

# The City of Poznań - Photogrammetry - from Cadastre to Digital Twin

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## SUMMARY

The City of Poznań, located in central Poland with the city population of over 500,000 citizens, is also a strong industrial and new technologies' center.

GEOPOZ The Geodesy and Cadastre Administration (ZGiKM GEOPOZ) in Poznań is one of the local government organizational units in charge of the cadastre and the Geographical Information System in Poznań. For almost 30 years now it has been gathering and applying spatial data in support of Poznań and its citizens.

The spatial data, obtained mainly through the photogrammetry, facilitate managing the urban fabric of Poznań. For that purpose, modern photogrammetric stations in the process of stereodigitalization of aerial photographs provide standardized data to supply the city cadastre, the geographical information system and the 3D model - a 'digital twin' of the City of Poznań.

The 3D model of Poznań, as a part of Poznań Geographical Information System, employs data collected from ALS (Airborne Laser Scanning), DTM (Digital Terrain Model), DSM (Digital Surface Model), true ortho and TLS (Terrestrial Laser Scanning) data obtained by GEOPOZ. The digital twin built on the basis of these data, is fundamental to make urban space decisions and to present their results to citizens. These data, published through the GIS portal are available to download to any interested party, in the open data form. Open data published as a part of Poznań Geographical Information System, fit the smart city idea and promote data application by administration, institutions and citizens.

The forthcoming climate change and the need to prepare the city to meet its new challenges as well as a concern to secure the sustainable growth, require collecting the new data sorts and conducting

analysis in the area of a broader natural environment. Among the data, those related to urban greenery and its environment are of special importance. In this respect remote -sensing analysis based on the photogrammetric information provide an excellent solution, making photogrammetry an integral part of a modern and smart city.

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