



FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:
Resilient Environment
and Sustainable
Resource Management
for All

Presented at the FIG Working Week 2024,
19-24 May 2024 in Accra, Ghana



General Directorate of
Land Registry and Cadastre

Creation of 3D City Models and Sustainability of the Project; Case of Türkiye



Dr. Ismail DURSUN
Senior Specialist



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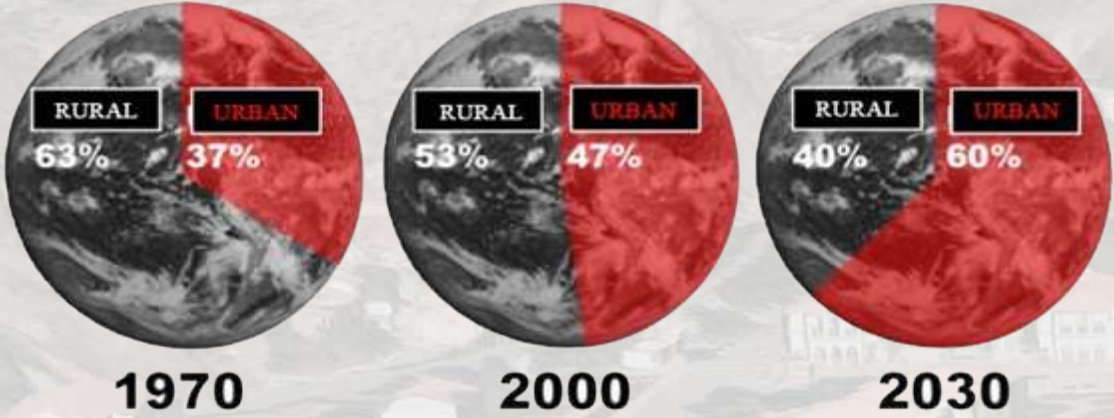
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General Information



In the globalized world, urbanization is increasing considerably and excessive demands make cities uninhabitable. Therefore; With the theme of smart cities, studies are carried out by using technology to make cities more livable areas. One of the most important components of smart cities is 3D City Models and 3D Cadastre.

Within the scope of the project, a pilot project carried out in order to see the interoperability by determining the common demands of cadastral update, real estate valuation, 3D city models production projects, which are different tasks of the departments of TKGM, and as a result, it plans to switch to 3D Cadastre studies..





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Project Targets

- Generating 3D City Models,
- Production of 3D Building Models from Architectural Projects,
- Establishment of the National Digital Building Model Standard,
- Detection and Tracking of Existing Building Stock,
- Spatial Representation of Public Restructions,
- Collection and Valuation of Data Affecting the Value of Property,
- Integration of Data (Land Registry – Cadastre - Adress – Zoning Plan - 3D Building),
- 3D Presentation of all integrated data,
- Sustainability of City Models within the Scope of 3D Cadastre

is targetted.

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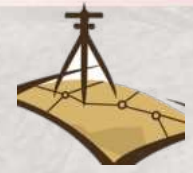
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Project Components



Cadastre



Land Registry



3D
Photogrammetry



Architectural
Plans



Public Restrictions



Address



Building Information



Zoning Rights



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Production of 3D City Models with Photogrammetric



