**MASTER IN CITY & TECHNOLOGY**
DIGITAL TOOLS AND BIG DATA
2019/2020

FACULTY DIEGO PAJARITO

Cadastre

The big data source for vintage analysis

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A cadastre text written in Akkadian on a terracotta tablet. From the **18th century BC** in Sippar, Iraq, and held by the Ancient Orient Museum, Istanbul

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The history of Cadastre
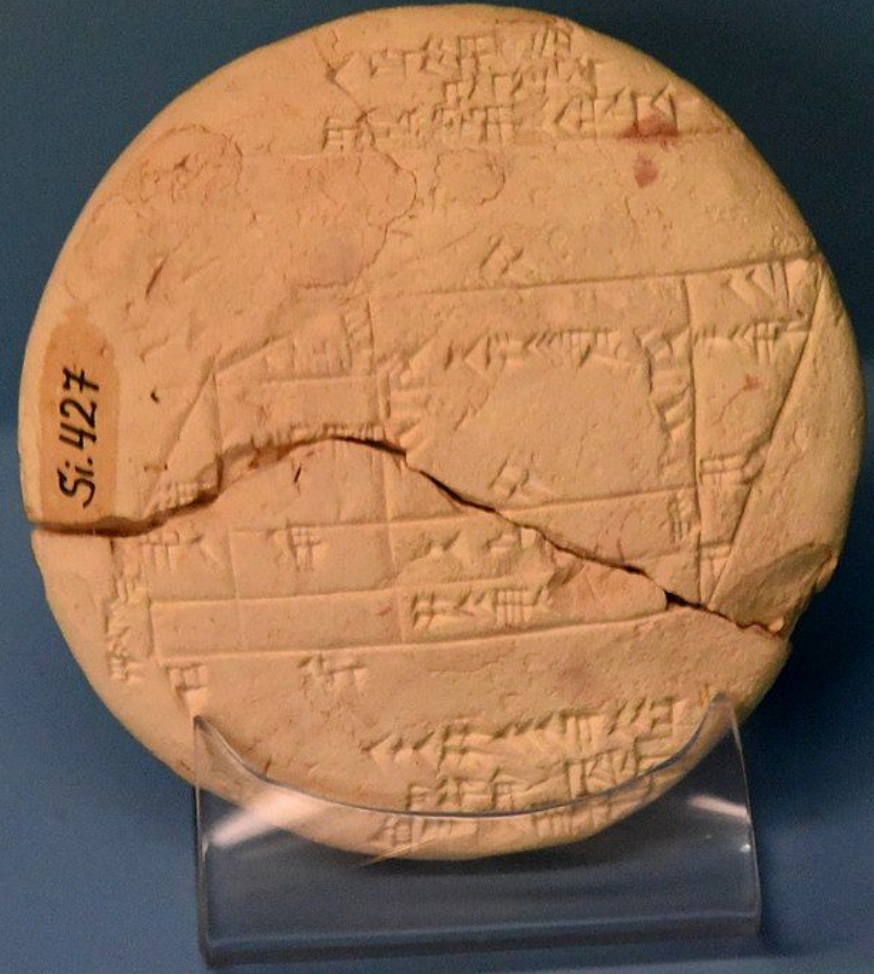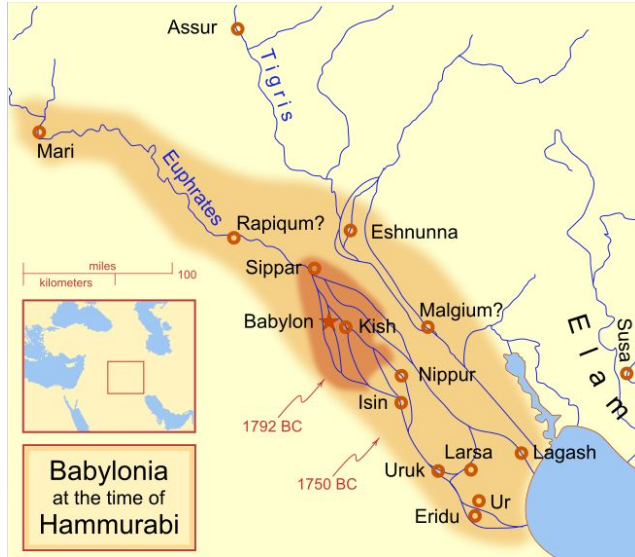
A locator map of Hammurabi's Babylonia, showing the Babylonian territory upon his ascension in 1792 BC

A comprehensive **land** recording of the real estate or real property metes-and-bounds of a country.

