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EMBRACING OUR SMART WORLD WHERE THE CONTINENTS CONNECT:
ENHANCING THE GEOSPATIAL MATURITY OF SOCIETIES

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Starting a Spatial Open Data Initiative for Turkey

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Problem!

Lack of coordination between government's bodies

Lack of tools to share data with the private sector and citizens

Solutions

Increase interoperability between government's bodies

Provide a platform to ease data sharing (Implementing Open Data)

Open Data

A digital data that is made available with the technical and legal characteristics necessary for it to be freely used, reused, and redistributed by anyone, anytime, anywhere.

Open Government Data

It is non-privacy restricted and non-confidential data which is produced with public money and is made available without any restrictions on its usage and or distribution

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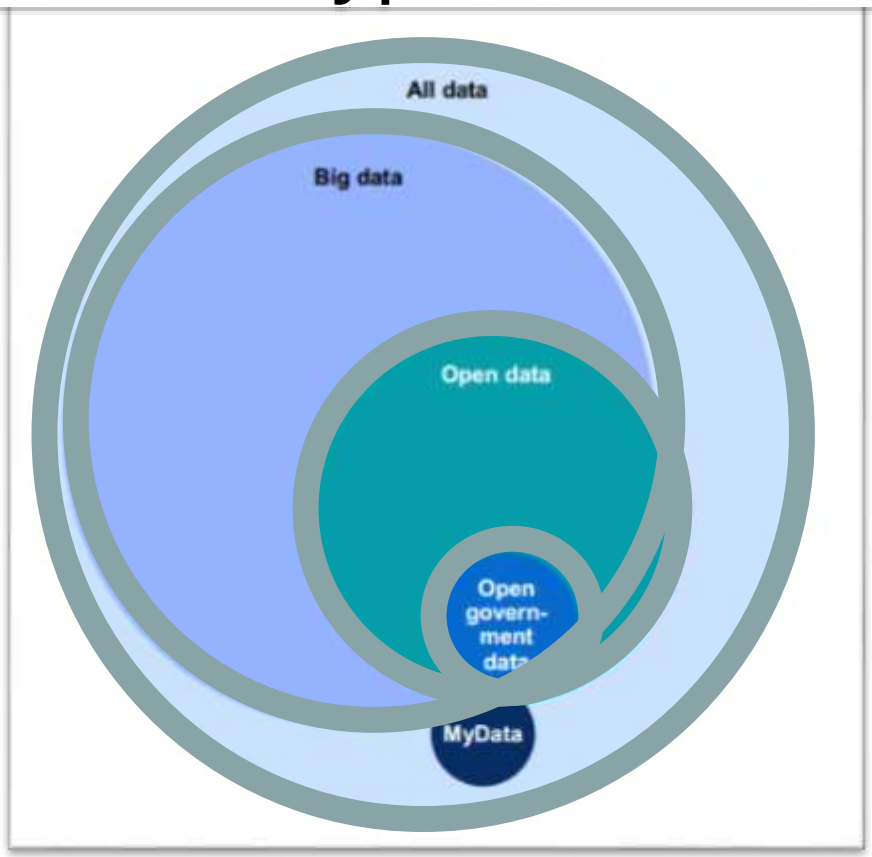
How to relate data types ?!



Benefits of Open Government Data

General Benefits

By opening data, there are four main benefits:

1. Transparency

In a well-functioning, democratic society citizens need to know what their government is doing.

2. Releasing social and commercial value

By opening up data, government can help drive the creation of innovative business and services that deliver social and commercial value.

General Benefits

By opening data, there are four main benefits:

3. Participatory

By opening up data, citizens are enabled to be much more directly informed and involved in decision-making.

