



ITU WTIS
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Use case - Brazil

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Purposes of using mobile data

General

- Potential to produce official statistics (new indicators)
- Increase the frequency of updating data
- Decrease the burden of the respondents

Specific

- Most people don't have a computer at home but have a mobile phone
- Being connected is essential to work and study remotely



Requirements

- Legal documents signed → data sharing agreement
- Privacy protection → dataset anonymization
- Data transfer
- Computer environment
- Staff allocation
- Methodological definitions
- Establishment of partnerships → CETIC

MR Rio /2months /1operator = 90 GB



Brazil /2months /4operators = 6 TB

Brazil /1year /4operators = 36 TB

Scope

- Rio de Janeiro Metropolitan Region
- Two months (2019, March and April)
- One operator (from a total of four) → market share \approx 40%
- Mobile data: CDR (voice) + DDR (internet) and mobile cell
 - CDR/DDR: date stamp, cell code, subscriber ID, technology
 - Cell: coordinates, municipality, cell code, technology, azimuth
- Household survey data: have a mobile phone, have access to internet
- Population estimates (WorldPop)



Area of study

24 municipalities

13 Million inh.

→ second most populated area of the country

Data quality check

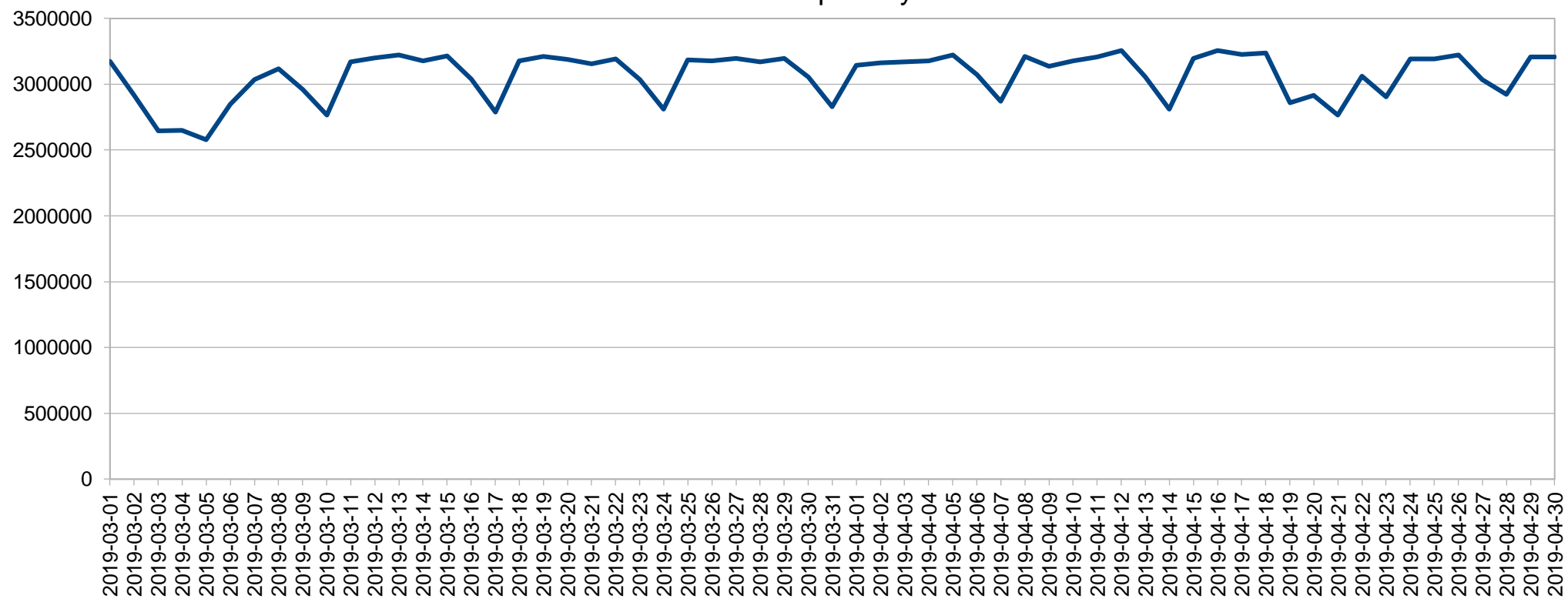
Dataset

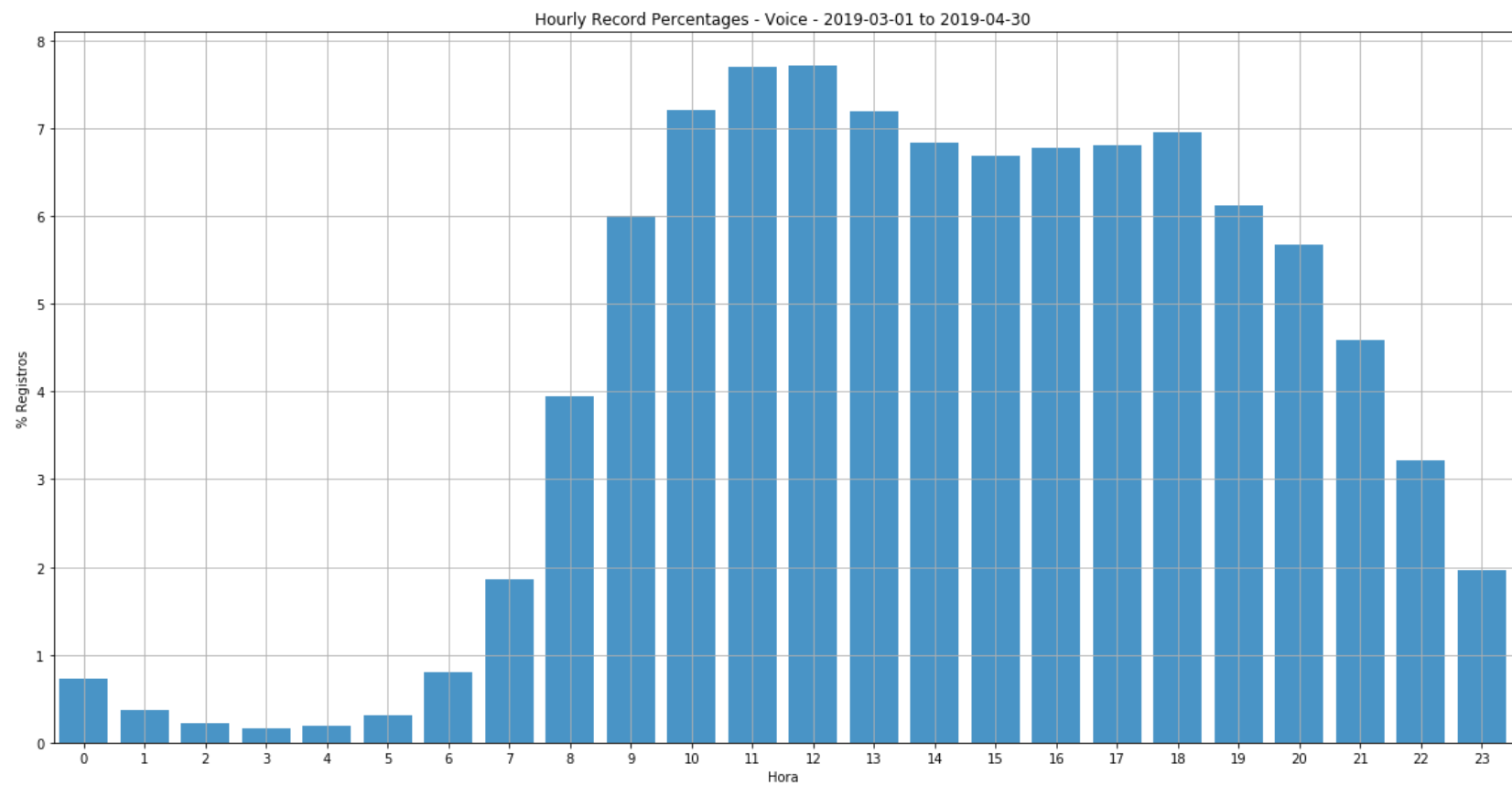
- Missing values
- Records per day
- Subscribers per day
- Diurnal distribution of records
- Weekly distribution of records
- Average number of records per day per subscriber