In most countries, legal systems have developed around the original administrative systems and use the cadastre to define the **dimensions** and **location** of **land parcels** described in **legal documentation**.

A **land parcel** or **cadastral parcel** is defined as "a continuous area, or more appropriately volume, that is identified by a unique set of homogeneous property rights".

Source: https://en.wikipedia.org/wiki/Cadastre & Jo Henssen

Land and Cadastral Parcel

Land, piece of land, terrain

Building or parts of a building belonging to the same owner
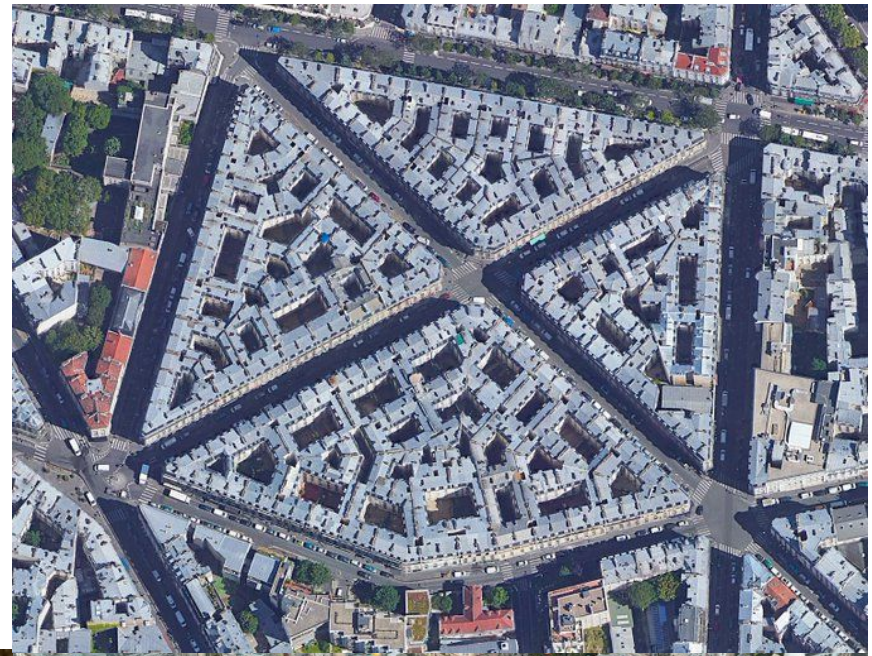
A world of combinations