4. Efficiency

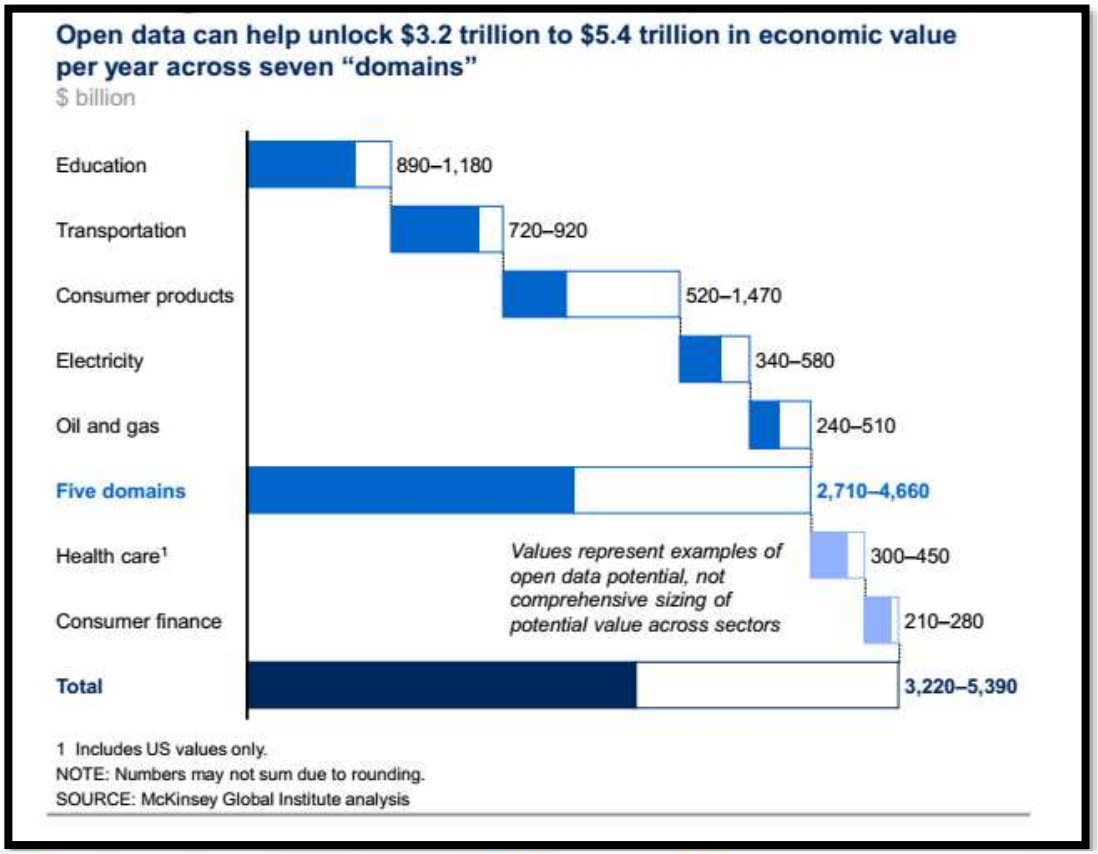
Opening up data to the public, may lead to internal efficiency as well. Since everybody can access the data, it means that