VILNIAUS PLANAS

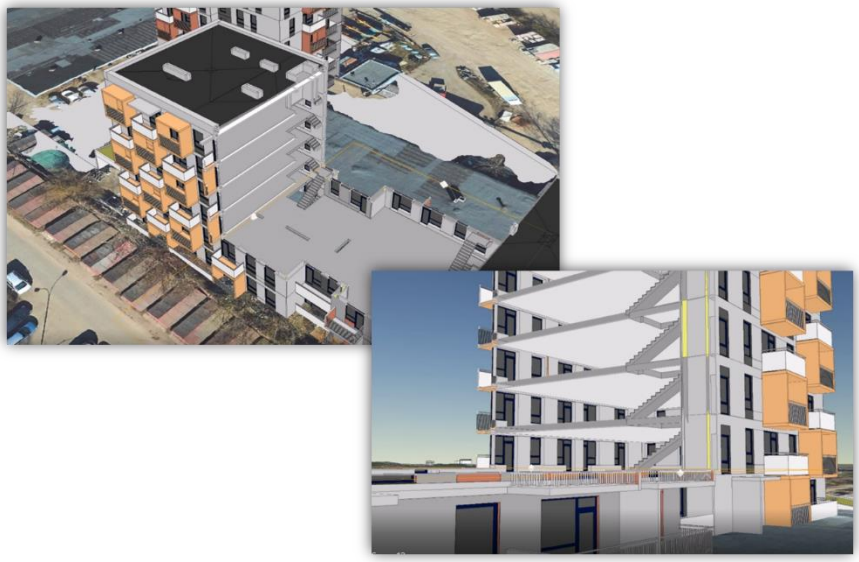
VILNIUS

OPEN DATA CENTER



"Vilniaus planas" is a professional, data-based company specializing in the development and management of digital solutions for sustainable and smooth functioning of Vilnius. Over the years, "Vilniaus planas" has become a constant intellectual partner in the development and growth of the city, representing the interests of the city of Vilnius and its residents.

Today, with the help of modern technologies we are creating a SMART city on many levels – starting from urban 3D Vilnius (the first floor of the city) to drone mapping (the second floor of the city) and the digital twin of rainwater drainage system (the underground of the city). We are a company that systematically works from data collection to its' processing and the creation of data-supported solutions. We use different data to create advanced solutions for a more livable and sustainable environment for its citizens.



On the first level we create urban Vilnius, not only its' streets and public spaces, but also innovative products to understand and follow the city's development. One of such products – 3D map of Vilnius (3d.vilnius.lt). A 3D model of a real-life situation provides the opportunity not only to have a virtual city, but also to evaluate the ongoing development of the city against the backdrop of this real environment, to present the current and ongoing projects in a visually and clearly way, to understand how the environment will be affected, how the well-being of those living nearby will be affected, and what visual pollution will occur. While developing new infrastructure, we also take care of the existing one. We use drones to inspect old buildings, and by using artificial intelligence assess the condition of the roofs, create a priority list for renovation work.

