

11-15 SEPTEMBER 2022 Warsaw, Poland

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y Models as a 3D Cadastral Layer: The Case of the TKGM Model

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#### Land Registry and Cadastre in TURKIYE

#### **Property Data**

- Owner Information
- Ownership of real estate and related rights
- Property Boundaries

#### **Usage Data**

 Data on registered buildings subject to condominium servitude and condominium ownership.

#### Value Data

 Data on the purchase and sale values of immovables and aggregate valuation data.















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### 3D Cadastre Purpose















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### Property – Smart City

#### 3D cadastre provides,

 The 3D spatial data required for studies carried out in different areas other than cadastre, such as urban planning, land modeling, engineering projects, tax collection, disaster management, protection of cultural and natural assets, environmental protection, and makes the theme of smart cities very easy.











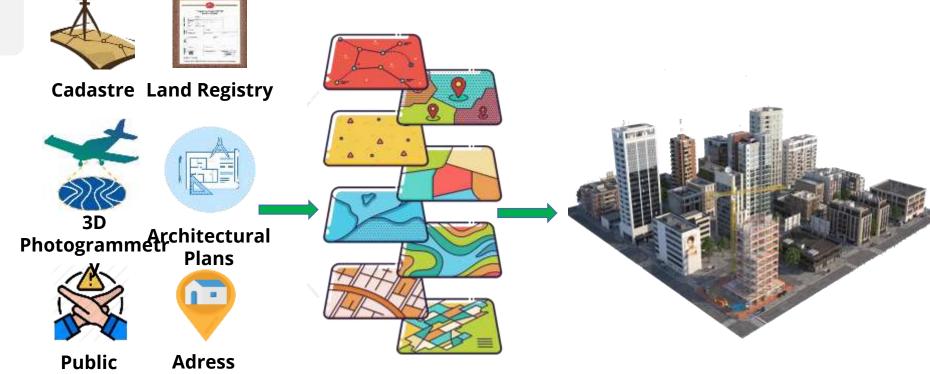




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### **Project Components**







