

FIG  
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May 6-11, 2018 in Istanbul, Turkey

EMBRACING OUR SMART WORLD WHERE THE CONTINENTS CONNECT:  
ENHANCING THE GEOSPATIAL MATURITY OF SOCIETIES  
6-11 May 2018, Istanbul



# Standardization of Property Qualities in Turkey

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## PRESENTATION OUTLINE

EMBRACING OUR SMART WORLD WHERE THE CONTINENTS CONNECT:  
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- INTRODUCTION
- TKGM
- IMPLEMENTATION
  - PROPERTY QUALITY PURPOSAL
  - LAND USE/COVER CLASSIFICATION
  - INTEGRATED CLASSIFICATION
- CONCLUSION

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## INTRODUCTION

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The most valuable and important resources of the country are their grounds. Therefore, ground and human relations an issue closely related to social, political and economic problems of virtually every country. This relationship has a dynamic structure with the factors such as agriculture, industry, information technology, sustainable development, globalization, urbanization, decentralization were carried out in different ways in different periods of history. Finally, land is a quite large ecosystem which have too many sub-components within certain rules.

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## INTRODUCTION

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The use of the land with sustainable development approach, however, it is possible the existence of an effective **land administration and management system**. Healthy land policies are needed for effective land management.



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# General Directorate of Land Registry and Cadastre (TKGM)





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## DUTIES & AUTHORIZATION of TKGM

- Register, update and service of land registry
- Cadastre of homeland
- Aerial map production and geodetic activities
- Information system
- Cooperation with international organisations
- Coordination with related public institutions and organizations

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## MAIN AREAS OF ACTIVITY of TKGM



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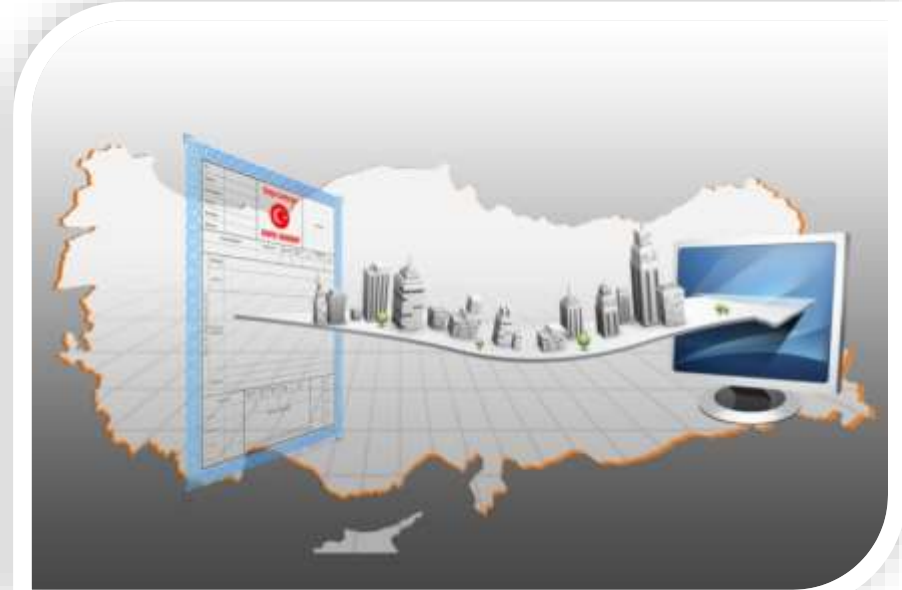




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## LAND REGISTRY SERVICES

- Legal bases from **Turkish Constitution** and **Civil Code**
- Land Registry is under **state guaranty** without any excuse
- **8,4 Million** land registry transactions at **2017**
- **Land Registry and Cadastre Information System (TAKBİS)**



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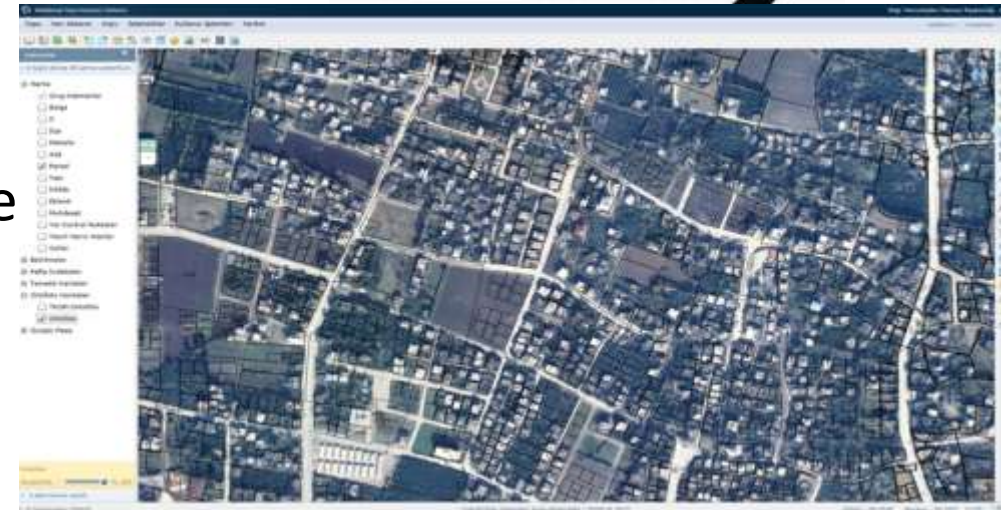