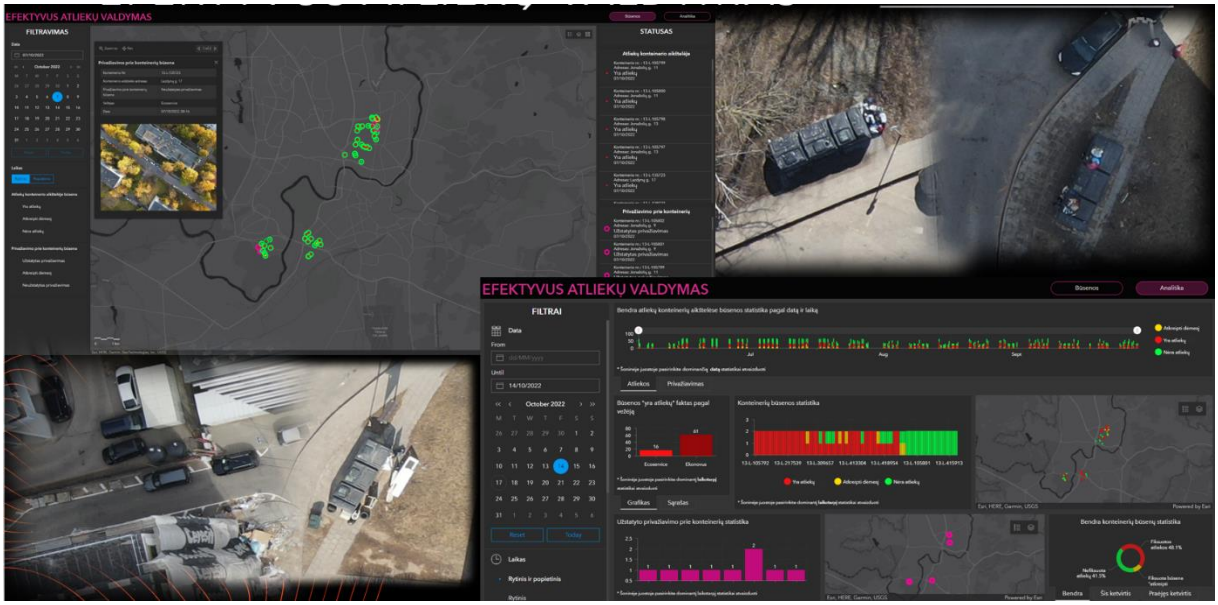
In developing the city, we are preserving the architectural heritage in Vilnius, therefore we have created a virtual system of wooden architecture. By applying photogrammetric methods and scanning with LiDAR lasers, we have created 3D models of cultural heritage wooden buildings. We have recorded not only the general appearance of each wooden building, but also the most important architectural details - gables, handles, window frames or other rapidly disappearing fragments.



The data on wooden buildings and their details allows for the accurate and quality restoration of not only existing, but also destroyed buildings and their parts. The material is open to residents or other individuals who want to properly take care of their buildings. The digital database is also used for scientific research and education - it serves architects, artists, heritage conservationists and other specialists.



As the city expands, we observe how problem areas change – with the arrival of settlers, the load on waste containers increases. Using drones, we monitor the condition of waste containers, see violations, and report them to the responsible authorities. In response to the messages, they plan the expansion of container yards or look for other solutions.



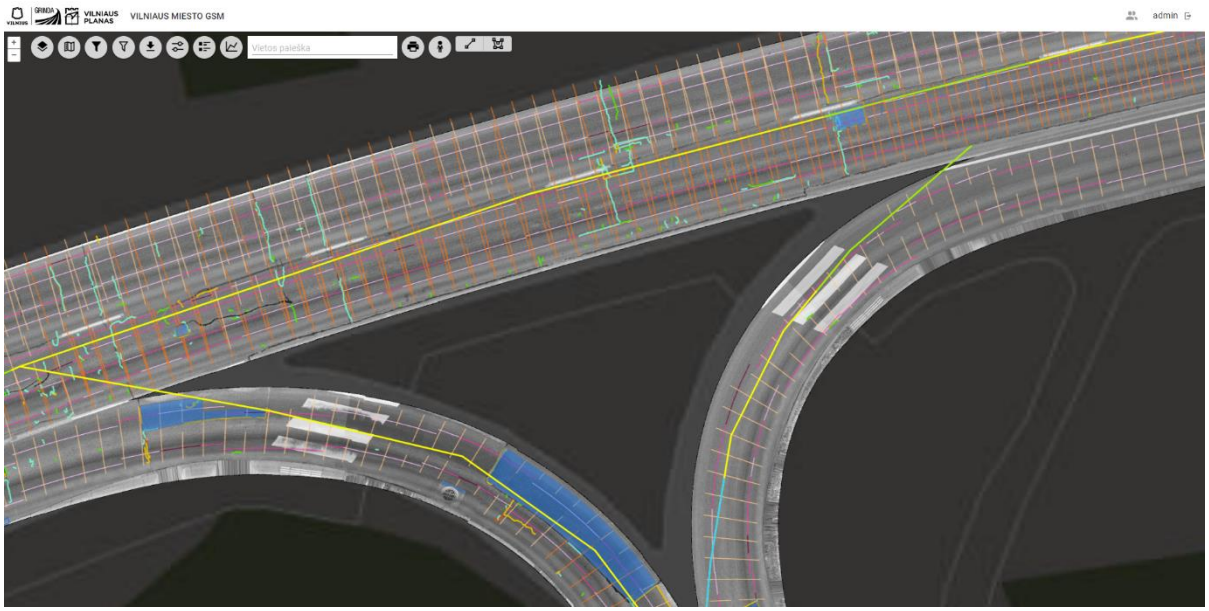
Above the ground level, drones and AI are becoming the main technology for maintaining the city environment, collecting data, and analyzing it. To ensure higher air quality we record real-time air pollution data and keep it open to the public (https://miestoplauciai.vilnius.lt/). Moreover, the air quality and city's urban development is being inspected by mobility map – to reduce congestion in the city and shorten the travel time of Vilnius residents within the city, we monitor the everyday mobility and environment during events. The mobility map's data is being updated every day, which allows us to identify the busiest streets in the city. According to this, infrastructure development, increased public transport flow and other solutions are proposed.