the data is available internally as well.

Economic Problems ?!?!

Economic Problems ?!?!

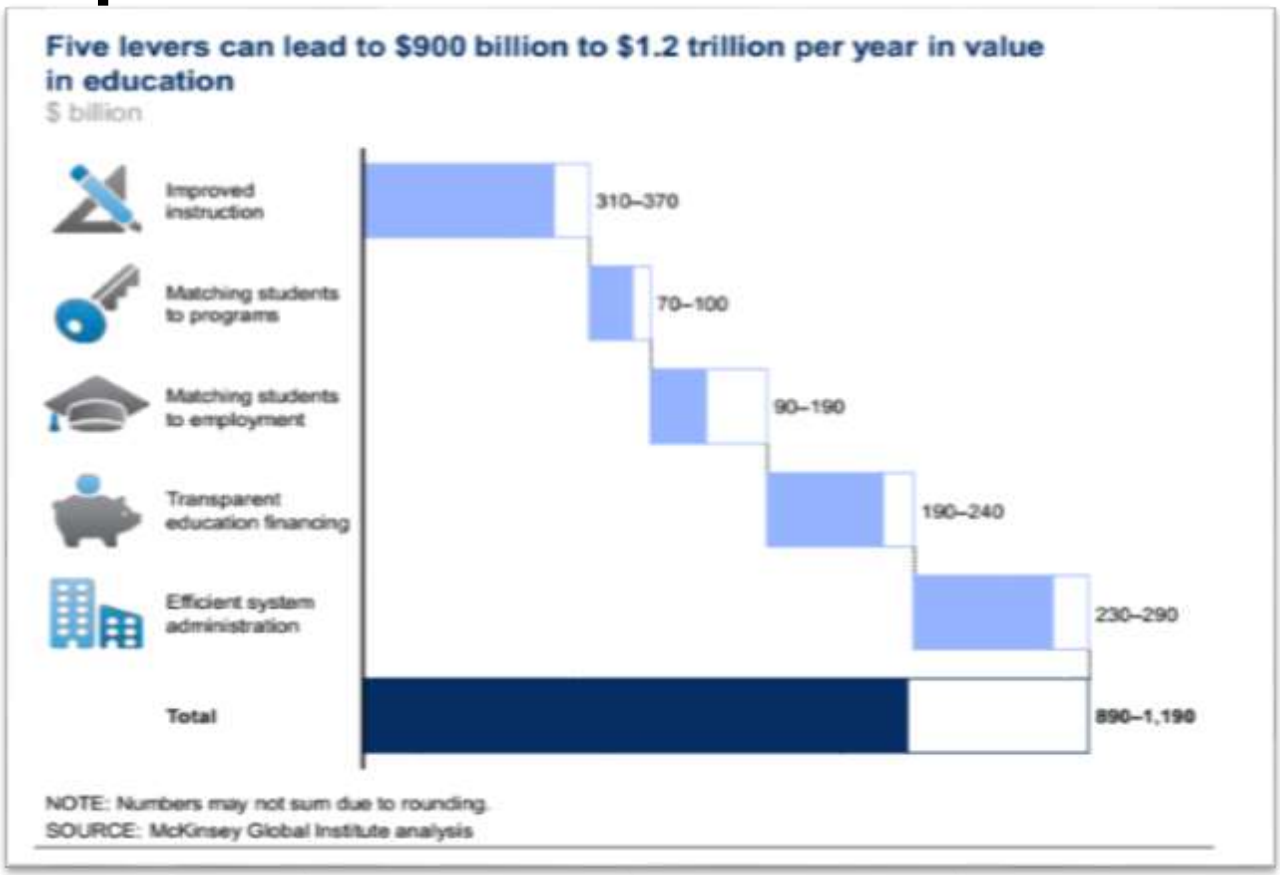
The economic values of Open Government Data

