

COMBINING DATA SOURCES TO PRODUCE
DISAGGREGATED AND TIMELY ESTIMATES OF SDG:
**PROPORTION OF POPULATION COVERED BY A
MOBILE NETWORK, BY TECHNOLOGY**



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UN Big Data HUB
May 2023

THE SCENARIO FOR THE PRODUCTION OF STATISTICS

- Increasing demand for updated, timeliness and more disaggregated statistics on well known indicators.
- Demand on new indicators based on social behavior and attitudes.
- Reduction on the amount of resources available for the traditional statistics production process.
- Increasing nonresponse rates on all kinds of surveys, despite the collection mode.

THE SCENARIO FOR THE PRODUCTION OF STATISTICS

A NEW SOCIOECONOMIC ECOSYSTEM SELF-MONITORED IS EMERGING

DESIGNED (TRADITIONAL SURVEY) **DATA**

- *DATA PRODUCED IN STRUCTURED FORM*

+

ORGANIC (OR BIG) **DATA**

- *DATA PRODUCED FROM AUXILIARY PROCESS AND EVENT MONITORING*

COMBINING THESE TYPES OF DATA IS THE FUTURE

DR. ROBERT GROVES: PROVOST OF GEORGETOWN UNIVERSITY – WASHINGTON D.C. AND FORMER DIRECTOR OF US CENSUS BUREAU

SDG 9.c.1

PROPORTION OF POPULATION COVERED BY A MOBILE NETWORK, BY TECHNOLOGY

Data availability

- Data for Brazil collected by Anatel (regulator) and disseminate in municipality geography
- There is no population statistics, just if the municipality is covered and by which technology
- Monthly data

Data issues

- Coverage may differ inside a municipality, given different technologies available and topography
- In some municipalities there may be population not covered

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PROPOSED METHODOLOGY

- Combining public Big Data (OOKLA/SIMET) and Census Enumeration Areas (EA) from Brazilian NSO Census of 2022
- Map for each EA the number of Internet quality tests conducted by technology
- Indicator could be calculated for intra-municipality areas (aggregation of EAs)
- Indicator could be released intra-annually (monthly, quarterly)

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PROPOSED METHODOLOGY – CHALLENGES

- OOKLA database released in “tiles” with greater size than most of urban enumeration areas
- SIMET database released by enumeration areas but with measurement location error in rural areas
- OOKLA & SIMET databases populated by “voluntary” measurements
- Update population estimates/projections for years after census 2022

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PROPOSED METHODOLOGY – SOLUTIONS/CHOICES

- Define EA number of OOKLA “tiles” tests by the intersection of the EA and the “tiles” connecting to then (proportionally adjusted)
- Consider the SIMET number of measurements for all EAs included into the possible range of the measure (as for “tiles” – proportionally adjusted)
- Study the evolution of measurements for OOKLA and SIMET along the EA shapefile for recent years (to look for indication of mobile cover augmentation)

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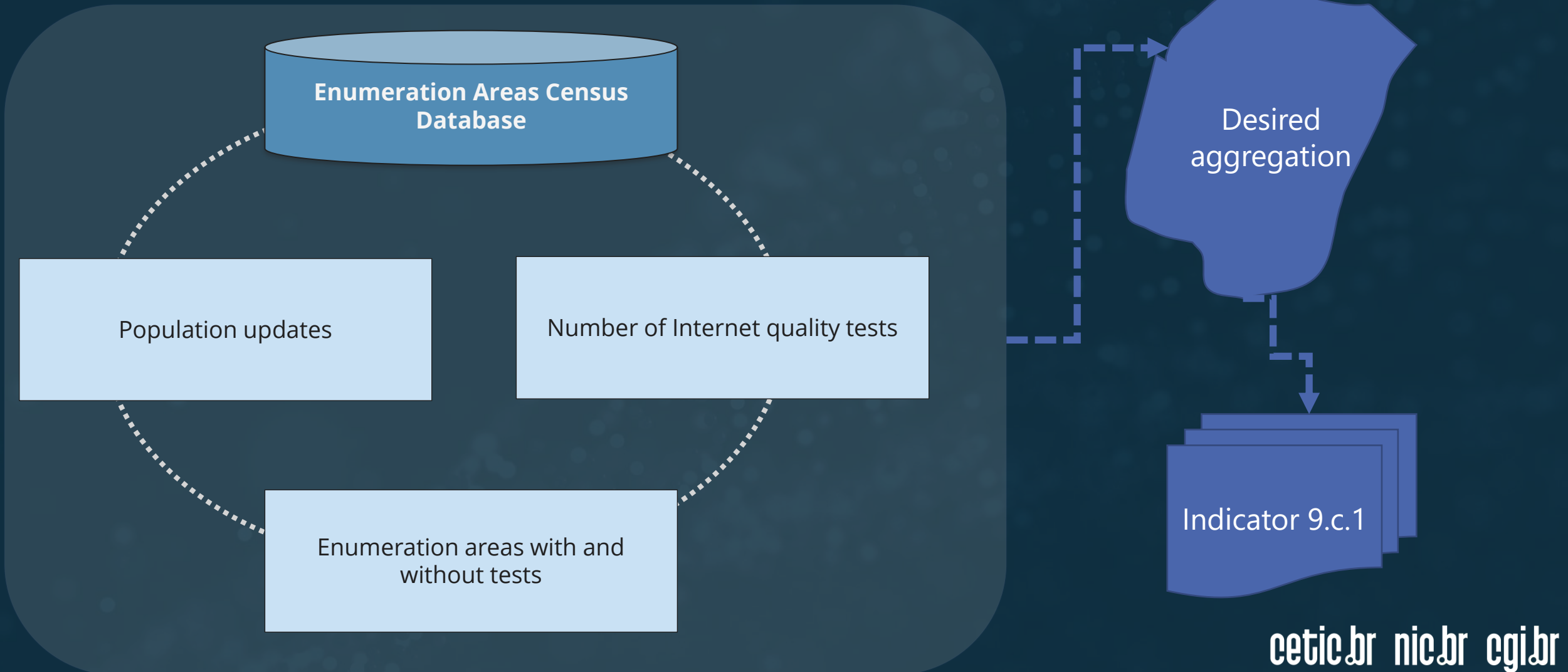
PROPOSED METHODOLOGY – SOLUTIONS