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## TAKBİS (Land Registry and Cadastre Information System)

TAKBİS is a **progressive** information system designed for;

- Carry out all kinds of transactions online
- Effective follow and control of immovable properties



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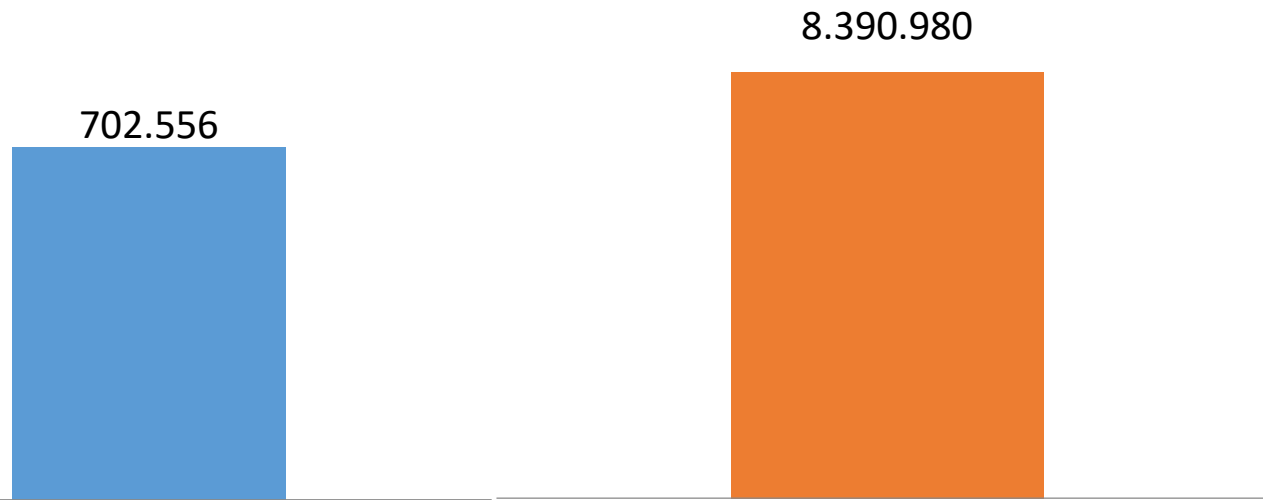