3D Cadastre Workflow Diagram



Production of 3D Building Models from Architectural Projects



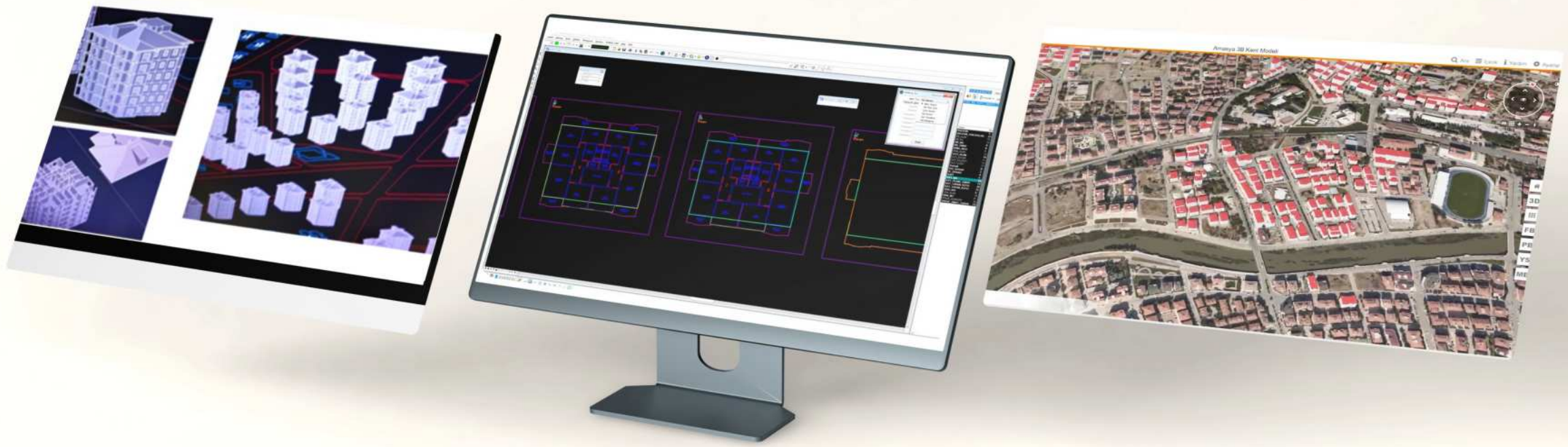
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Production of Photogrammetric Buildings



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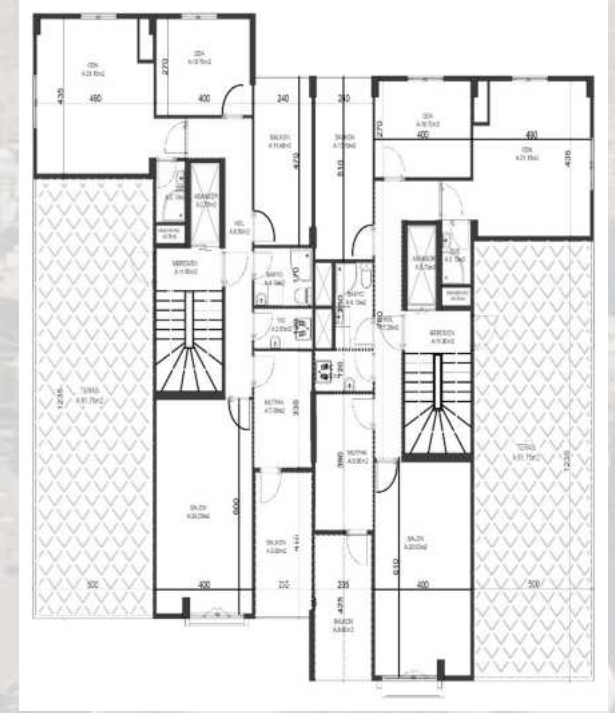
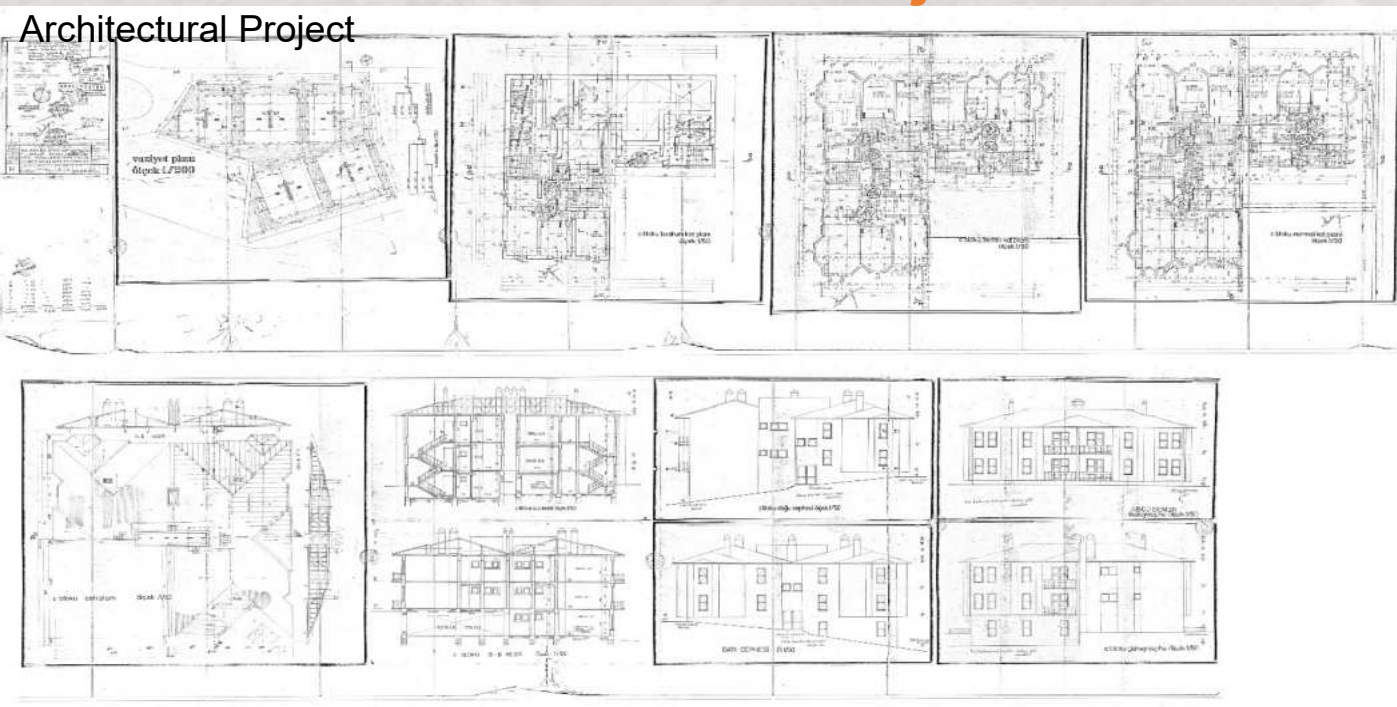
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Production of the Architectural Project



