

HUNGARY

Overview

Hungary has been hosting a select number of Smart City initiatives and test projects over the past years, both on a municipal and national level. However, the country has yet to embark on a large scale and centralized smart cities undertaking as seen in many other Western European countries. Until now, many smart city initiatives were incentivized by collaborations of municipal and business players in this sector, often focusing on specific technical advancement. In order to enforce a more centralized management in this area, the government assigned the Lecher Center in 2015 to coordinate and support upcoming smart city initiatives and to link public and private players thus igniting a movement for more smart cities projects in Hungary.

There is no specific ministry assigned by the government to be responsible for smart city projects, but every government entity would have a role in it, although it is mostly covered by the Ministry of Innovation and Technology, as well as the Ministry of Interior's e-Government Secretariat. The concept of smart cities appears in several government programs including the Digital Welfare Program 2.0 - introduced in 2018 – and the Modern Cities Program that is a development project running until 2022 with a budget of \$12 billion (HUF 3500 billion) available for 250 projects in 23 municipalities across Hungary.

Sub-Sector Best Prospects

Smart mobility - intelligent transport systems are being installed in several cities. The development of such solutions has become a priority for local municipalities and includes radar, cameras, automatic scales, and advanced electronics for road transport. Hungary's Modern Cities Program includes \$133 million for public transport and smart mobility development projects.

Demand on the Hungarian market in the area of smart and sustainable mobility

In terms of significant investments, the focus is shifting away from road construction to smart, service-based solutions. The largest investments (> 1 billion EUR) in the upcoming decade (2021-2030) are expected in the following areas:

- **Railway infrastructure developments**
 - mainly related to urban and suburban public transport investments, incl. investments into rail vehicles, wagons and developments enabling P+R and intermodal transport options.
 - supported by the Budapest Suburban Railway Strategy, released in February 2021.
- **Electrification in all areas of private and public transport**
 - e.g. purchase of electric passenger cars and (low emission) buses
- **Infrastructure related to electrification**
 - both hardware (establishment of further charging points) and software, mainly for eMSPs and vehicle to grid solutions

Foreign businesses could explore their options in the rapid e-charging segment, vehicle to grid and e-MSP solutions as well as the e-bus market

- Only 14% of the chargers in the Hungarian network are high-performance fast chargers and there are still many uncovered areas.
- More than 360 million EUR will be available to enhance the infrastructure in the upcoming decade

E-charging infrastructure

- Currently, there about 1,200 charging points throughout the country with many areas left uncovered.
- The respective development plan expects at least 5,900 charging points by 2030, for which around 362 million EUR of funding is expected (together with the Green Bus Programme).
- Foreign businesses with expertise in the area of charging infrastructure hardware could enter the market, especially in the rapid charging segment.

Software solutions

- Vehicle to grid solutions: Decentralized energy production and energy storage solutions integrated through IoT platforms should contribute to the efficient balancing of the electricity system.
- Solutions for e-mobility service providers: Currently, customers are bound to the charging points operated by the charging point operators (CPOs) they are registered to.
- The CPOs currently do not offer roaming or interoperability between their networks

Electric vehicles

- At least 1,300 electric buses shall be operating by 2030, financially supported by the Green Bus Programme.
- The competition for funds is tight as Hungarian companies produce around 200 e-buses per year themselves.
- Bus and charging manufacturers could explore their options individually or as part of a consortium, as a large amount of public funding will be available in this segment in the next decade

There are many options for research cooperation, supported by Horizon Europe or the Connecting Europe Facility Inland railway infrastructure

- One of the heavily funded areas with more than one billion EUR of investments
- Investments into rail vehicles, wagons
- Developments enabling P+R and intermodal transport options in line with the Budapest Suburban Railway Strategy (2021)

Research, Development & Innovation

- Many options for research cooperation between Dutch and Hungarian research institutions
- Financial support can be obtained under Horizon Europe or the Connecting Europe Facility (CEF)
- Currently developing ecosystem in the area of hydrogen propulsion and hydrogen fuel cell technologies
- Supported by the National Hydrogen Technology Platform
- Opportunity for international research cooperation

Smart living and healthy lifestyle – smart living is a dynamically expanding area with promising opportunities. Around 90% of families are incorporating smart living technologies into housing designs and their lifestyles. For example, the wearables market in Hungary is anticipated to grow by 4.6% annually, resulting in a market volume of \$10 million by 2023.