Economic value of Open Government Data



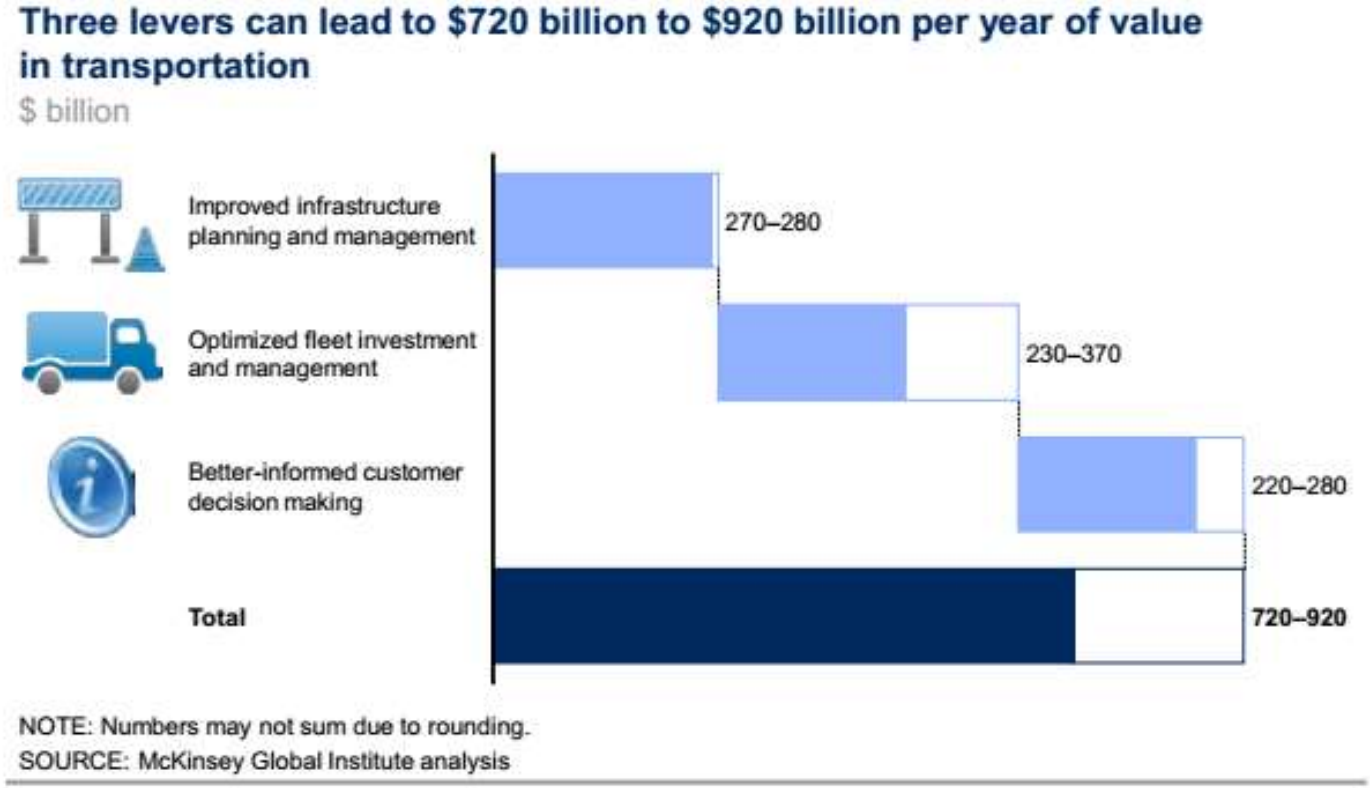
Open data in Education

Open data in Education



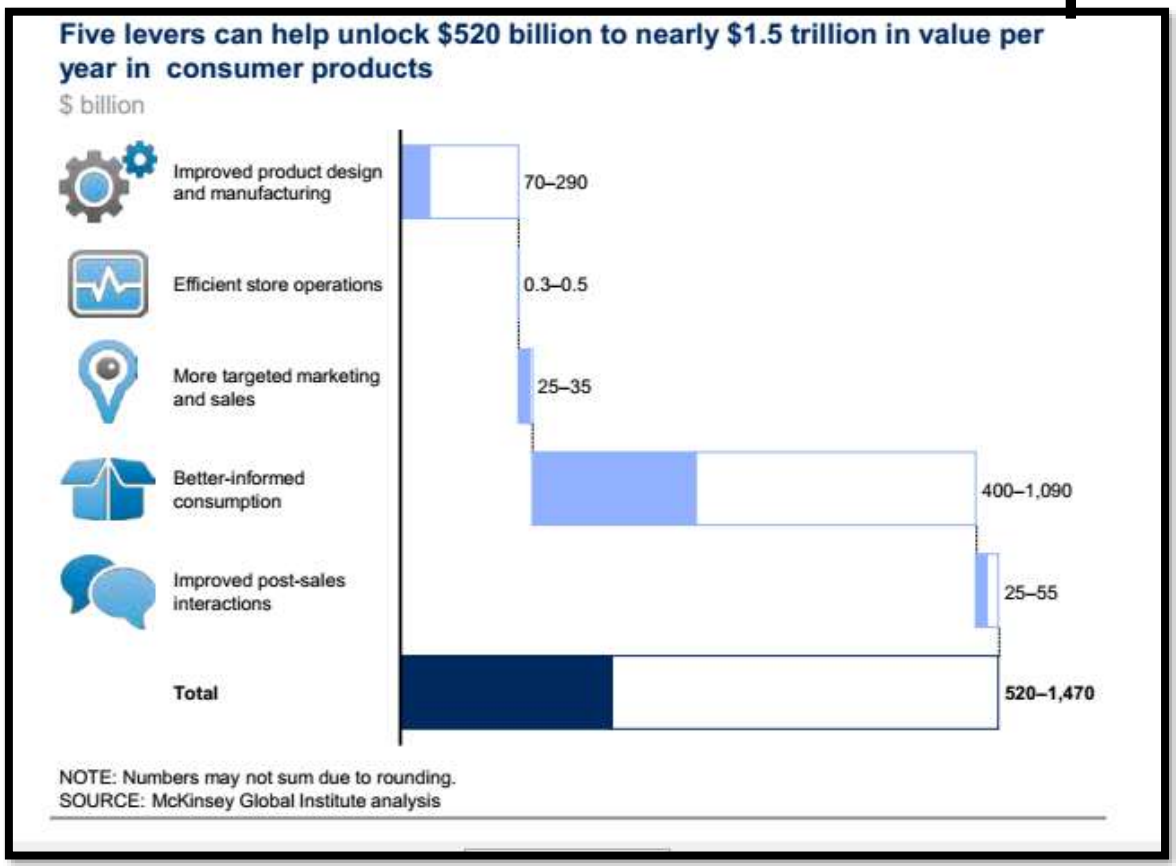
Open data in Transportation

Open data in Transportation



Open data in consumer products

Open data in consumer products



How well Turkey is performing?