Büyütme



Döndürme



Kırpma



Düzeltilme



Ölçekleme

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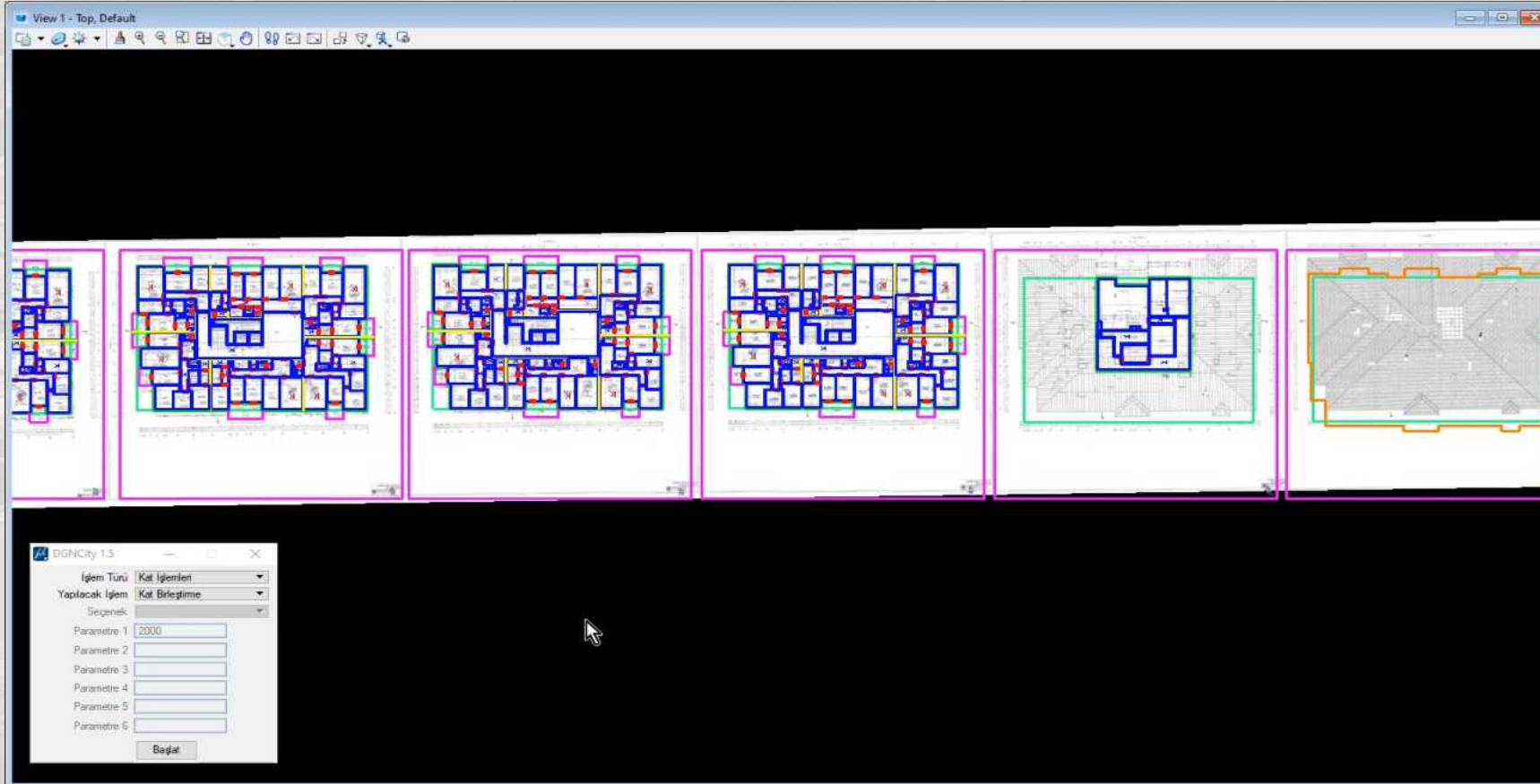
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Production of the Architectural Project