- Update population estimates/projections for years after census 2022 considering the desired disaggregation and the availability of official population estimates
- Consider using the *WorldPop* database as auxiliary information for EAs population updates

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PROPOSED METHODOLOGY



OOKLA EXPERIMENT

AREA COVERED BY BROADBAND

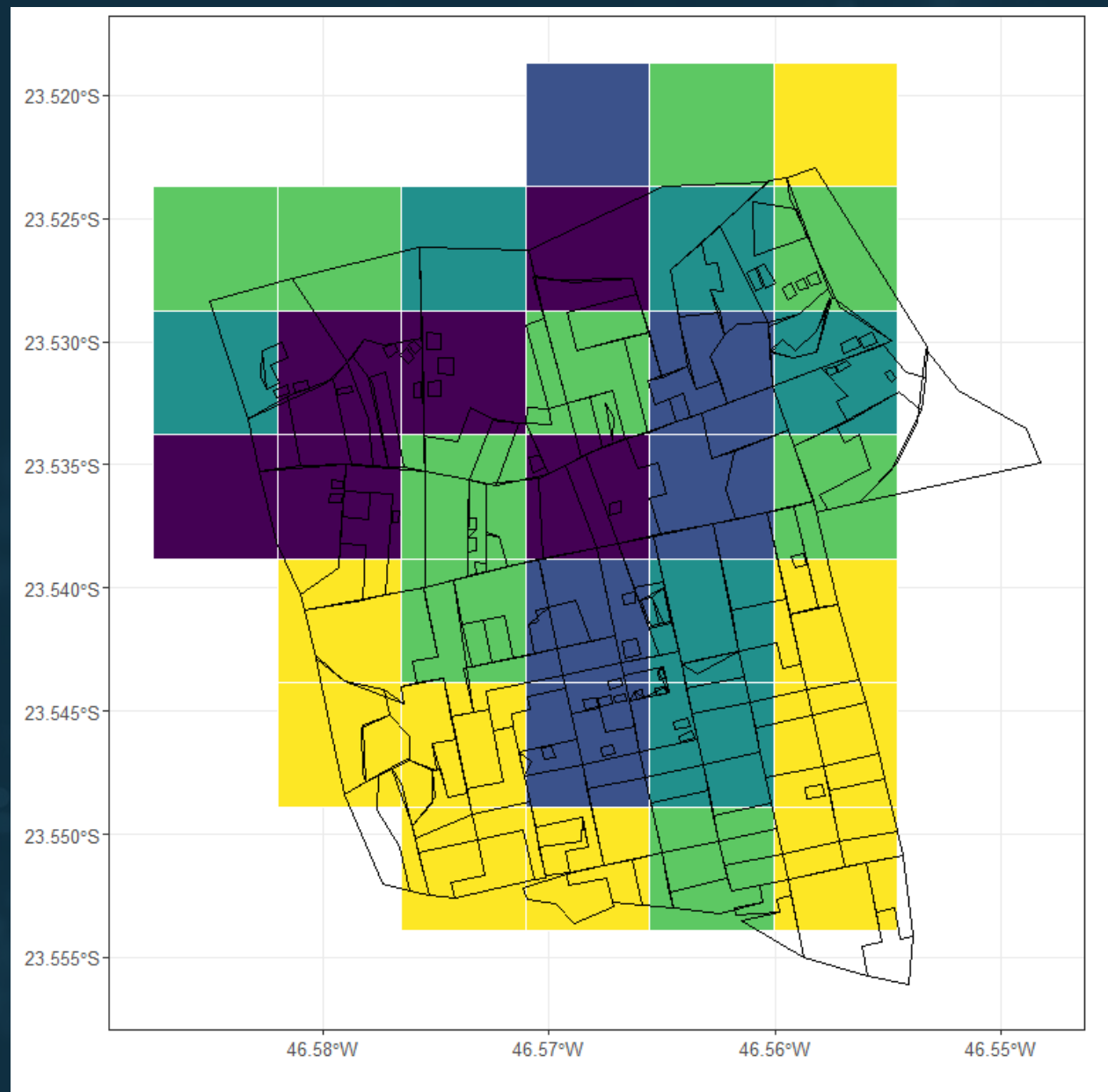