The highest tech solutions are also used to inventory the existing city infrastructure. During the information system of traffic management tools creation, all means of traffic organization in Vilnius were inventoried: streets were scanned with LIDAR laser scanners, 360-degree panoramic photos were taken of them. By processing the collected data, all vertical and horizontal road signs and other road infrastructure objects in the city and their wear are automatically inventoried. Now machine learning is used for continuous data updating.

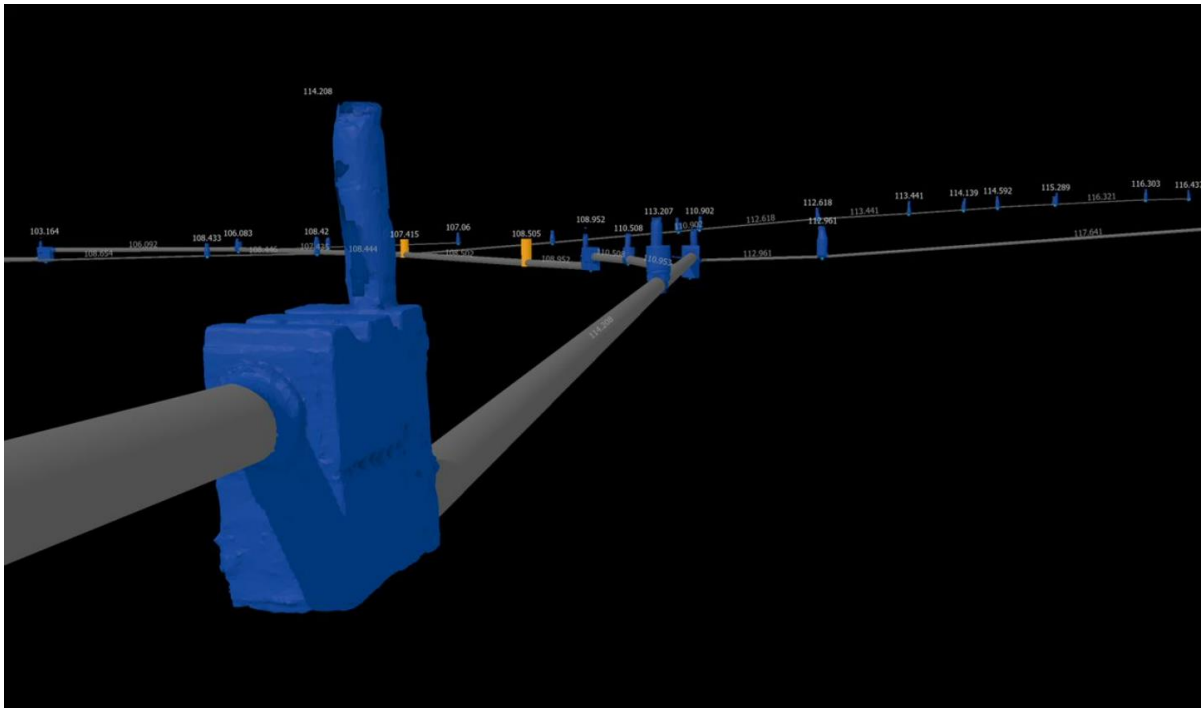
Thanks to the collected and processed data, the city of Vilnius has an up-to-date database of technical traffic regulation measures, which allows specialists and contractors to manage and analyze the data.