Özel Yazılım
Gelistirme

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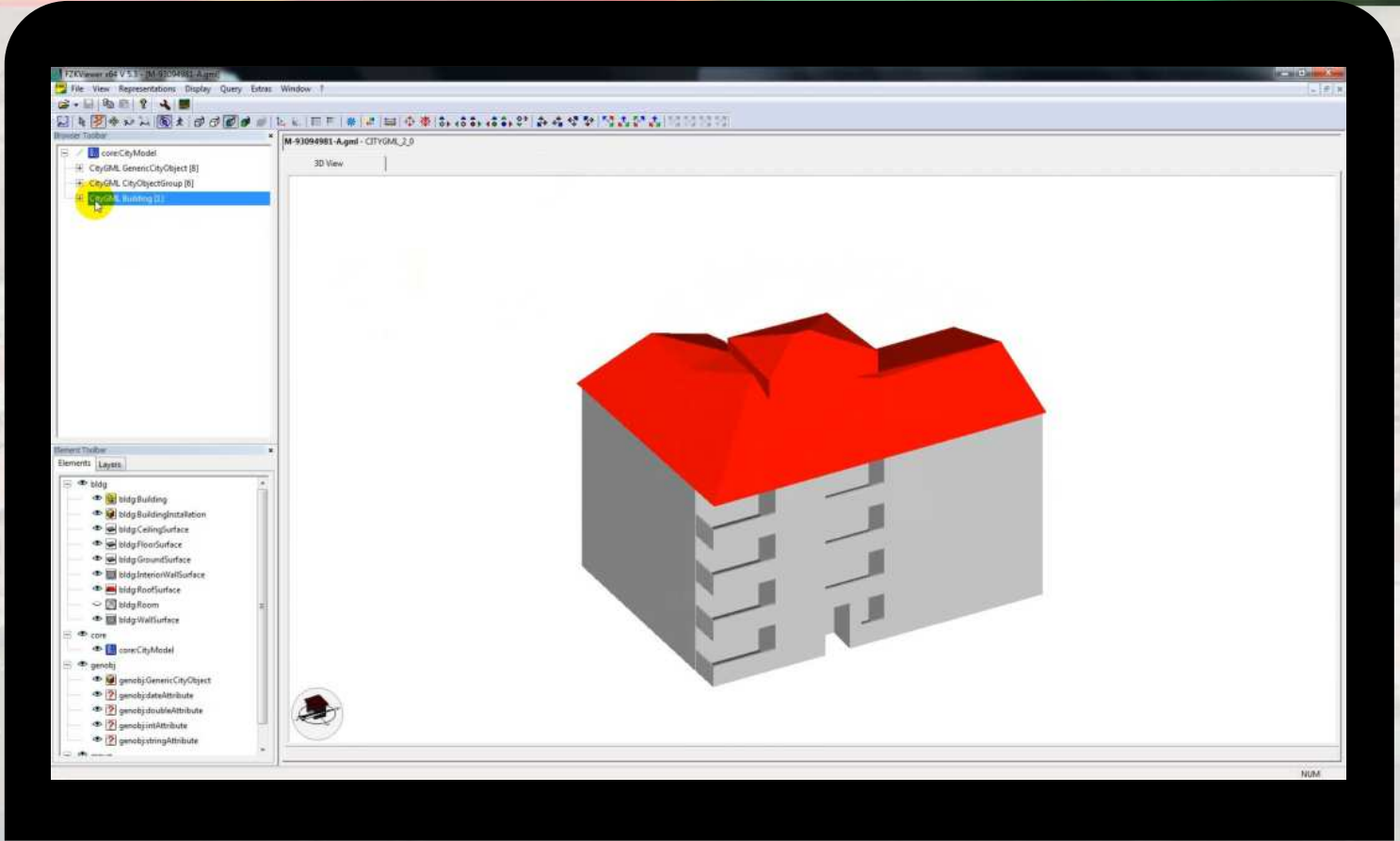
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GML Building Data