Land and Cadastral Parcel

Land, piece of land, terrain

Building or parts of a building belonging to the same owner

A world of combinations

Land Registration

a) The booking principle
b) The consent principle
c) The principle of publicity (for):
   - anybody who wishes to do so (The Netherlands, Belgium, France),
   - anybody who has a legally recognized interest (Germany)
   - the owner or anybody with a permission (in England, until 1991)
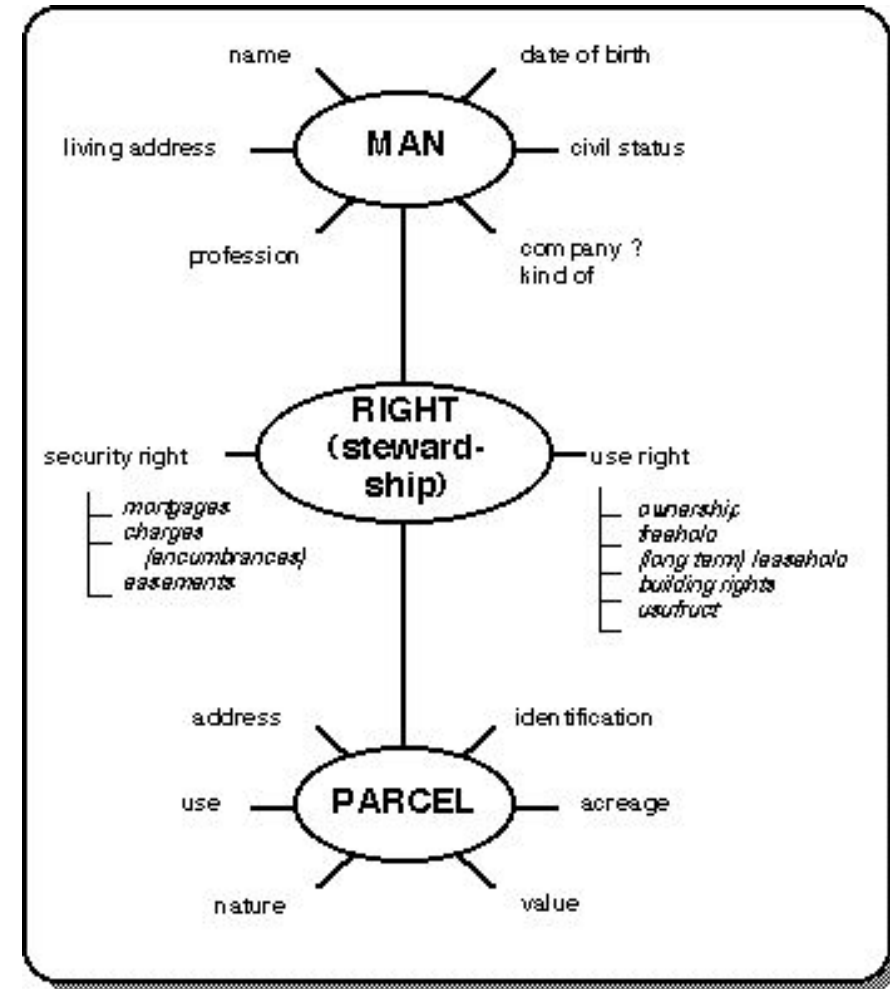d) The principle of specialty (identification)

Deed Vs. Title registration principle

Cadastral parcels + Land registry

This data serves as a historical record.

Analysis can therefore go back in time.

Sometimes people need to go back in time to prove they owned the land (e.g., during or after conflicts or war)

There exits a great range of forms of land tenure as there are:

- the Anglo-American concept (in theory feudal)

- the Roman-French-German concept (allodial system)

- the Communist concept (state, cooperatives)

- the Islamic concept (religion)

- the Customary concept (community)

Land prices and its evolution reflect (partially) economic conditions of a territory

A resource for setting taxes for land properties

$

ISO 19152:2012
Geographic information — Land Administration Domain Model (LADM)

How often people use it?
How often analysts use it?

Why is this vintage?

How do you envision cadastral data to be used in urban design?

What would be the added value of using cadastral data?

Is it worth to invest time in accessing this basic data set?

Hands-on

What can we see from these data sets?

Let's see what we are thinking

https://www.directpoll.com/

http://etc.ch/AK3E

* This survey is designed only for the live session

	Provincia	BARCELONA	
	Municipio	BARCELONA	

Tipología ◯ Urbana sin Historia   ◯ Rústica sin Historia

🔴 Urbana con Historia   ◯ Rústica con Historia

Ver capas disponibles

Cartografía Urbana disponible para el municipio BARCELONA (BARCELONA)

Seleccione las capas que desea descargar

☐ Puntos de altimetría con cota y puntos de las redes geodésicas y topográficas (24/01/2020; 1.09 KB)

☐ Descripción de los códigos de vías de comunicación e Hidrografía (24/01/2020; 75.36 KB)

☑ Subparcelas urbanas que representan los volúmenes edificados dentro de una parcela (24/01/2020; 73662.89 KB)

☐ Ejes de elementos lineales (calles, carreteras) (24/01/2020; 900.68 KB)

☐ Elementos cartográficos lineales (24/01/2020; 4.21 KB)