# TAKBİS Capacity

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■ MONTHLY CAPACITY

■ ANNUAL CAPACITY



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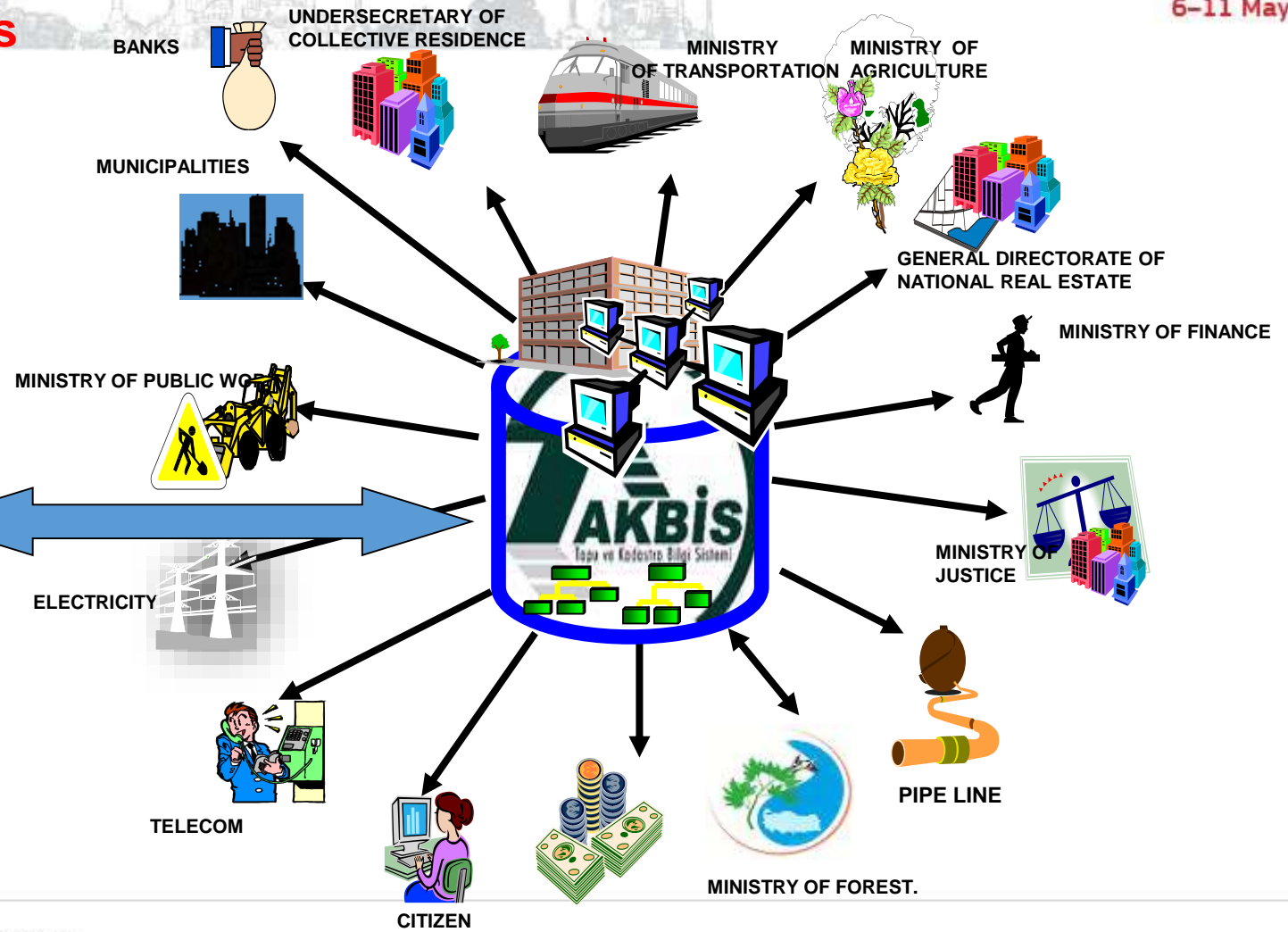




# TAKBİS Users

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**MERNİS**  
Central demographic  
information system



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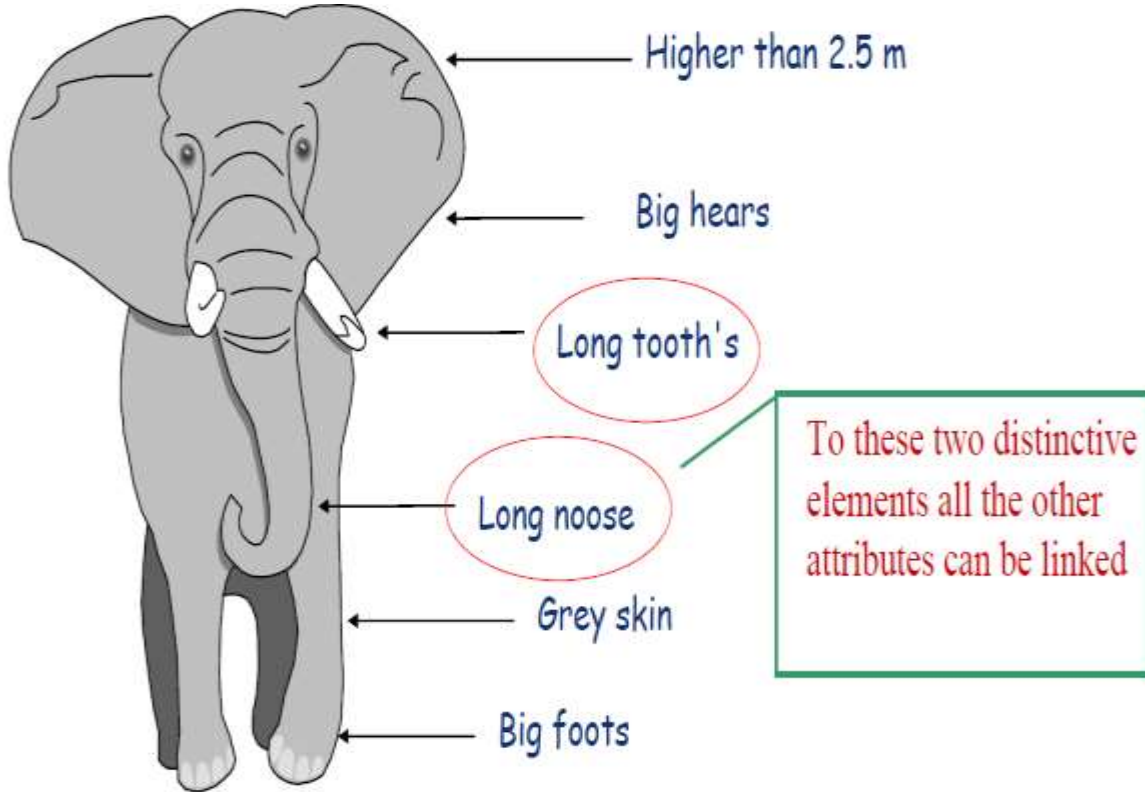
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# IMPLEMENTATION

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The most important point when creating a structure is to make the solid foundation and also one of the most important solid foundation in a model is classification.