No commercial
software
and
unlimited database



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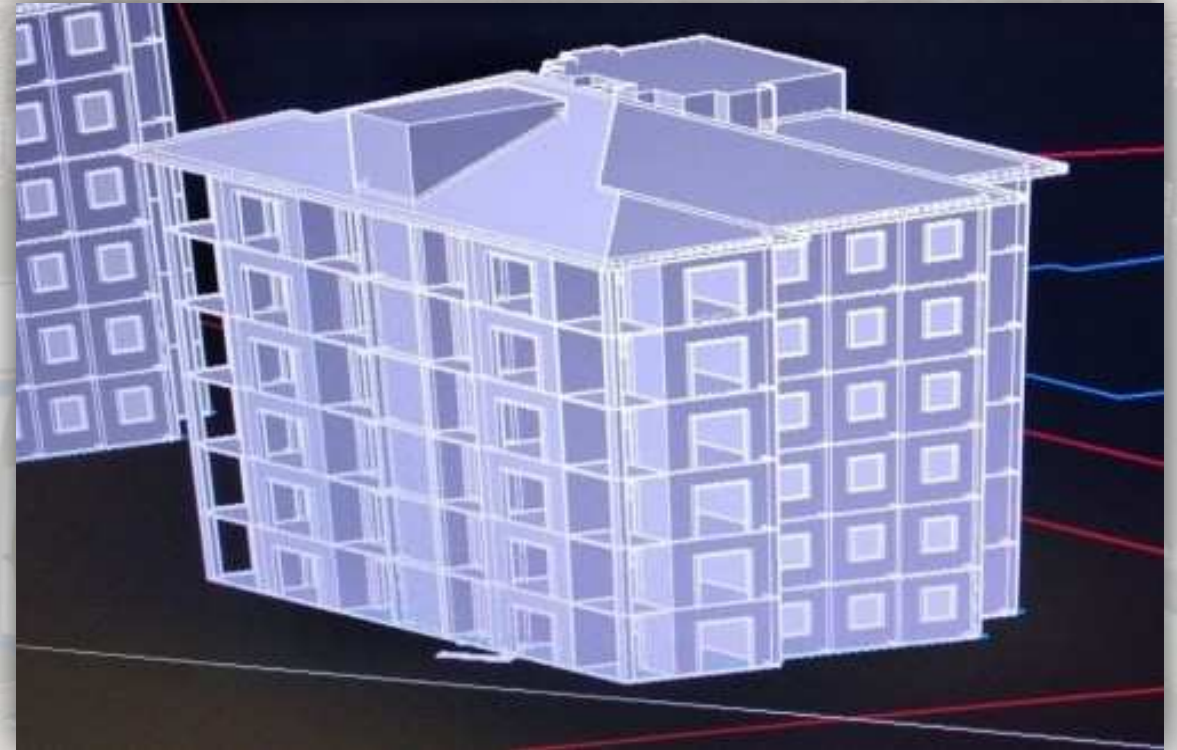
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Project Outputs

Photogrammetric Model



Architectural Model



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Bina Bilgileri

takbisNeighbourhoodReference : 126979
parcelNumber : 1
measuredHeight : 403.720484
blockNumber : 468
roofProjectionArea : 140.0081768403
tenderRegistrationNumber : 2018-605710
constructionID : 11532070-A
class : FotogrametrikBina
gml:name : Fotogrametrik Bina 468-1
takbisPropertyIdentityNumber : 11532070
buildingType : 1001