☐ Elementos cartográficos puntuales (24/01/2020; 1.64 KB)

☐ Rótulos del mapa (24/01/2020; 4734.02 KB)

☐ Hojas de división de la cartografía urbana (24/01/2020; 23.86 KB)

☐ Límites administrativos (de municipio, de suelo de naturaleza urbana, etc) (24/01/2020; 186.75 KB)

☐ Identificación de cada una de las zonas con cartografía diferente (24/01/2020; 2.21 KB)

☐ Agrupaciones de parcelas (manzanas de urbana y polígonos de rústica) (24/01/2020; 5892.73 KB)

☐ Parcelas catastrales (24/01/2020; 22197.41 KB)

☐ Subparcelas de cultivo (zonas de igual cultivo o aprovechamiento dentro de una parcela) (24/01/2020; 65.95 KB)

Marcar Todas   **Descargar capas**

𝐈ᵃᵃᶜ | Institute for advanced architecture of Catalonia   **Getting Barcelona data**

LAYER: LOTE0919 (Cadastral Parcels)

LOTCODIGO: Parcel code
LOTDISPERS: Code for dispersed parcels
LOTILDISPE:
LOTUPREDIA: Code for
MANZCODIGO: Cadastral block
LOTDISTRIT: District code

LAYER: CON0919 (Buildings)

CONCODIGO: building ID
CONNPISOS: stories
CONTSEMIS: basement
CONNSOTANO: basement levels
LOTECODIGO: parcel ID
CONMEJORA: different owner

LAYER: UPLA (Neighbourhoods)

UPLCODIGO: Neighourhood code
UPLTIPO: type
UPLNOMBRE: name
UPLAADMIN: District code
UPLAREA: area in square metres

LAYER: LOCA (District)

LOCNOMBRE: name
LOCAADMINI: city code
LOCAREA: area in square metres
LOCCODIGO: district id

LAYER: RBIC (Bicycle lanes)

RBICODIGO
RBICLASE
RBISENTIDO
RBITSUPERF
RBICIVIAL
RBILOCALIZ

LAYER: PARCELA (Cadastral Parcel)

MAPA: cartographic area id
DELEGACIO: producer
MUNICIPIO: city
MASA: Block ID
HOJA: -
TIPO: type
PARCELA: Parcel ID
COORDX:
COORDY:
VIA: Street name
NUMERO: number
NUMERODUP: Address complement
NUMSYMBOL: symbol code
AREA: Area in square metres
FECHAALTA: Valid start date
FECHABAJA: Valid end date
NINTERNO: internal code
PCAT1: -
PCAT2: -
EJERCICIO: -
NUM_EXP: -
CONTROL: -
REFCAT: Cadastral reference

QUERY = FECHABAJA = '99999999'

LAYER: CONSTRU (Buildings)

MAPA: cartographic area id
DELEGACIO: producer
MUNICIPIO: city
MASA: Block ID
PARCELA: parcel ID
HOJA: -
TIPO: type
CONSTRU: building ID
COORDX: -
COORDY: -
NUMSYMBOL: Symbol code
AREA: built area
FECHAALTA: Valid start date
FECHABAJA: Valid end date
NINTERNO: internal code
PCAT1: -
PCAT2: -
EJERCICIO: -
NUM_EXP: -
CONTROL: -
REFCAT: Cadastral reference

QUERY: "FECHABAJA" = '99999999' AND "NUMSYMBOL" = '11'

Iaac Institute for advanced architecture of Catalonia **Technical details for Barcelona**

LAYER: MASA (City blocks)

MAPA: cartographic id
DELEGACIO: Producer
MUNICIPIO: City
MASA: City block ID
HOJA: -
TIPO: -
COORDX: -
COORDY: -
NUMSYMBOL: symbol ID
AREA: -
FECHAALTA: Valid start date
FECHABAJA: Valid end date
NINTERNO: internal ID
PCAT1: -
PCAT2: -
EJERCICIO: -
NUM_EXP: -
CONTROL: -

LAYER: EJES (Streets)

MAPA: Cartographic ID
TTGGSS: -
VIA: Street name
NUMSYMBOL: symbol ID
FECHAALTA: Valid start date
FECHABAJA: Valid end date
NINTERNO: -

LAYER: LIMITES (Boundaries)

MAPA: -
TTGGSS: -
NUMSYMBOL: -
FECHAALTA: Valid start date
FECHABAJA: Valid end date
NINTERNO: -

[Cadastre Spain Technical Document](#)

Video

How is cadastre and demography are related?