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## IMPLEMENTATION

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The major deficiencies of the current property system in our country is already the lack of a specific classification. When standardizing the property quality first arises, it is considered a completed project or solved a problem decades ago consider that in a country that dimension of Turkey.

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## IMPLEMENTATION

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Besides, when made the first Cadastre, whatever is written on the ground as shown while retaining ownership due to the powers and responsibilities given by the Cadastre Law and thus it has led to the establishment of dozens of different attributes describing the same thing. In the same manner, TAKBİS database also have similar errors due to rather than the repetitive nature of each other rather than complementary.



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# TAKBİS DATA (Agricultural Data)

Quality	Number of Records
Tarım Arazisi	25,394,176
Tarım Arazisi - Susuz Tarla	141,360
Tarım Amaçlı	132,442
Tarım Arazisi - Zeytinlik	115,161
Tarım Arazisi - Ev - Kargir	100,559
Tarım Arazisi - Bahçe	40,673
Tarım Arazisi - Bağ	31,159
Tarım Arazisi - Palamutluk	23,726
Tarım Arazisi - Bağ ve Bahçe	21,058
Tarım Arazisi - Ev - Kerpiç	16,677
Tarım Arazisi - Ahır - Ev	15,048
Tarım Arazisi - Sulu Tarla	11,653
Tarım Arazisi - Fındıklık	10,764
Tarım ve Hayvancılık Tesisi - Samanlık	10,191
Depo - Tarım Amaçlı	6,850
Tarım Arazisi - Kavaklık	6,132
Tarım Arazisi - Tarlalı	4,616
Tarım ve Hayvancılık Tesisi - Ahır	4,274
Tarım ve Hayvancılık Tesisi - Samanlık - Kargir	4,015
Tarım ve Hayvancılık Tesisi - Samanlık - Kerpiç	4,011
Tarım Arazisi - Bağ - Ev	3,959
Tarım ve Hayvancılık Tesisi - Ahır - Kargir	3,884
Tarım Arazisi - Ev - Kargir - Özel	3,880
Tarım ve Hayvancılık Tesisi	3,661
Tarım arazisi ve Ağıl	3,556
Tarım ve Hayvancılık Tesisi - Ahır - Tarlalı	3,160
Tarım ve Hayvancılık Tesisi - Samanlık - Bahçeli	3,150
Tarım ve Hayvancılık Tesisi - Ahır - Bahçeli - Kargir	3,025
Tarım ve Hayvancılık Tesisi - Ahır - Kerpiç	2,865
Tarım Arazisi - Apartman - Kargir	2,589

Quality	Number of Records
Tarım ve Hayvancılık Tesisi - Ahır - Bahçeli - Kerpiç	2,300
Tarım ve Hayvancılık Tesisi - Kümes	2,213
Tarım ve Hayvancılık Tesisi - Ahır - Bahçeli	2,188
Tarım Arazisi - Fidanlık	1,379
Tarım ve Hayvancılık Tesisi - Ağıl	1,184
Orman - Tarım Amaçlı	1,141
Tarım Arazisi - Tarım Amaçlı	1,137
Tarım Arazisi - Susuz Tarla - Özel	1,124
Tarım Arazisi - Özel	1,111
Tarım ve Hayvancılık Tesisi - Samanlık - Bahçeli - Kerpiç	1,106
Tarım Arazisi - Fındıklık - Özel	1,091
Tarım Arazisi - Bahçe - Kargir	952
Tarım ve Hayvancılık Tesisi - Ahır - Tarlalı - Kargir	887
Tarım Arazisi - Otlak	843
Tarım Arazisi - Beton - Özel	799
Tarım Arazisi - KONUT - Ev - Kargir - Özel	660
Arsa - Tarım Amaçlı	589
Tarım ve Hayvancılık Tesisi - Ağıl - Kargir	549
Tarım ve Hayvancılık Tesisi - Kümes - Tarlalı - Kargir	546
Tarım Arazisi - Apartman	515
Tarım ve Hayvancılık Tesisi - Kümes - Kargir	494
Tarım ve Hayvancılık Tesisi - Ağıl - Kerpiç	485
Tarım Arazisi - Tahıl Silosu	424
Tarım Arazisi - Bostan	400
Tarım Arazisi - Gül Bahçesi	399
Tarım Arazisi - Susuz Tarla - Bahçeli	347
Tarım Arazisi - Ev	340
Tarım ve Hayvancılık Tesisi - Ağıl - Ahşap	309
Tahıl Silosu - Tarım Amaçlı	307
Tarım ve Hayvancılık Tesisi - Ağıl - Bahçeli	281