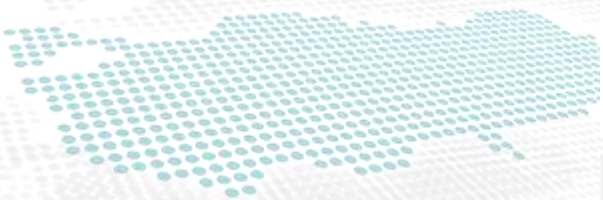
Open Data indices

GLOBAL OPEN DATA INDEX

Open Data Barometer

Country	Rank	Score	Change	Score Trend	Readiness	Implementation	Emerging Impact
United Kingdom	1	100	0		99	100	94
Canada	2	90	2 ▲		96	87	82
France	3	85	-1 ▼		100	71	88
United States of America	4	82	-2 ▼		96	71	80
Korea	5	81	3 ▲		95	59	100
Australia	5	81	5 ▲		85	78	78
New Zealand	7	79	-1 ▼		92	58	99
Japan	8	75	5 ▲		84	60	89
Netherlands	8	75	-1 ▼		94	64	68
Norway	10	74	7 ▲		77	71	73
Georgia	40	37	20 ▲		52	45	11
Bulgaria	40	37	NEW		51	45	11
Jamaica	40	37	13 ▲		44	35	36
Turkey	40	37	7 ▲		35	53	15
Estonia	44	36	-20 ▼		49	45	10
Ukraine	44	36	18 ▲		55	35	19
South Africa	46	34	1 ▲		51	28	29

Global Open Data Index



Rank	Place	Government Budget	National Statistics	Procurement	National Laws	Administrative Boundaries	Draft Legislation	Air Quality	National Maps	Weather Forecast	Company Register	Election Results	Locations	Water Quality	Government Spending	Land Ownership	Score
1	Taiwan																90%
2	Australia																79%
2	Great Britain																79%
4	France																70%
5	Finland																69%
5	Canada																69%
5	Norway																69%
8	New Zealand																68%
8	Brazil																68%
10	Northern Ireland																67%
43	South Africa																40%
44	Croatia																39%
45	Portugal																37%
45	Turkey																37%
47	Albania																36%
47	Switzerland																36%

Spatial Open Data ???

Spatial Open Data

Defined as freely released accurate spatial data that is accessible to all users in a digital machine readable format with no limitation for use, transformation or distribution.

Principles of Spatial Open Data ?

Main Principles of Spatial Open Data

Principles of Spatial Open Data

Free	• Information is not meaningfully if it is not available on the Internet for a free or minimum cost.
Primary	• Data is primary, meaning that data is shared as collected at the source, with the finest possible level of granularity, not in aggregate or modified forms.
Timely	• Data is timely, meaning that data is made available as quickly as necessary to preserve the value of the data.
Accessible	• Data is accessible, meaning that data is available to the widest range of users for the widest range of purposes.
Analyzable	• Data is analyzable, meaning that the most critical value of open government data comes from the public's ability to carry out its own analyses of raw data, rather than relying on a government's own analysis.
Non-proprietary	• Data is non-proprietary, meaning that data is available in a format over which no entity has exclusive control.

Principles of Spatial Open Data

License-free	• Data is license-free, meaning that dissemination of the data is not limited by intellectual property law such as copyright, patents, or trademarks, contractual terms, or other arbitrary restrictions.
License permanent	• Data has a license permanent, meaning data should be made available at a stable internet location indefinitely.
Bulk downloads	• Data is available through bulk downloads, meaning that data can be reached and downloaded as a whole at once without restrictions.
Safe file formats	• Data is available in safe file formats, meaning that government bodies publishing data online should always seek to publish using data formats that do not include executable content.
Trusted to use	• Data should be trusted to use, meaning that published content should be digitally signed or include attestation of publication/creation date, authenticity, and integrity. Data also should contain metadata containing all needed information.

Standards and Formats

Standards for the Government

1. The Government needs to share appropriate information and data across and beyond government boundaries to provide efficient services to citizens, businesses and delivery partners.
2. In selecting open standards for government IT specifications, the Government removes barriers to competition, which makes it implemented by a diverse range of suppliers.
3. The standards are enablers for change, giving services the freedom to evolve according to changing user needs, expectations and technology innovation.
4. Decisions are based on the most economical solution for the public sector as a whole and costs are sustainable, to ensure that it spends taxpayers' money more carefully and avoids unnecessary investment.