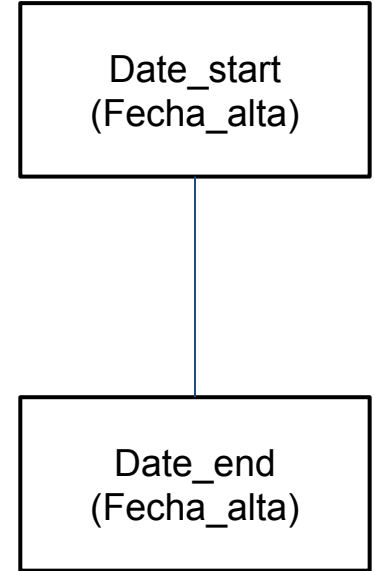Think of a process to extrapolate demographic data through cadastre

Cadastral data

What can we see from these data sets?

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Temporal dimension of cadastral information is one of its strongest features

Barcelona offers historical data but... how to make it work for simulation

Time period data structure

(Check the query in QGIS)

```
┌─────────────────┐
│   Date_start    │
│  (Fecha_alta)   │
└─────────────────┘
         │
         │
┌─────────────────┐
│    Date_end     │
│  (Fecha_alta)   │
└─────────────────┘
```
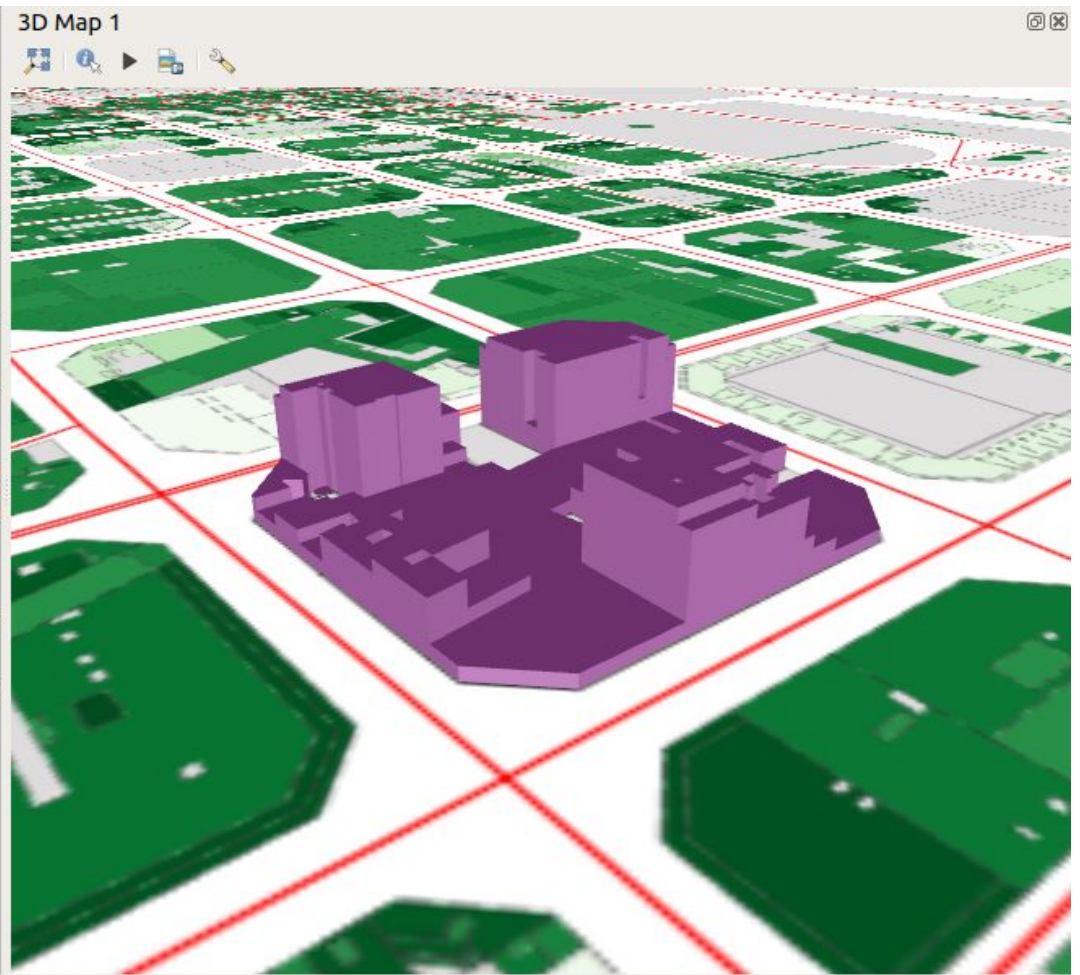
* Empty = current