Quality	Number of Records
Tarım Arazisi - Mandıra	277
Tarım Arazisi - Tarım Amaçlı - Özel	263
Tarım ve Hayvancılık Tesisi - Mandıra	246
Tarım Arazisi - Dükkan - Kargir - Özel	216
Tarım ve Hayvancılık Tesisi - Mandıra - Kargir	206
Tarım Arazisi - Susuz Tarla - Tarım Amaçlı	191
Tarım Arazisi - Söğütlük	177
Tarım Arazisi - Sulu Tarla - Özel	176
Tarım Arazisi - Bahçe - Tarım Amaçlı	163
Tarım Arazisi - Sera	127
Tarım Arazisi - Dupleks	120
Mesken - Mandıra - Tarım Amaçlı	108
Sulu Tarla - Tarım Amaçlı	107
Tarım Arazisi - Apartman - Kargir - Özel	105
Tarım Arazisi - Çay Bahçesi	93
Tarım Arazisi - Kargir	89
Tarım Arazisi - Ahır	87
Tarım Arazisi - KONUT	86
Tarım ve Hayvancılık Tesisi - Mandıra - Kerpiç	81
Tarım Arazisi - Ev - Ahşap	78
Tarım Arazisi - Bahçe - Özel	69
Tarım Arazisi - Ev - Beton	66
Tarım Arazisi - Dükkan - Beton - Özel	64
Tarım Arazisi - Apartman - Beton	59
Tarım Arazisi - Resmi	59
Tarım Arazisi - Susuz Tarla - Tarım Amaçlı - Özel	56
Bahçe - Tarım Amaçlı	53
Tarım Arazisi - Dupleks - Beton	50
Tarım Arazisi - Tarlalı - Özel	47
Tarım Arazisi - Ev - Ahır - Kargir	44

Same or Similar

Same or Similar



## IMPLEMENTATION

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- This requirement is necessary for a long time.
- Although more than 8000 of property type and property quality data in TAKBİS database, in fact these data are same or close. But it causes confusion due to manual data input of this system. Thus standardizing these data is an inevitable necessity.

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## IMPLEMENTATION

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TKGM should be an institution that determines how to determine the point at which the needs of the property qualities of stakeholder institution while fulfilling operations. Bring standards to property qualities should have an algorithm that integrates the e-government projects conducted by TKGM and the spatial projects carried out by other institutions. Especially it should be studied to improve the system to provide the most reliable and current data for approximately 56 million parcels in our country.

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## PROPERTY QUALITY PURPOSAL

When it comes to the present day, The problem is made re-determined the scope of the renovation cadastral activities by the TKGM Internal Audit Report and it is proposed to become standard expeditious manner, by preventing this repetition in many different ways.

A commission has been established in accordance with the paradox of the Internal Audit Report and bring standardization (TKGM, 2013). In this framework, intended to solve this paradox is presented a classification proposed by the Commission.

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## TKGM property quality standardization proposal

Type of Property	Property Quality	Property Use Purpose
Property without Structure	Land	-
	Public Common Use Grounds	Park, Picnic area, Fairground, Square, Market place, Fair, Car park, etc.
	Farmland	Field, Wet field, Crude Soil, Garden, Rose Garden, Tea, Olive, Willow, etc.
	Forest	Forests according to varieties
	Common Public Goods	Grassland, Threshing floor, Meadow, etc.
	Under the provision and saving of the state places	Scrub, Swamp, Reeds, Bushes, Pond, etc.
	Cemetery	-

## TKGM property quality standardization proposal

Type of Property	Property Quality	Property Use Purpose
Property with Structure	Housing	Lodgings, Shelter, Villa, Terrace House, Mountain House, Vineyard House, Store, Home, etc
	Public Buildings	Courthouse, Military Facility, Municipality, Prison, Embassy, etc.
	Commercial Buildings	Fuel Storage Facility, Gas station, The waterpark, Warehouse, Bank, etc.
	Prayer room	Mosque, Religious Facility, Synagogue, Church
	Health Facilities	Dialysis Centre, Hospital, Laboratory, Policlinic, etc.
	Sport Facilities	Equestrian Facility, Arena, Stadium Ice Skating Area, Golf course, Hippodrome, etc.
	Education Facilities	Primary School, High School, University, etc.
	Cultural and Historic Buildings	Monument, Mausoleum, Lighthouse, Castle, Tower, etc.
	Industrial Facilities	Factory, Workshop, Water Fountain Facility, Workshop, etc.
	Transportation Structures	Scaffolding, Bridge, Port, Marina, Metro station, etc.
		Dam
	Energy Facilities	Power plant, Power Generation Plant, Pilot Place, Refinery, Wind Power Plant, Central, Transformer, etc.
	Agricultural Structures	Well, Coop, Dairy, Hayloft, Greenhouse, etc.
	Social Facilities	Rest area, Social House, Nursing home, Guesthouse, etc.
	Tourism Facilities	Holiday Village, Hostel, Hotel, Motel, Spa, Apart Hotel, Thermal Facilities, etc.
Civil Society Facilities	Association Building, Foundation Building, Political Party Building	
Farmland with structure	-	