Building Information

**Zoning Rights** 









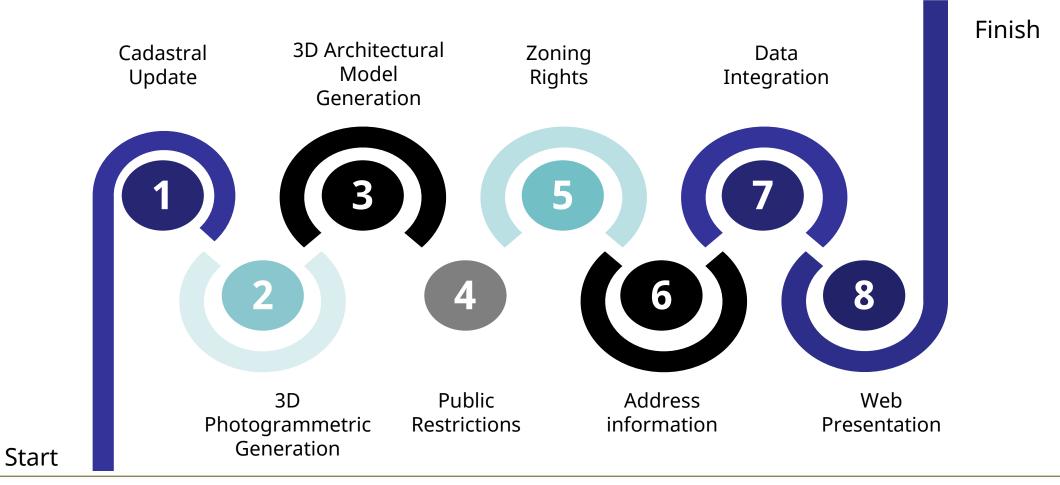




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### **Project Steps**













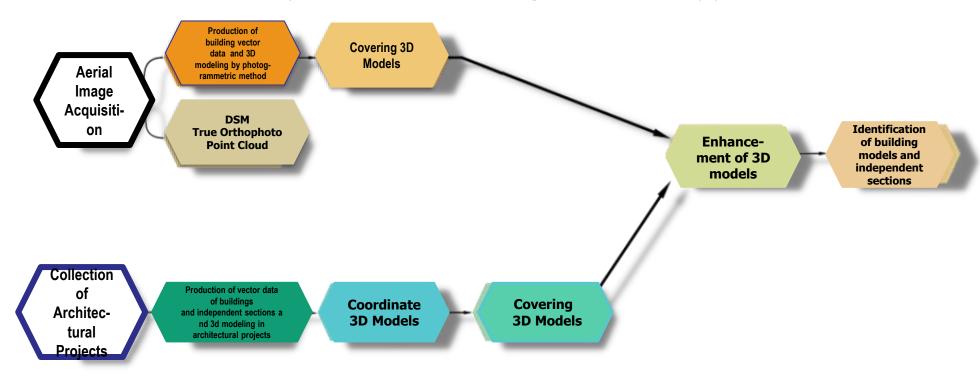


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#### 3D Cadastre Workflow

Production of 3D City Models via Photogrammetric approach



Production of 3D Building Models from Architectural Projects













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### 3D Cadastre Production Stages







Geodesic Studies



Image acquisition with oblique aerial camera



Raw Imagery Processing



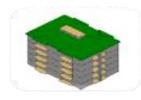
Photogrammetric Adjustment



Point cloud generation from Nadir and Oblique imagery



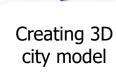
Architectural project digitization



Architectural project modelling



Generating 3D Building Model from Imagery





Generating
Orthophoto and
True
Orthophoto from
Nadir Imagery





Publishing 3D city models on the web









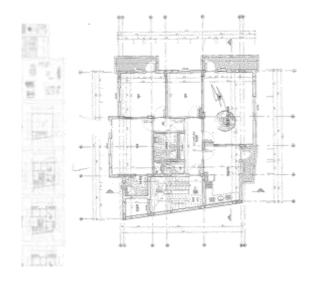




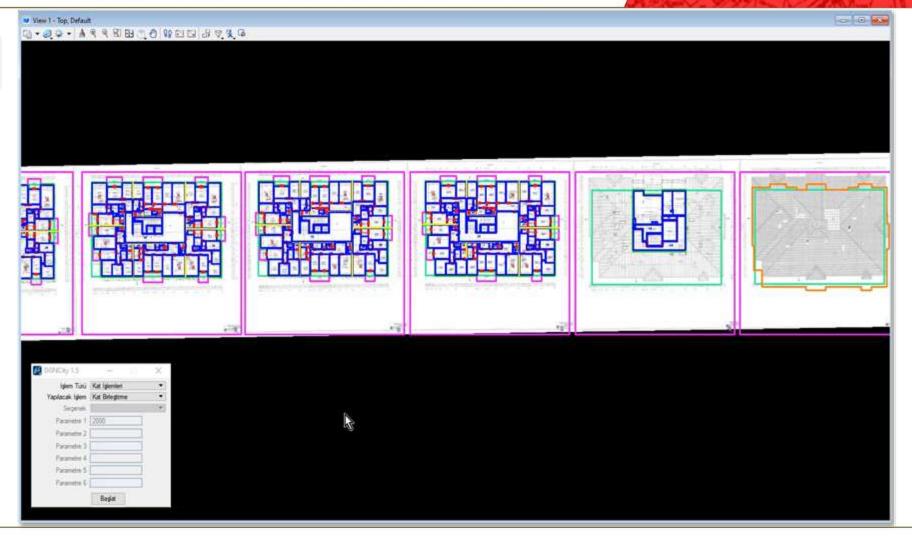
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# Production of 3D Building Models



