LAND REGISTRY AND CADASTRE INFORMATION THROUGH THE ANALYSIS OF BUSINESS INTELLIGENCE IN TURKEY
THE STRUCTURE OF GDLRC

General Directorate of Land Registry and Cadasre (GDLRC) is one of the most important contact points of the citizens with the state and consisting of 24 Regional Directorates, 972 Land Registry Directorates and 81 Cadastre Directorates. GDLRC serves a total over 30 millions people with a total of 19.655 employee with an annual transaction volume allmost 8 millions.

Each year, more than 25% of the population of the country benefits from Land Registry and Cadastre services and 1 land registry transaction is being done per second.
**TASKS**

To fulfill the services of *land registry and cadastre under the responsibility of treasury*,

To ensure updating of *land registry (cadastre) plans*,

To provide the services of *geodetic infrastructure, aerial photography* and produce 1/5000 and larger scale cadastral and topographic maps,

To create *spatial data infrastructure*.

To carry out Land Registry and Cadastre transactions of *real and legal foreign persons and corporations with foreign capital*, to provide *statistics* and to share with related institutions.

To regulate *intermediation activities* for immovable property,
TAKBIS is one of the strategic e-government project that contains all real estate ownership data throughout the Country,

Real Estate transactions are conducted, monitored and shared through TAKBİS, and services provided to costumers are presented in a reliable, up-to-date and fast manner.
Business Intelligence is an umbrella term for a set of methods, processes, technologies, and tools. And guides the organizations for its very betterment, traditionally known as Decision Support System (DSS).
EVOLUTION OF BI

-1980s
Executive Information Systems (EIS), Decision support Systems (DSS)

-1990s
Data Warehousing (DW), Business Intelligence (BI)

-2000s
Dashboards and scorecards, performance management

-2010+
Analytics, big data, mobile BI, in-memory cache, data science
New and changing data from operational systems (TAKBIS and ERP) are periodically transferred to the data warehouse system.

Data that is consolidated in the data warehouse is associated with each other.

Subject-oriented Data Markets (Data Mart) is updated with new data.

The consolidated and correlated data is provided to end users through the dashboards via Business Intelligence application, supported by Interactive and Map Analysis.
INFRASTRUCTURE OF GDLRC’s BI SYSTEM

- ERP
- CADASTRE Data
- LR Data
- ERP

DATA WAREHOUSE

ETL (DATA EXTRACTION OPERATIONS)

Business Intelligence
- The unit, which make the most transactions
- The personnel, who make the most transactions
- Number of male / female owners
- The most costly (fee) transaction
- Daily Revolving Fund income
- Mortgaged Real Estate Distributions
- Real estate purchases of foreigners
- Increased buy/sell transactions in recent times
- Average sales price changes in the zone
- ....
# DASHBOARD VIEW

<table>
<thead>
<tr>
<th>Daily Information</th>
<th>Annual Land Registry Transactions</th>
<th>Annual Income</th>
<th>Property Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary information</td>
<td>Analysis of transactions</td>
<td>Analysis of Income Info</td>
<td>Analysis of Property Info</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Foreign Ownership Data</th>
<th>Workload Evaluation</th>
<th>e-Land Registry Survey</th>
<th>Housing Data (with MAKS data)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis of Foreign Property</td>
<td>Analysis of Performance Assessment</td>
<td>Analysis of Survey</td>
<td>Type/ independent section information with MAKS data</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Legal Entity Parcel Inquiry Analysis</th>
<th>Real Person</th>
<th>Legal Entity</th>
<th>Foreign Person</th>
</tr>
</thead>
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<td>Parsel Inquiry</td>
<td>Analysis of Real Person</td>
<td>Analysis of Legal Entity</td>
<td>Analysis of Foreign Person</td>
</tr>
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</table>

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<tr>
<th>Web-based Transactions</th>
<th>Land Registry Offices</th>
<th>Mortgage</th>
<th>Duration of Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web-based Transactions Data</td>
<td>Analysis of Land Registry Offices/ Personnel</td>
<td>Analysis of Mortgage Transactions</td>
<td>Analysis of Duration of Transactions</td>
</tr>
</tbody>
</table>
## Daily Information

### Total Transaction

<table>
<thead>
<tr>
<th>Başvuru</th>
<th>Tescil</th>
</tr>
</thead>
<tbody>
<tr>
<td>36,469</td>
<td>22,376</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property/Owner Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>102</strong></td>
</tr>
<tr>
<td>TÜRKISH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Başvuru</th>
<th>Tescil</th>
</tr>
</thead>
<tbody>
<tr>
<td>7,041</td>
<td>3,661</td>
</tr>
</tbody>
</table>

### Mortgage Transaction

<table>
<thead>
<tr>
<th>Başvuru</th>
<th>Tescil</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,777</td>
<td>2,819</td>
</tr>
</tbody>
</table>

### Seize Transaction

<table>
<thead>
<tr>
<th>Başvuru</th>
<th>Tescil</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,033</td>
<td>9,619</td>
</tr>
</tbody>
</table>

### Turkey Income

**Tapu Harcı**
- **12,755,258 TL**
- **Döner Sermaye**
- **1,999,476 TL**

### İstanbul Income

**Tapu Harcı**
- **3,539,626 TL**
- **Döner Sermaye**
- **288,622 TL**

### Ankara Income

**Tapu Harcı**
- **1,294,609 TL**
- **Döner Sermaye**
- **154,906 TL**

### İzmir Income

**Tapu Harcı**
- **470,805 TL**
- **Döner Sermaye**
- **117,344 TL**

### The personnel who make the most transactions

- **102**
- **43**
- Yeşim YILMAZ

### The most costly (fee) transaction

<table>
<thead>
<tr>
<th><strong>AVIŞİN BÜROZU</strong></th>
<th><strong>DÜNDARBEY HACİOSMANOĞLU</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Satış 300.640 TL</td>
<td>Satis 183.620 TL</td>
</tr>
</tbody>
</table>

### The units that make the most and the least transactions

- **Çankaya**
  - **306**
  - **342,012,47 TL**
- **Şahinbe**
  - **223**
  - **204,505,79 TL**
- **Esenyurt**
  - **205**
  - **181,699,08 TL**

### Additional Information

- **The personell who make the most transactions**
- **Property/Owner Information**
- **The most costly (fee) transaction**
- **The units that make the most and the least transactions**
Total Revenue (Title deed fee + revolving fund)

1,015,451,604

Map display according to fee income

Amount of income by type of fee

Total revenue by date

Total amount of revenue

Provinces according to the amount of income
Housing Information

Number of independent sections by cities

Number of independent sections according to common area information

Number of independent sections according to heating system

Number of independent sections by building license year

Number of independent sections by heating fuel type

Total number of buildings

2,105,931

Total number of independent sections

9,153,358

Number of independent sections according to the purpose of use

Number of independent sections by settlement status
**BENEFITS**

As a result of the digital age, data is growing steadily and quickly

Data sources are multiplying and relationships are growing

Multidimensional analysis of data is needed to ensure that strategic decisions are taken quickly and accurately

In case of need; access to information is expected to be fast, flexible and easy

Data Security = Information Security = Public Security Access to data needs to be as secure and traceable as it is fast

As new data sources are created, their analysis and reporting should be fast.
Sedat BAKICi
Head of IT Department
General Directorate of Land Registry and Cadastre