## TKGM property quality standardization proposal

Type of Property	Property Quality	Property Use Purpose
Structure/Structureless Property	-	-



# PROPERTY QUALITY PURPOSAL

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It is useful to reduce the classification to be a little more specific due to the topic is very broad. We focused on this issue in **farmlands**, since the database is very comprehensive and the agricultural activities are studied in the Project.

Type of Property	Property Quality	Property Use Purpose
Property without Structure	Farmland	Field
		Wet Field
		Crude Soil
		Garden
		Rose Garden
		Hazelnut
		Tea
		Olive
		willow
		Nursery
		Kavaklık
		Bond
		Greenhouse
		Meadow
		Land
		Dikili Agriculture Land
Dry Agricultural Land		
Marginal Agricultural Land		
Absolute Agricultural Land		
Covered Agricultural Land		

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## IMPLEMENTATION

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This work of the Commission is good in terms of improvement but not sufficient. In accordance with the global world it should be according to international standards and data models.

So it is worth mentioning “A Spatial Data Model for Management of Farmers’ and Farmland Information” project which financially support by The Scientific and Technological Research Council of Turkey.

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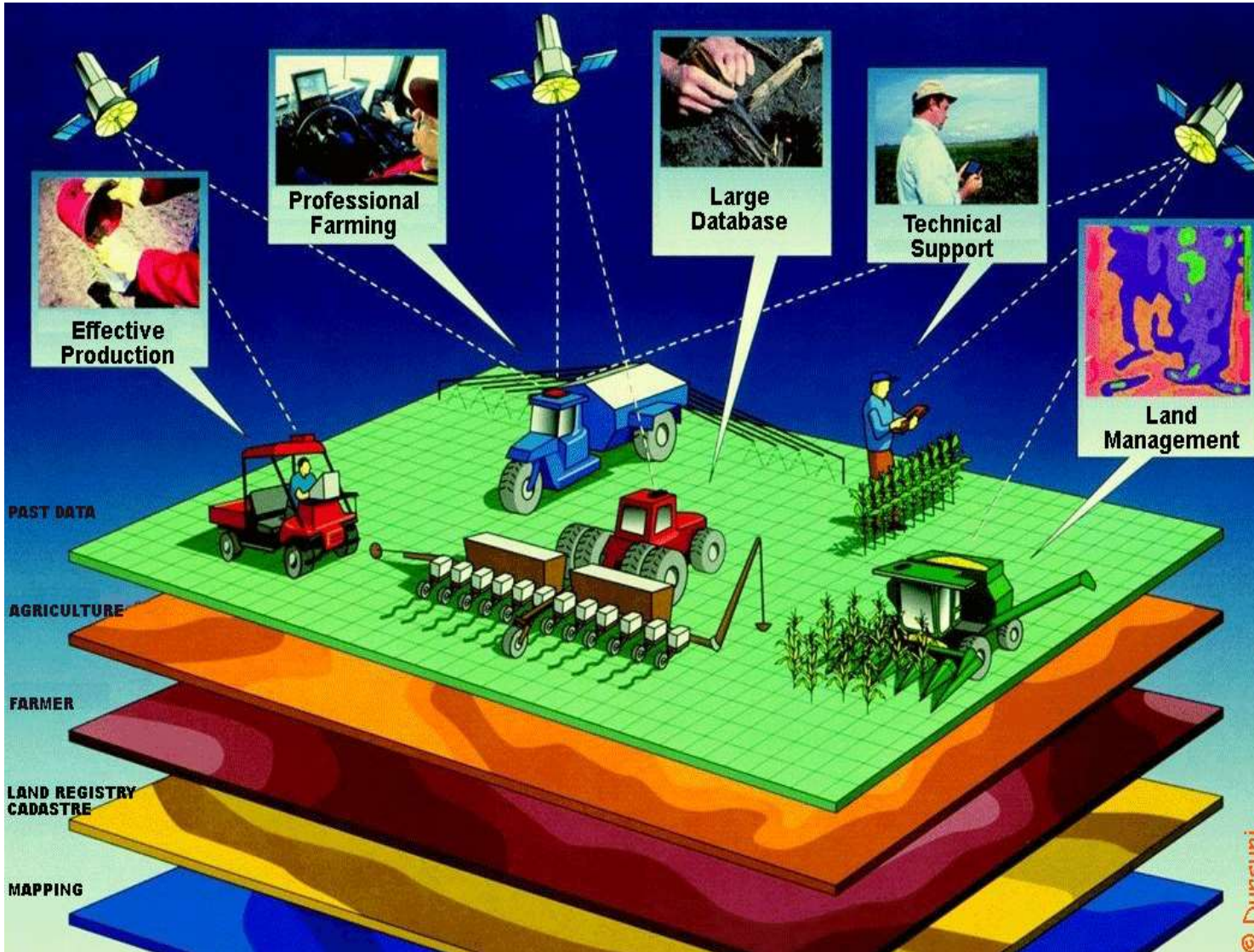
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# A Spatial Data Model for Management of Farmers' and Farmland Information