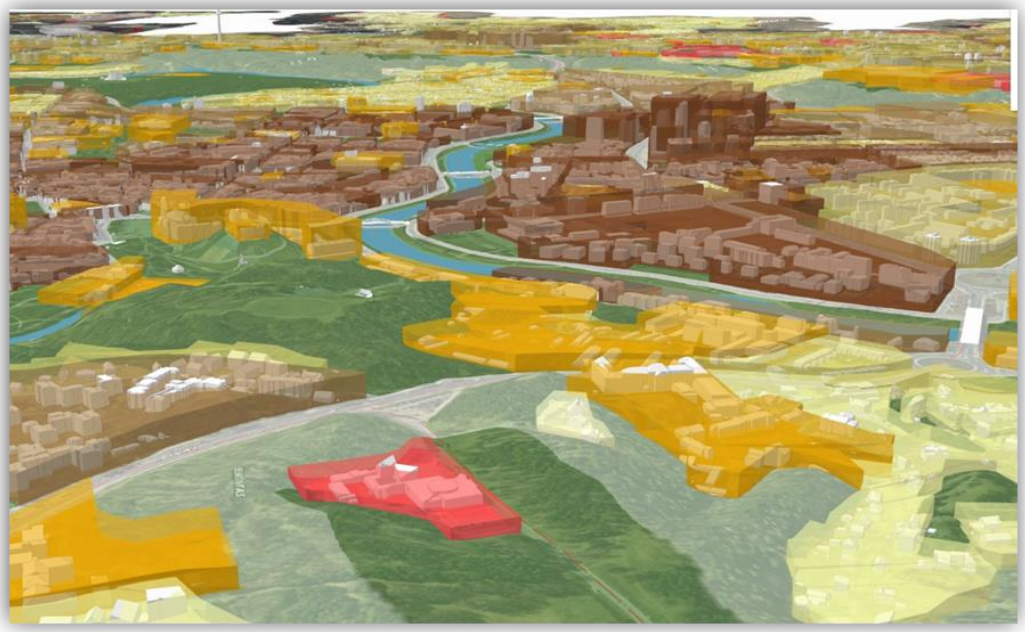
However, the asphalt itself wears differently on different streets in the city - this depends on the intensity of traffic, the abundance of heavy vehicles, the age of the surface, and the previous repair work carried out on the surface. By creating a digitization module for streets, we have given the city the opportunity to plan street maintenance work more targeted and to carry it out more effectively. This solution is intended for assessing the condition of the asphalt surface and planning data-based maintenance and management. Using the latest technologies, the condition of 2,400 kilometers of street surfaces has been scanned and analyzed.





Successfully collecting, analyzing, and using the underground data of already created systems, Vilnius is expanding the data management capabilities for the underground assets of the city by creating the "Digital twin" rainwater drainage system. Data is collected by scanning 17,000 rainwater drainage manholes with a LIDAR laser scanner, and 500 kilometers of pipes are inventoried. Hydraulic modeling of Vilnius is carried out based on the available data, which allow more effective fighting against natural disasters and planning the city's development based on data to avoid greater losses to the city and its residents.