Land use represents very well urban dynamics

This is good but static, shall we merge it?

What it we have parcel-level land use vales? (Internet of people)

Woodlands, beaches and non-occupied land
52%

Residential
20%

With signs of urban development
4%

Infrastructures and services
6%

Facilities
6%

Industrial
7%

Teday
1%

Other uses
1%

Parks
3%

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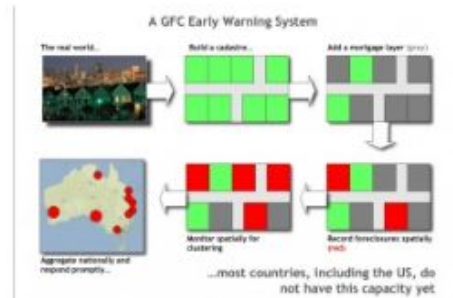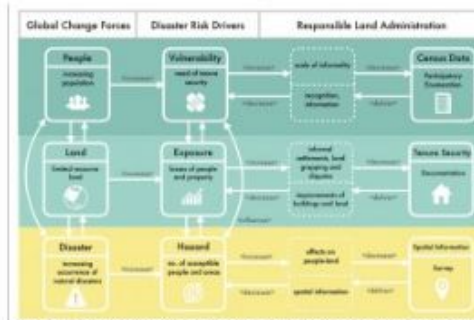
Land use

Source: Idescat

Does it work when there is no other source?

Plots, pandas and the others...

COVID-19, the Land Administration Sector and Spatial Information

readers are likely to have been impacted by the COVID-19 pandemic – perhaps directly through the own health or the health of those they know, or more indirectly through loss of work or income... and almost certainly through the changes in social norms and freedoms brought about by various lockdo This article explores the relevance of the land administration sector, disaster risk management and spatial information in the context of the coronavirus outbreak.

It has been a busy few weeks due to the coronavirus outbreak. But, in the quieter moments (if we're privileged enough to get them), we can reflect on what is happening now, what has happened and, probably most acutely, what might come next – in our personal lives, in our communities, in our daily work, and more globally.

ALLEN & OVERY

Covid-19 coronavirus: Impact on the real estate market in China

Related people ⌄

02 April 2020

How Covid-19 coronavirus will impact the real estate market in China is hard to predict. Here we explore the outlook, the steps that investors are taking to address virus exposures, and the measures that are advisable to mitigate risk going forward.

CURBED

Shutterstock

How coronavirus is impacting the housing market

The economy is grinding to a halt. Will the housing market follow?
By **Jeff Andrews** | Updated Apr 9, 2020, 8:52am EDT

Source:
https://www.curbed.com/2020/3/6/21163523/coronavirus-economic-impact-housing-market
https://www.allenovery.com/en-gb/global/news-and-insights/publications/covid-19-coronavirus-impact-on-the-real-estate-market-in-china

Ɪaac Institute for advanced architecture of Catalonia   **Real estate and Covid-19 crisis**

Let's see what we are thinking

https://www.directpoll.com/

http://etc.ch/EJSR

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