City Logistics

The Hungarian capital needs smart and sustainable solutions to decrease the stress on urban living space: Currently complex city logistics system solutions are not applied in Hungary

Business opportunities in the area of city logistics

- The growth in demand related to e-commerce services in 2020 increased the pressure on cities' transport networks.
- Budapest's Smart Mobility Plan recognizes that the Capital needs smart and sustainable solutions to decrease the stress on the urban living space.
- the first step towards intelligent city logistics development is the utilization of unused brown-field areas in the inner city.

In the upcoming years, there will be demand for:

- IT-based organization and supervision of urban transport, and the optimization of the use of designated loading space in public areas
- Efficient organization of the link between long-distance transport and the last stage of transport ("last mile")
- Collection, management, analysis and monitoring of urban transport data to develop a user- and environmentally friendly transport system

Important areas of further development in sustainable transport and business opportunities

- Deployment of interlogistic smart solutions,
- Knowledge transfer about standardization processes of logistics sites/systems,
- deployment of technologies that automate the communication throughout the whole supply chain,
- Solutions targeting the improvement of intermodality,
- cooperation in the field of R+D and innovation activities, with Hungarian SMEs and universities,
- Deployment of innovative rail freight solutions,
- Participation in waterway and port related investments.

Smart buildings and construction – both the public and private sectors are converting current buildings into smart buildings including renewable energy sources, advanced access controls, and sophisticated security management among other innovations. Hungary's Modern Cities Program for example, is managing funds worth \$343 million for the development of energetic systems and public utilities in 8 cities.

Opportunities

Hungary is looking to be one of those countries to quickly launch an efficient 5G network, thereby acting as a European hub for 5G development. The construction of a 5G trial zone is in progress in Zalaegerszeg (western Hungary), aiming to embody autonomous operation, 5G development and all the other specific features of the smart city.

In July 2018, Magyar Telekom conducted a first 5G trial at the company's headquarters in Budapest. Its first 5G standard station opened at Zalaegerszeg at the end January 2019.

This type of cutting-edge technology would advance Hungary's Smart City programs and help Hungary set up a higher living standard. However, this type of change will need to stem from cities like Budapest first before making real change in surrounding smaller towns. 5G is one area that can offer a foundation for Budapest to introduce and test smart solutions in everything from sustainable mobility systems to CNG-fueled vehicles that when deemed successful can later make their way to other parts of the country.

Web Resources

<https://www.institutmontaigne.org/en/publications/5g-europe-time-change-gear-part-1>

<https://www.eib.org/en/publications/smart-cities-smart-investments-in-cesee>

<https://www.linkedin.com/pulse/smart-cities-eastern-europe-cee-growing-potential-emma-lee>

<http://okosvaros.lechnerkozpont.hu/en>

http://www.xpatloop.com/news/smart_solutions_for_our_cities_in_hungary

<https://www.privatebank.citibank.com/home/fresh-insight/citi-gps-sustainable-cities.html>

Main actors

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Attila Steiner, State Secretary for the Development of Circular Economy, Energy & Climate Policy
- Lechner Knowledge Center's Projects : <http://okosvaros.lechnerkozpont.hu/en/projects>;
<https://lechnerkozpont.hu/en/oldal/eu-projects>
- Hungarian Export Promotion Agency: <https://www.hepaoffice.gr/en/hungarian-solutions-for-smart-mobility-in-smart-city/>

Useful links and sources

- Green Bus Program : <https://www2.deloitte.com/content/dam/Deloitte/hu/Documents/energy-resources/Smart-and-sustainability.pdf#page=1>
- MOL Group:
<https://www2.deloitte.com/content/dam/Deloitte/hu/Documents/energy-resources/Smart-and-sustainability.pdf#page=52>