scanned architectural projects











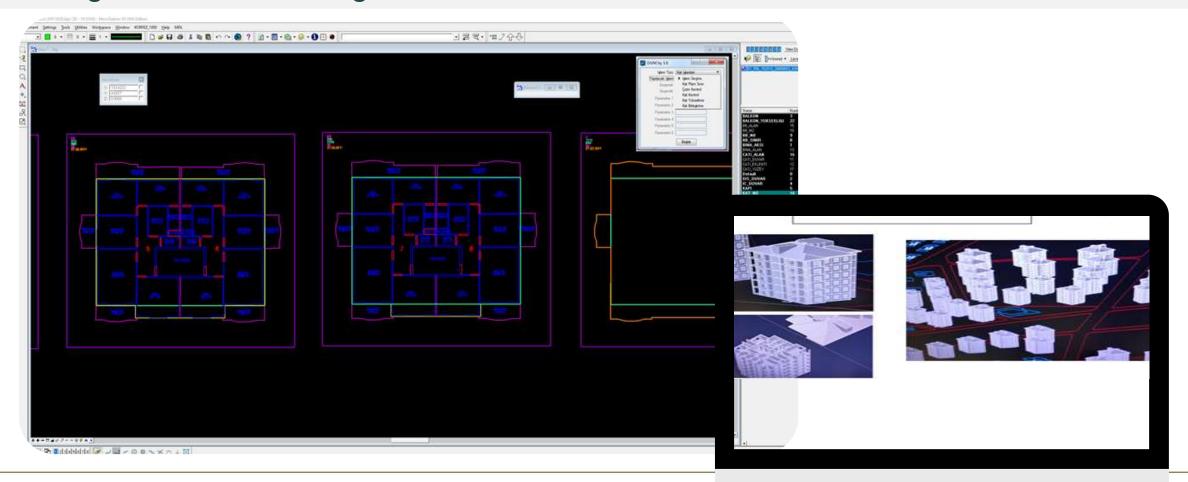




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### Photogrammetric Building Productions















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### **Project Products**





Digital Terrain Model



















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### **Project Products**

#### Photogrammetric Model



#### Architectural Model















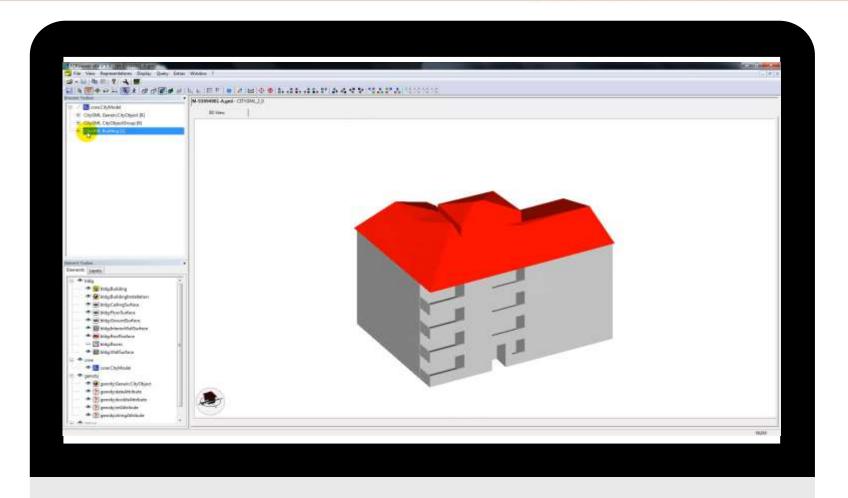
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### **GML** Building Data



