city.
Bucharest is transited daily by over a million cars. This means blockage, pollution, substantial economic losses:

- 83% of trips in Bucharest are for short distances, less than 10 km;
- 45% of very short -distance trips (less than 3 km);
- On average time spent in traffic is 50% higher than it should, at peak hours it doubles. Bucharest residents spend around 9.5 days/year stuck in traffic.
- Issues: parking, public transportation, low infrastructure.

The cost of driving in rush hour in Bucharest, according to TomTom statistics is presented below:



Source: https://www.tomtom.com/traffic-index/bucharest-traffic/

The solution to overcome this problem is that adopted by large Western European cities since as early as the '70s or the '80s, namely to take measures to curb motor traffic and promote public transport use, biking, walking, electric two wheels. The city hall of the Romanian capital, with the support of the European Commission, prepared sustainable urban mobility plans for the 2030 horizon, which should address most of the traffic issues. Sadly, the European funds allocated for their implementation are insufficient, as they are not complemented with governmental funds. Thus, when left to authorities with generally modest revenues, these large scale investments (from ring roads and parking lots to pedestrian areas, shared spaces, dedicated bus lanes and bus stations with information screens or new tram lines) are at risk of remaining only on paper. The situation is even more complicated as far as the metropolitan public transport is concerned, which is functional just in few cities, and even then solely in the localities attached to the respective urban center.

One of the main causes of traffic jams in Bucharest is caused by illegal parking. We cannot discuss measures of streamlining of traffic as long as parking rules are not respected in Bucharest.
The parking strategy of the Capital mainly aims at measures of streamlining of traffic by:

- Firmer enforcement of penalties for those who park irregularly and block traffic lanes, bus stops or sidewalks;
- Clear and firm rules for the use of public parking spaces.
- The deterrence - through complementary sanctions - of those who use sidewalks for parking spaces.

The addition of single traffic lanes for public transport, the charging of all parking spaces and the penalties for those who violate parking rules will contribute significantly to fluidizationtraffic in Bucharest.
The solution to implement consistent policies in this field by imposing measures such as setting parking areas and progressive parking fees, enforcing towing rules, removing garages around blocks of flats, building park&ride facilities, implementing easy payment solutions for drivers. However, in most cases, these measures

were delayed due to fears of disapproval among the population. So the city administrations lacks the courage to implementing these options.[4]

When it comes to biking, in terms of cost-effect-benefit ratio, the investment in velo infrastructure is unbeatable. While a 3.5 meter road lane can carry up to 2,000 people/hour-way, a bike lane of similar width can support up to 14,000 people/hour-way.
The velo infrastructure in Bucharest is underdeveloped at this time, this is why the use of the bicycle as a means of transport is very low.
Although sustainable, relatively cheap and with the potential to attract more people to use bicycles, a dedicated infrastructure was generally ignored by the administrations of the Capital.
In the past, many kilometers of tracks were laid for bicycles on sidewalks, but this "solution" brings more problems, endangering both cyclists and pedestrians.

Another aspect of the mobility is related to public transportation, citizens are generally dissatisfied with the physical condition of the public transportation (mainly trams and trolleybuses), but also with the temperature inside them during the summer. This fact proves that the main reason for people's dissatisfaction is the comfort and age of the fleet.

The solutions to be addressed in order to provide for sustainable mobility in Bucharest are:

Goals	Market Solutions	Government Solutions	Corporate Solutions
➢ Make transportation less polluting	➢ Use hybrid, electric vehicles ➢ Install numerous charging stations to be installed in cities and the countryside	➢ Restrictions on the most poluting vehicles ➢ More areas with restictions up to 30km/h ➢ Enhance traffic management systems ➢ Improve public transportation	➢ Implement delivery services on bikes & electric vehicles ➢ Make the last mile less polluting
➢ Encourage alternative modes of transportations in cities: bikes, scooters, electric unicycles, hooverboards etc.	➢ Create bike/scooter sharing services across the cities ➢ Free supermarket deliveries for two-wheels users	➢ Creating new bike lanes. ➢ Incentivize people in buying two-wheels (special grant)	➢ Create Bike to Work schemes, where employees are given a discounted new bike to use to get to work. ➢ Give incentives for employees that use alternative transport modes.
➢ Promote walking		➢ Designing special walking areas	
➢ Urge people to always travel together than individually	➢ Create car sharing services for residents.	➢ Develop new subways, tram and bus stations.	

In the past 10 years, several projects have been undergone, or are in progress, in order to implement and promote sustainable mobility. These solutions have been addressed either by the government, by the free markets, or as a way of enhance corporate responsibility.

Here are some examples of these initiatives:

- Government – The Sustainable Urban Mobility Plan (SUMP) 2016 – 2030, which comprises of 7B € EU funding. This program has as main objectives:
    - 50% for the subway modernization and expansion;
    - 50% for enhancing public surface transport, traffic management, bicycle infrastructure:

- Development of the tram network;
- Development of the bus and trolleybus network;
- Tracks and facilities for bicycles, respectively pedestrian spaces;
- Rehabilitation and expansion of the road network;
- Parking strategy;
- Environmental protection.

- Free market
  - I'Velo Urban – bike sharing project, launched in 2016 – mainly for fun activities in parks.
  - Ape Rider - bike sharing project powered by Pegas, Romanian local bicycle producer , launched in 2018, initial investment 3M € - closed down in 2020.
  - Citylink – bike and car sharing, opened in 2020 – closed down in 2021.
  - Uber – Lime: electric scooter sharing ; car sharing; car pooling – present in Bucharest since 2015, still running.
  - Bolt - electric scooter sharing ; car sharing; car pooling - present in Bucharest since 2015, still running.
- Corporate responsibility – Uber, Glovo food deliveries are currently mainly happening on bikes and electric scooters.

As a conclusion, the sustainable mobility can be attained in Bucharest city, with collaboration between the citizens, the private sector and the government. Each stakeholder plays an important role in fulfilling the objectives of a healthier city, a stressless life, enhanced wealth, and quality of life, increased mental and physical health.

Using alternative methods of transportation can lead to reduced travel expenses, which add up over the course of a year.

A well-interconnected public transport system, by ensuring the connection between bus, tram, metro and metropolitan train routes with well-structured intersection points and redesigned park & ride structures, is the basic principle for sustainable urban mobility. The coordination of all types of public transport contributes to the paradigm shift from car-oriented planning to sustainable mobility and people-oriented planning.

To enhance citizens trust and satisfaction in public transportation, the administration should invest in the purchase of new vehicles, but also in the modernization of the infrastructure (especially in the rehabilitation of tram lines), along with the creation of new unique lanes for buses and trolleybuses.

Rethinking mobility will deliver tangible benefits, including clean air, reduced noise, and more liveable urban spaces, generating major benefits for citizens and economy altogether.

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