Spatial Open Data Formats

5-star framework for Spatial Open Data

Berners-Lee 5-star deployment framework for open data that includes costs and benefits associated with each level as follows

Number of stars	Description	Format example
1 (*)	Data available with open license but not machine readable	PDF
2 (**)	Data available and machine readable in proprietary formats	XLS
3 (***)	Data available and machine readable in non-proprietary formats	CSV, SHP
4 (****)	Data available using open linked formats	RDF
5 (*****)	Data available and linked with other relevant data	Linked RDF

Data extensions and formats according to their categories

Data category	Explain and examples	Data extensions
Tabular Data	It is a flat file that conforms to a predefined schema.	**GPX, CSV, JSON, RSS, HTML, RDF, TIN, WKT**
Vector Data	Geographic/Geospatial data are usually organized as a collection of features that define a layer.	**SHP, GML, KML, KMZ, SVG, GML**
Linked spatial data	A directed, labeled graph data model for representing information in the Web.	**RDF**
Spatially-enabled databases	Datasets that enable advanced spatial queries	**GML, PostGIS, SpatiaLite**
Rasters and base maps	Base maps, Pictures or online map viewer	**JP2, JPEG, JPEG 2000, PNG, TIFF, GeoTIFF, BMP**
Styling	Used for specifying the way features will be symbolized and labeled by keeping styling or portrayal information separate from the data encoding.	**SLD**
Compressed data	Compressed spatial files or folders with multiple documents	**GZ, ZIP**

Spatial Open Data Domains

Spatial Open Data domains

Domain	Details
Geo-National Statistics	General statistics collected from authorities about each district.
Administrative Boundaries	The mapped zone (GIS) of designated permitted land use in the city.
Air and water Quality	The current properties and pollution found in air and water
Property Deeds	The recording of property sales, mortgages, and foreclosures.
Weather Forecast	Enough forecasting is provided for weather
Business Listings	A directory of all licensed businesses in the municipal area
Code Enforcement Violations.	Building code inspection data surfacing reports on particular properties from code enforcement officials.
Construction Permits	Locations of issued construction permits.
Crime	City crime data.
Property Assessment	Data about assessed property values.
Public Buildings	Locations of city-owned buildings.
Transit	Timetables (schedules), locations of stops, and real-time location information of all municipally run or commissioned transit services (buses, subway, rail, tram, etc).

Evaluate our Spatial Open Data initiative

Turkey's Spatial Open Data Index

Domain	Institution Providing data source	Main used principles (Indicator)								Available formats
		Free License	Analyzable	Downloadable at once	Timely	License permanent	Free of charge	Accessible	Non-discriminatory	
Geo-National Statistics	Turkish Statistical Institute	√	√	√	×	√	√	√	√	XLS, ZİP, CSV, doc, HTML
Administrative Boundaries	General Command of Mapping	×	√	√	×	√	×	√	×	DBF, SHP, TİF
Air and Water Quality	• Air Quality Watch Center • Ministry of Forest and Water Works	×	√	×	√	√	√	√	√	CSV, HTML, XLS, PDF
Property Deeds	Geoportal for parcel query	×	√	√	×	√	√	√	√	JSON, KML
Weather Forecast	Turkish State Meteorological Service	√	×	×	√	√	√	√	√	-
Transit	From all municipalities	×	√	√	×	×	×	×	×	XLS, GTFS
Business Listings	Turkish Trade Registry	-	-	-	-	-	-	-	-	-
Code Enforcement Violations	From all municipalities	-	-	-	-	-	-	-	-	-
Construction Permits	From all municipalities	-	-	-	-	-	-	-	-	-
Crime	Ministry of Justice	-	-	-	-	-	-	-	-	-
Property Assessment	From all municipalities	-	-	-	-	-	-	-	-	-
Public Buildings	From all relative authorities	-	-	-	-	-	-	-	-	-

Conclusion

- The importance of OD generally, and Spatial OD specifically, is significant in several domains but the expected economic benefits are proven to be the highest.
- Several important properties distinguish spatial OD from any other data which can be summarized in five points being; accurate, accessible, analyzable/readable in a machine, free or minimum cost, has no limitation on use.
- Turkey has to work on developing several aspects and domains to make a successful spatial OD initiative
- In Turkey, some of governmental departments share spatial data but they are not considered to be spatial OD.

Conclusion

- Turkey did not collect data for public use in several domains
- The government should provide in the recommended formats and with more than one option for each dataset.
- The government should focus on more linked open formats such as RDF for tabular tables.

Future work

We look for the first international Spatial Open Data index

THANK YOU
FOR LISTENING TO THIS
ROCK ON PRESENTATION

For communication

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