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Data Analysis



Building Classification/Stock



Building Permit



Property Valuation



Property/Address Integration

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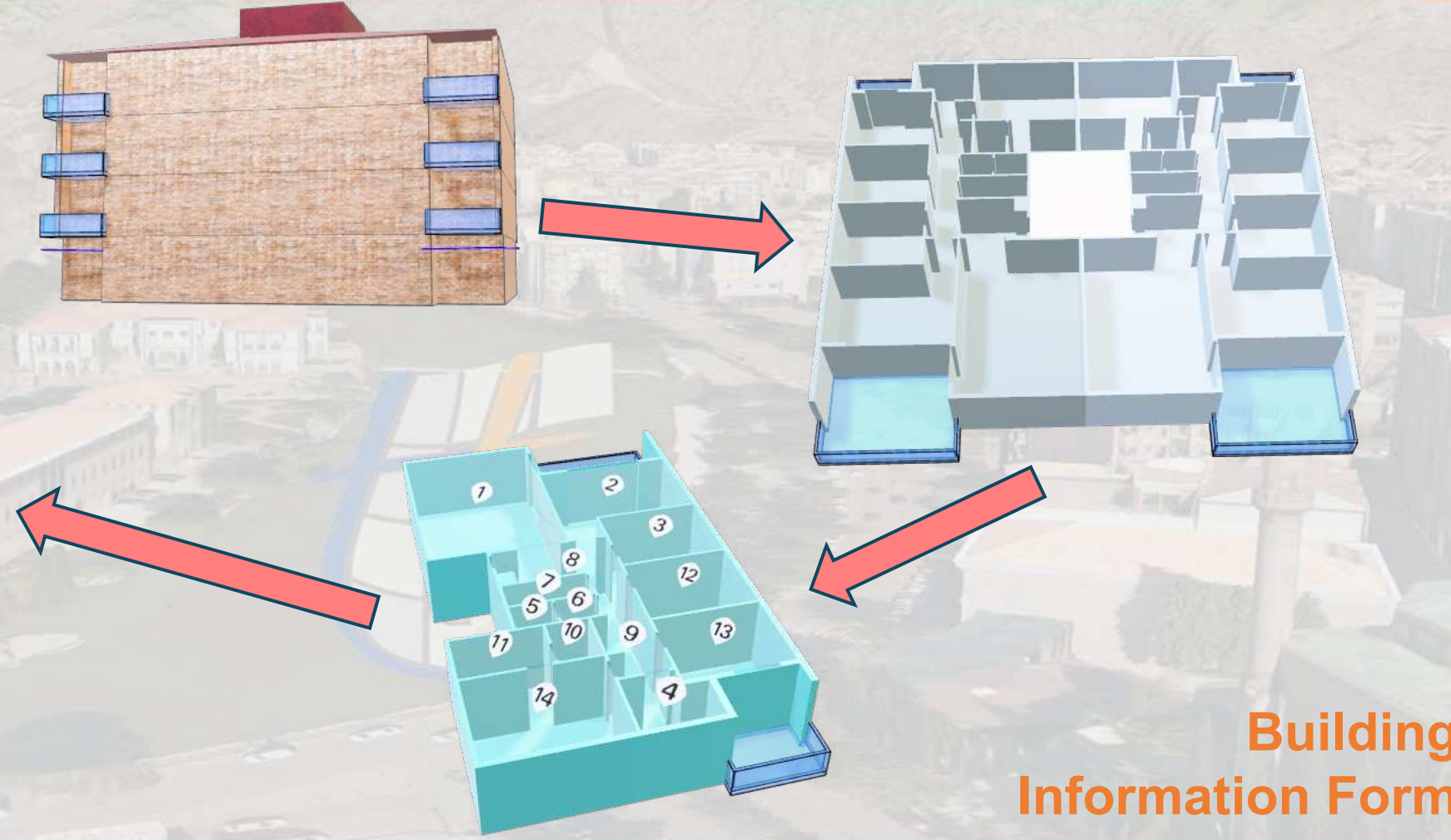
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Parcel Attribute	
Property ID	69339954
City	Amasya
District	Merkez
Neighborhood	Şeyhçui
Block Number	101
Parcel Number	83
Area	650 m ²
Quality Type	Kargir Sekiz Katlı Apartman ve Arsası
Ground Type	Kat Mülkiyeti
Independent Partition Information	
Block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