- COMMERCIAL SOFTWARE
- INDEPENDENT
- EASY TO SHARE
  - DATABASE
     CONNECTION













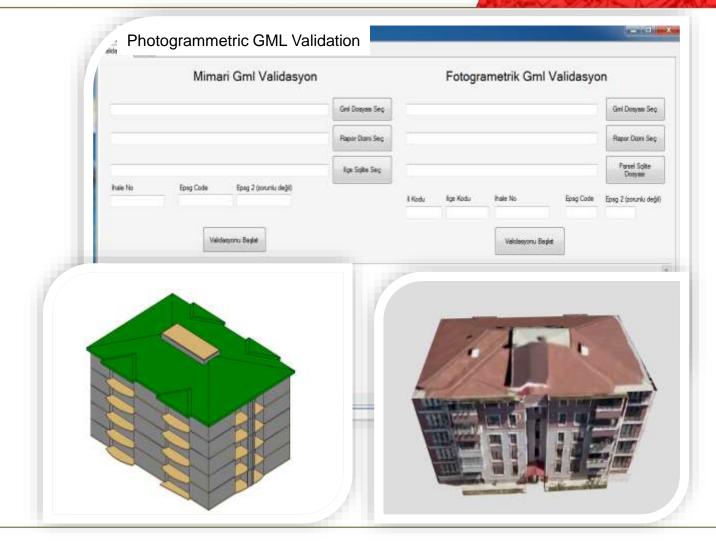


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Validation

Developed Software Above 200 rules















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#### 3D Cadastre Production Areas



2019

5,500 sq2

19 City

7 District Centers

2020

6,400 sq2

21 City

7 District Centers

2021

6,000 sq2

8 City

48 District Centers

Target

48.000 sq2

81 City

922 District Centers













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#### SUSTAINABILITY





Land Registry

**Adress** 













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#### SUSTAINABILITY

e-PROJECT?



MUNICIPALITY/ADMINISTRATI ON APPROVAL/Building Permit MAKS Data Entry



#### **BUILDING CONTROL**

- I. Technical Inspection
- Inspection of Suitability to Occupancy
- 2. Map Implementation Responsibility
- 3D Project Control Surveying
- Independent Section Numbering Control
- Building ID Number