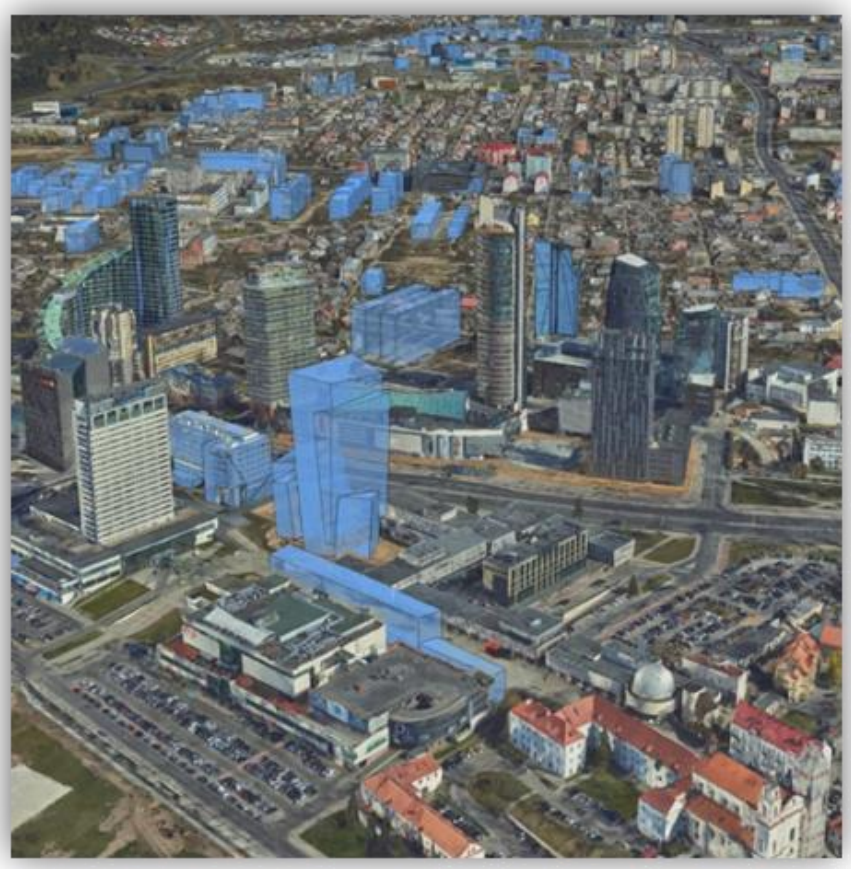
3D map



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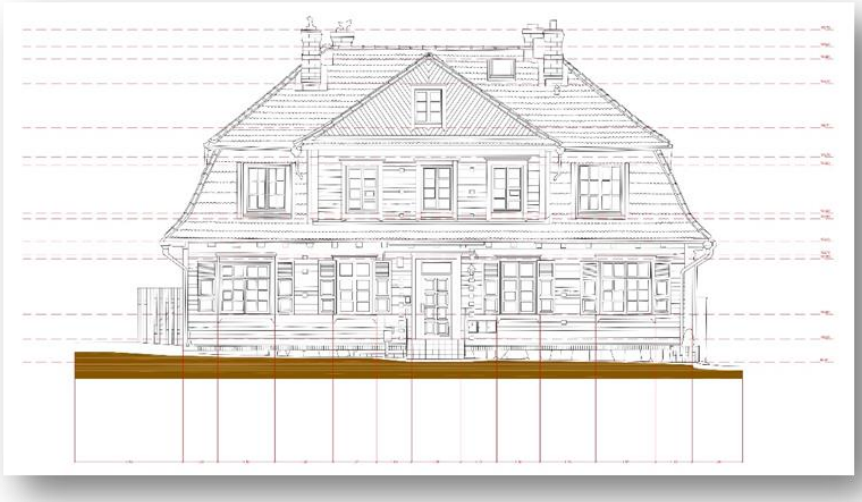
3D map



Virtual system of wooden architecture



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