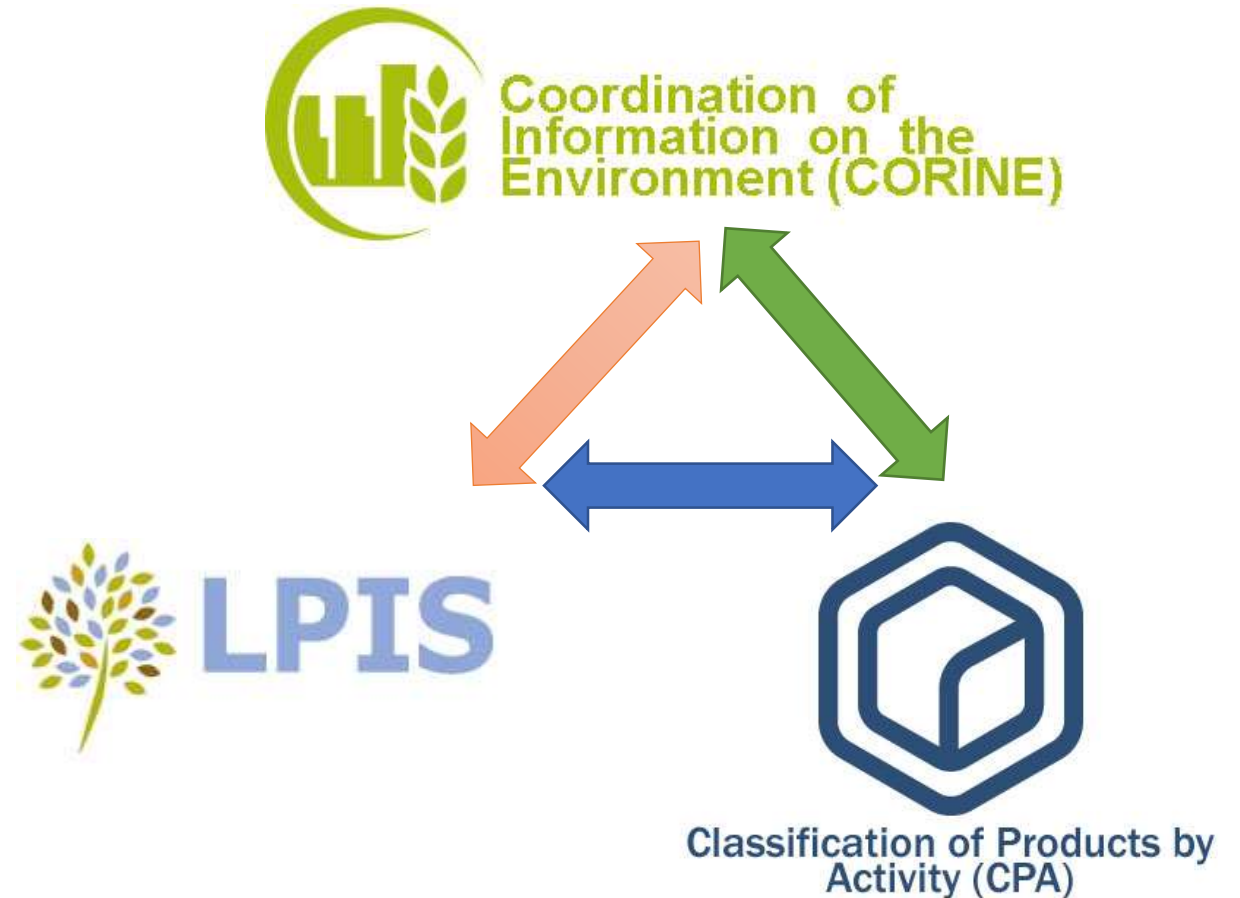


*The purpose of the Project* is to contribute to the understanding that the use of a common data model developed by scientific methods and presented to relevant institutions is necessary and important to enable the management of farmer and agricultural land data.