1.Building ID Number
2.Architectural Project (Site plan and 3D Building



TKGM
Construction
Servitude



MUNICIPALITY
OCCUPANCY PERMIT and
MAKS Entry



TKGM
Officially Changing
Usage of Land









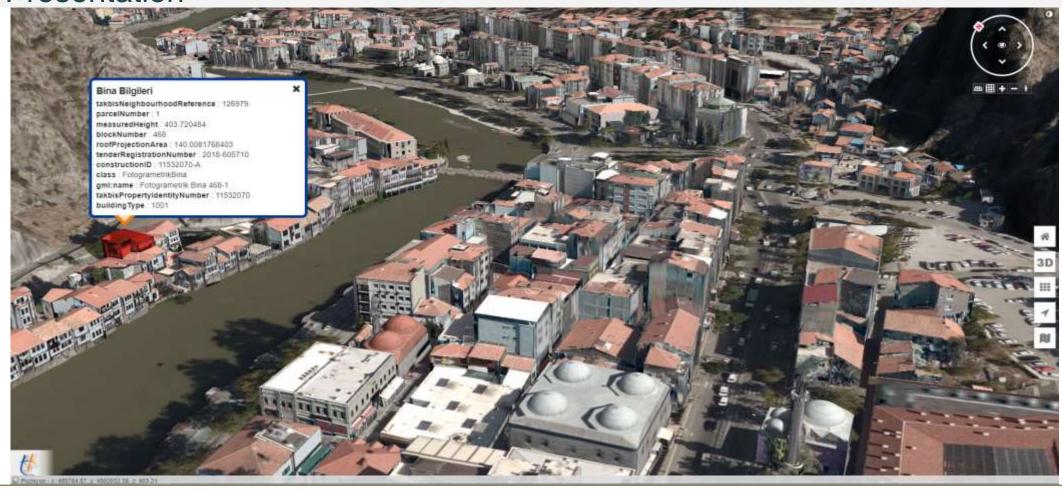




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#### 3D Web Presentation













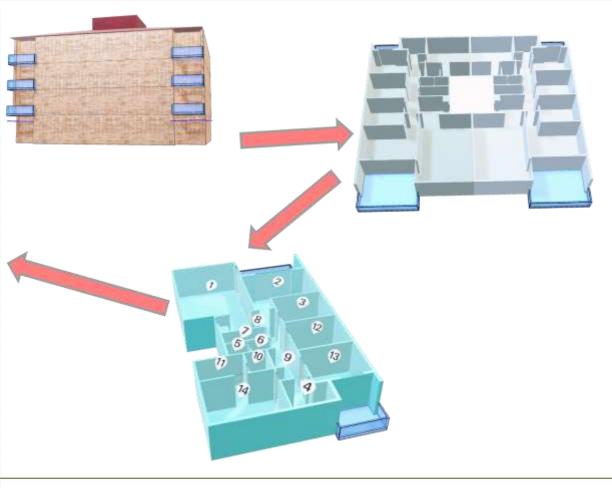


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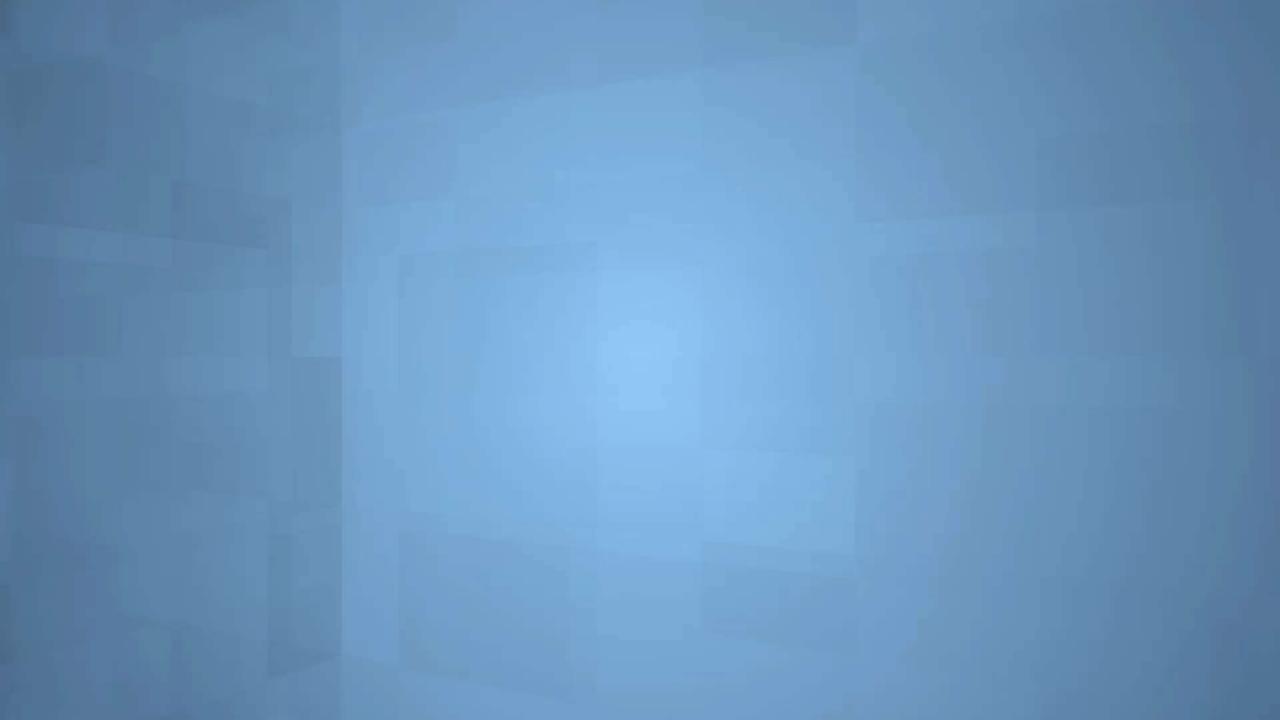
#### 3D Web Presentation

Parcel Attribute	
Property ID	69339954
City	Amasya
District	Merkez
Neighborhood	Şeyhcui
Block Number	101
Parcel Number	83
Area	650 m²
Quality Type	Kargir Sekiz Katlı Apartman ve Arsası
Ground Type	Kat Mülkiyeti
Independent Partition Information	
Block	-
Floor	2
Independent Partition	5
Facade	South - East
Gross Area	142 m²
Clear Area	132 m²
Public Restrictions Information	
It is located in the natural protected area.	
Property Value	
Independent Partition Value	346.000.00 も (October/2021)
Adress Data	
Building ID	172123
Independent Partition ID	2
Neighborhood	İsmet Paşa
Street	Galip Erdem
Building No	18
Apartment ID	5













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Thank you for your listening...