Building Information Form



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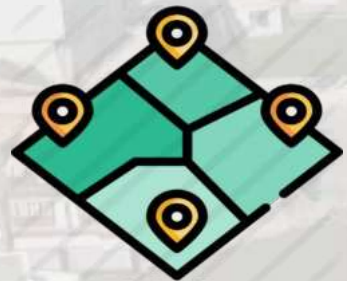
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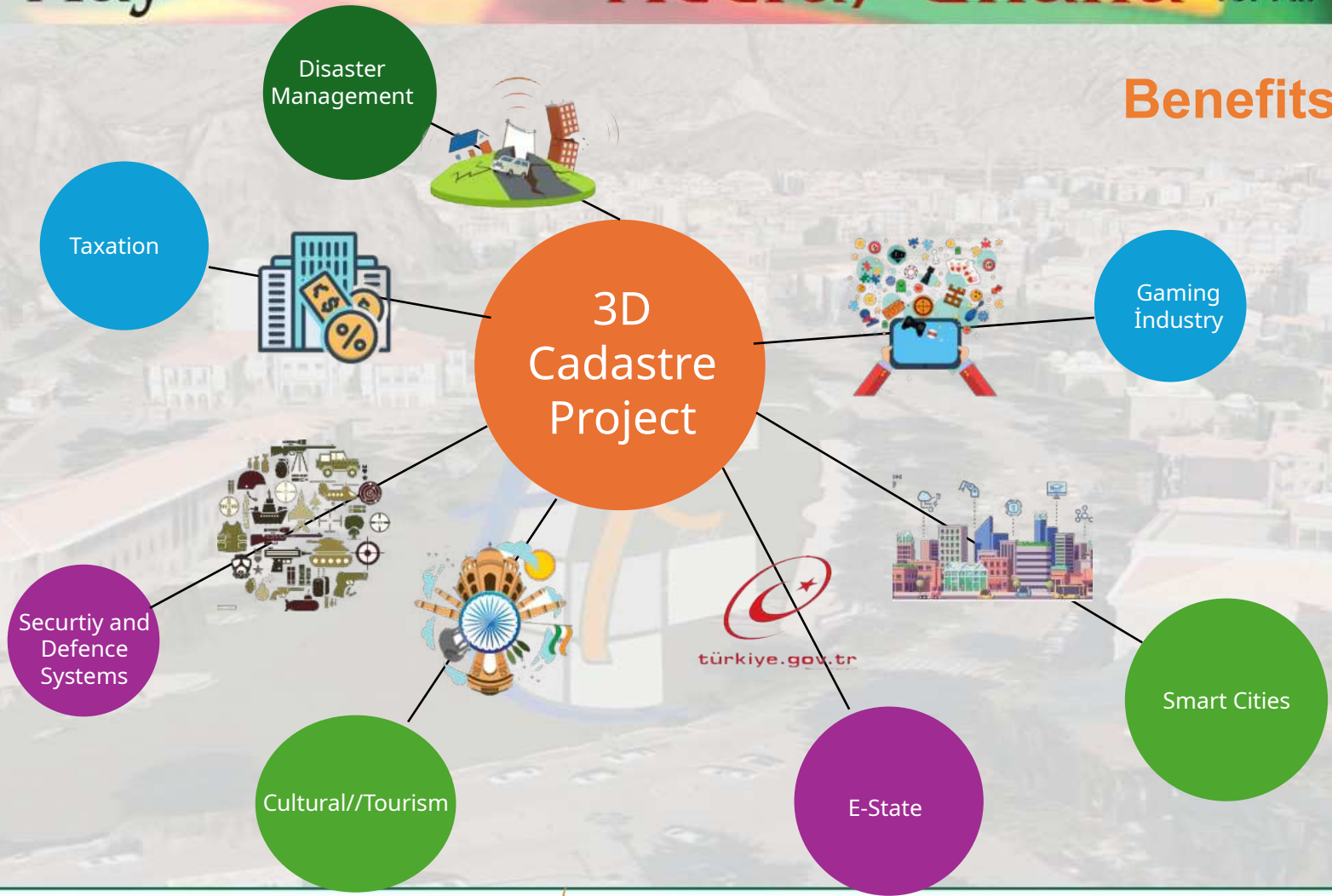
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Benefits of Project



LAND ADMINISTRATION



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2019

- 5.500 km²
- 19 City and 7 District

2020

- 6.400 km²
- 21 City and 7 District

2021

- 6.000 km²
- 8 City and 48 District



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Land Management Infrastructure for Green and Sustainable Development

- WorldBank Project
- Starting date beginning of 2024,
- The remaining 33 provinces will be completed in 3 years



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Sustainability of 3D Cadastre Project

- it is too expensive in terms of time and cost for the organization to produce all the data with its own means and budget.
- So we integrate new buildings into the system during the license process.
- We also produce and integrate aerial images with our own aircrafts.