## Land Use/Cover Classification created in “Project No 112Y027

Within the scope of the project purpose, a unique agricultural land classification was established for use in our country. In the development process of the classification, international classification systems are examined firstly. In this context, a country-specific classification was established based on international classifications.

- Coordination of information on the environment (**CORINE**) - European Environment Agency.
- Land Parcel Identification System (**LPIS**) classifications.
- Classification of Products by Activity (**CPA**) – 2008.



# Land Use/Cover Classification created in "Project No 112Y027"

Level I.	Level II.	Level III.
Agricultural Potential	Cultivated Agriculture	Field
		Covered
		Garden
	Planted Agriculture	Vineyards
		Fruit
		Olive
		Other Planted
	Pasture / Rangeland	Grassland
		Meadow / Pasture
	Transition (Other) Agriculture	Abandoned Field
Non-Agriculture		
Crude Soil		
Other Agriculture	Mixed Agriculture	
	Reviews of the yeast	
Non-Agricultural Potential	Residential	Residential
	Land	Land
	Unfavourable	Unfavourable
	Other	Reviews of the yeast







## TKGM property quality standardization proposal

Type of Property	Property Quality	Property Use Purpose
Property without Structure	Land	-
	Public Common Use Grounds	Park, Picnic area, Fairground, Square, Market place, Fair, Car park, etc.
	Farmland	Field, Wet field, Crude Soil, Garden, Rose Garden, Tea, Olive, Willow, etc.
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	Cemetery	-



Land Use/Cover Classification		
Level I.	Level II.	Level III.
Agricultural Potential	Cultivated Agriculture	Field
		Covered
		Garden
	Planted Agriculture	Vineyards
		Fruit
		Olive
		Other Planted
Pasture / Rangeland	Grassland	
	Meadow / Pasture	
Transition (Other) Agriculture	Abandoned Field	
	Non-Agriculture	
Other Agriculture	Crude Soil	
	Mixed Agriculture	
Non-Agricultural Potential	Residential	Residential
		Land
	Unfavourable	Unfavourable
	Other	Reviews of the yeast
		Reviews of the yeast

# Integrated Classification

Type of Property	Property Quality	Property Use Purpose
Property without Structure	Farmlands	Fields
		Water Fields
		Garden
		Rose Garden
		Nut Area
		Tea Area
		Olive Area
		Willow Area
		Nursery
		Poplar Area
		Bond
		Greenhouse
		Meadow
		Land
		Cultivated Farmlands
		Dry Farmlands
		Marginal Farmlands
	Absolute Farmlands	
	Under Cover Farmlands	
	Temporary Farmlands	Abandoned Farmlands
		Non-Farm
		Raw Soil
	Other Farmlands	Mixed Farmlands
		Other Farmlands
		Grassland
	Common Public Goods	Threshing floor
		Pasture
		Overwintering Sites
	Meadow	
	Pasture	



## IMPLEMENTATION

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- Property features such as the boundary of a property, type, area, etc. are created when the first cadastre and finalized. Except for the matters permitted by law and can not be replaced without the knowledge of the related person. So it is necessary to recommend a proposal for a solution depending on the requirements without prejudice to final property features is necessary to propose a solution. For this, switch to an effective land administration system which appropriate the present conditions, national and international standards and technologies and depending on the authority permitted by law can be updated anytime should be required.

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## STAKEHOLDERS

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Property quality with steps to be taken by TKGM is planned to become a standard depend on methodology in land registry and cadastre activities. In the second part of the solution will be studied for a suitable structure for agricultural activities. As known, It is necessary to work together with GTHB (Ministry of Agriculture) because of all authority related to agricultural activities and so ÇKS (Farmer Registration System) should be investigated and how should be considered integrated with TAKBİS.

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## THE BENEFITS OF STANDARDIZATION

- Modern Data Structure
- Easy Data Analysing and Sharing
- Reliable Data
- Effective Land Administration
- Compatible with ISO LADM 19152.
- 3D/4D (Multi) Cadastre
- Integrated to CORINE/LPIS
- Contribution to property valuation, taxation and economy
- Facilitate the Statical Studies

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## CONCLUSION

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- Thanks to this study, work to make bring standards to property qualities should provide a modern structure on the concept of property type and property quality crossed beyond the theoretical debates in particular TKGM. So it will provide a benefit to facilitate registration and statistical studies. In addition, confidence and satisfaction to TKGM will be increased by citizens.

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**Thank you for your listening...**

## ACKNOWLEDGEMENTS

I would like to thank to The Scientific and Technological Research Council of Turkey (TUBİTAK) which financially support this study within a national project no. 112Y027.

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