

# **3-D Digital Model of Moscow City – Unified Platform for Real Property Units from BIM Projecting to Registering Property Rights**

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## **SUMMARY**

Maps are used at all stages of creating a property: from deciding on its construction to commissioning and ownership registration. The huge experience has been accumulated in creating and using traditional two-dimensional maps in urban planning activities. Terrain information and another spatial data are indicated on two-dimensional maps using symbols or legend. The understanding what you see and further visual analysis requires the knowledge about these conventions.

Modern digital technologies provide completely new way of visualizing spatial data in 3D models. These modeling technologies are gradually being introduced into the cartographic industry.

There is an opinion that 3D maps creating technology is labor-intensive thereafter very expensive. The necessity of its creation is not obvious, because all the tasks in building design or land parcel lifecycle can be solved using traditional maps. This paper refutes this opinion.

TIME is the most important resource in the modern world, irretrievable therefore priceless. Presenting spatial data in 3D models is aimed to save it. Scaling and moving, different viewing options, illumination conditions - all these capabilities reduce the time to assess the situation, analyze and make decisions. The larger the complexity of urban planning project, the higher level of decision responsibility, the higher the price of time spent.

Moscow has tremendous reconstruction and renovation plans in conjunction with dense urban blocks and maze of underground communications. To ensure the implementation of plans, city governance start «3D digital model of the Moscow» project. The model consists of terrain model and geological layers model. Transport and pedestrian figures, city furniture are included to

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improve the realism of the model. Also it is possible to change «weather condition» and turn on/off seasonal phenomena, snowing for example. Geological layers location based upon information accumulated from years of surveying. These models can be used both for selecting the location of future urban blocks and for their architectural appearance approval.

At the stage of creating project documentation, more detailed models of terrain objects and engineering communications are used. These models are created within the boundaries of a real estate object under construction. It is the basis for BIM design and for registration of ownership rights.

The report provides information about Moscow city 3D model components and the way of its creation and describes the experience of using it.

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