Sustainability

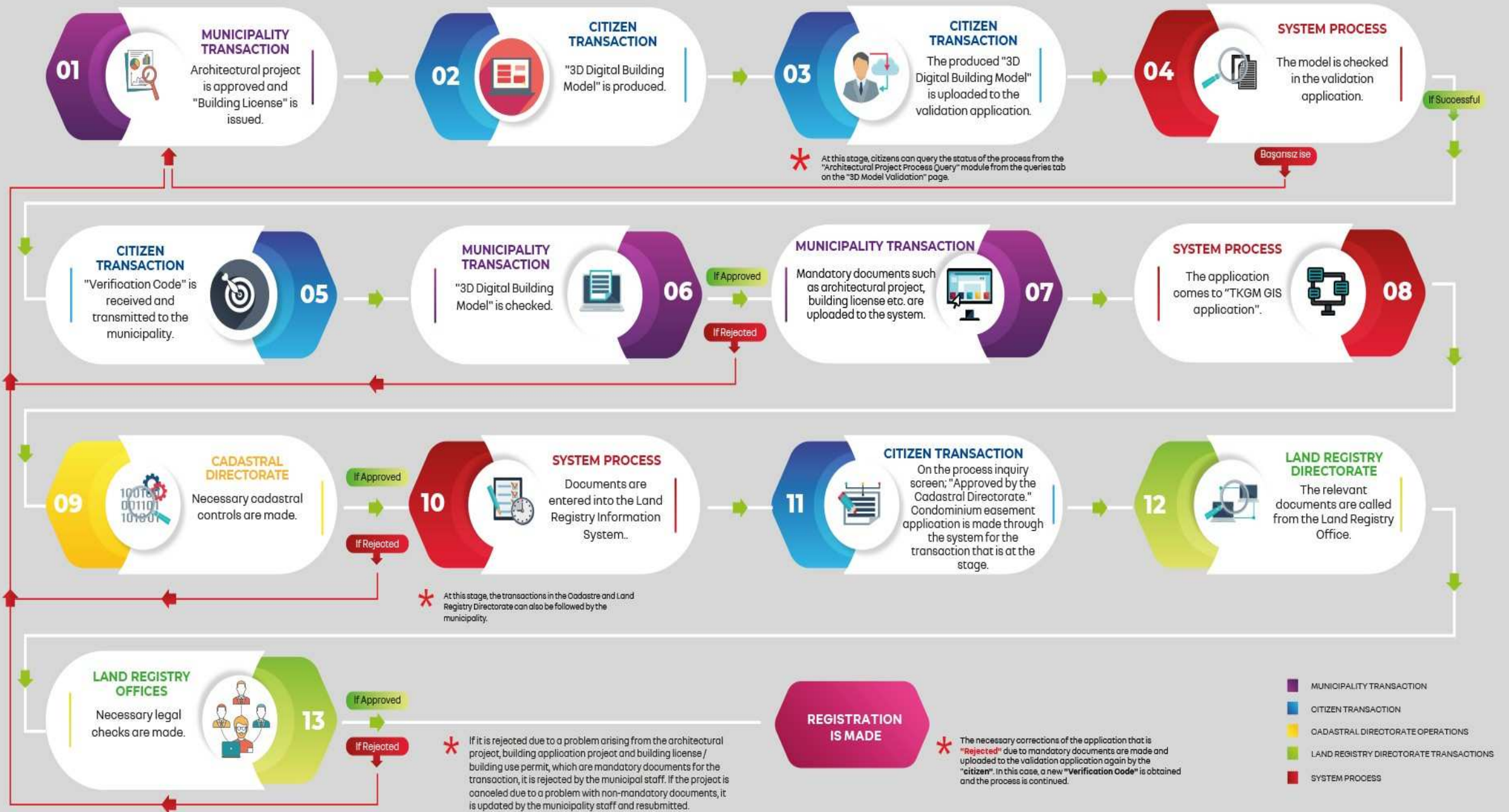


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Sustainability of Workflow Plan



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Sustainability of 3D Cadastre Project

Approximately **eighty thousand (80.000) buildings** have been produced in the sustainability process and it is seen that about **sixty thousand (60.000) buildings** have passed automated validation system and about **fifty thousand (50.000) buildings** has been completed in land registration process last ten months.



Sustainability

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REC
1920-1990



REC
1920
OPEN
300



1424928 91327



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Thank you for your listening...



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FREE PALESTINE



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