Cells

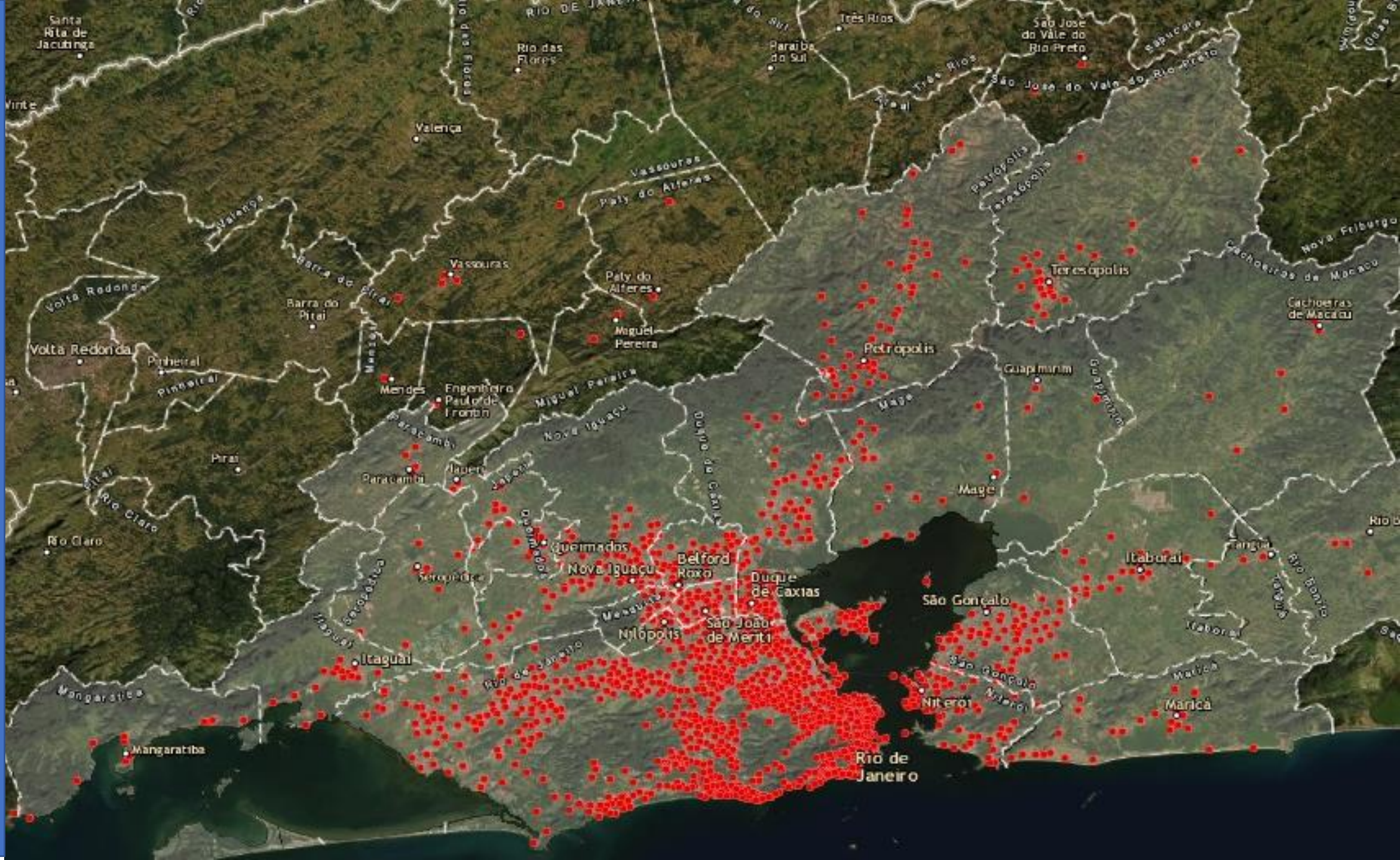
- Geographic distribution
- Cell occupancy

Subscribers per day





Geographic distribution of mobile cells



Data processing steps

- Step 1 – anchoring → inference of residence location based on the use of mobile phone
- Step 2 – indicators processing
- Step 3 – expansion using market share
- Step 4 – comparison to household survey, by region
- Step 5 - analysis





Preliminary results

- Considering people that have a mobile phone the % that access the internet at least once in the period of the study
 - Rio de Janeiro Metropolitan Region → 93.9%
 - Municipalities → from 89.2% to 97.5%

The way forward



Finish use case in the next 2-3 months



Explore other themes using the same dataset: commuting, daytime population



Establish a discussion forum with all operators: develop a joint project



Integrate mobile data in the statistical production of the IBGE

Thanks for your attention!