EXPERIMENT TO EVALUATE OOKLA DATABASE

- Mapping the measurements to EAs (2010)
- EAs and OOKLA “tiles” merged by intersection (measurements proportionally adjusted)
- Data for: last quarter of 2021

OOKLA EXPERIMENT

AREA COVERED BY BROADBAND

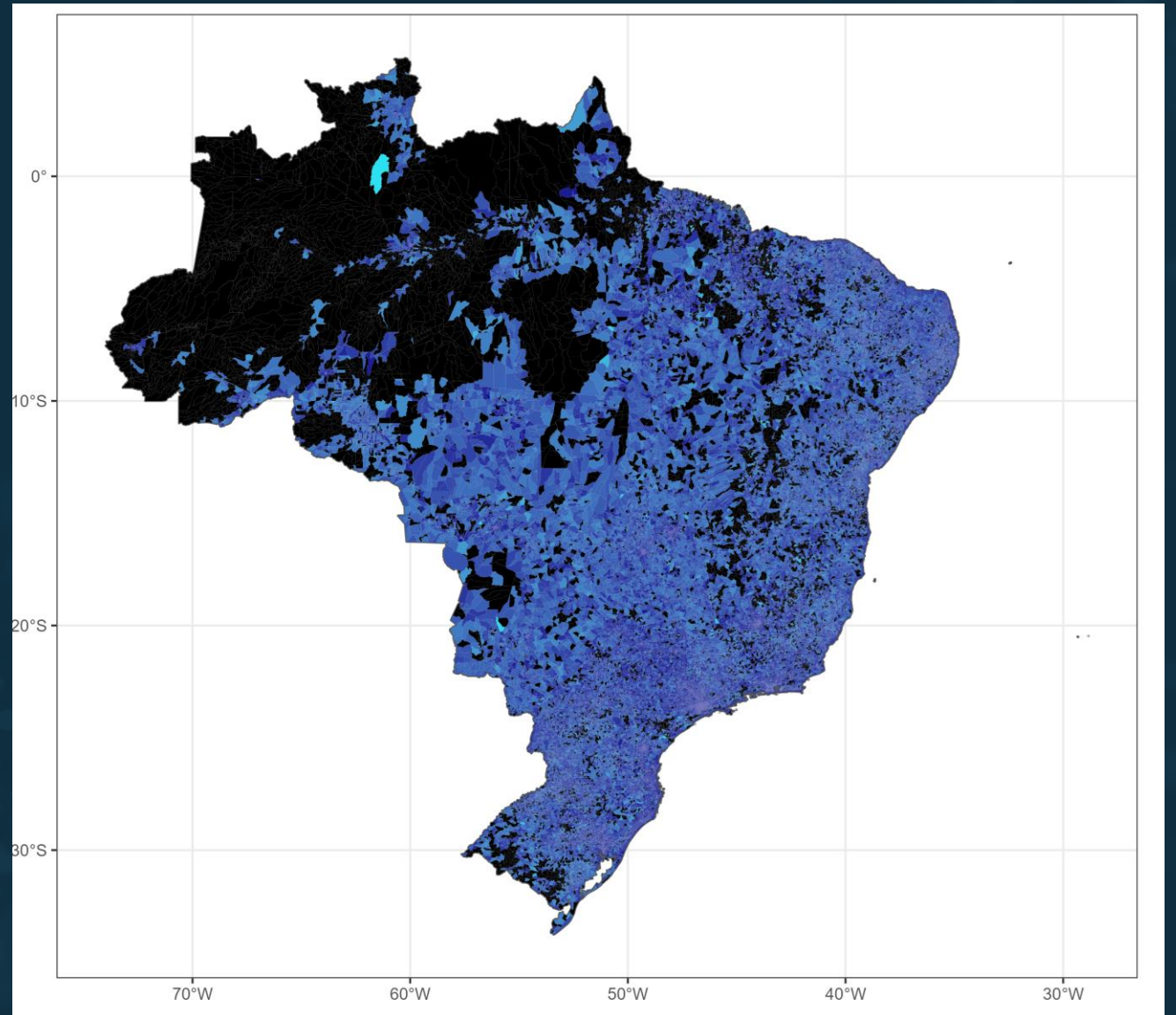
Intersection of "tiles" and EAs for
Tatuapé district of São Paulo



OOKLA EXPERIMENT

AREA COVERED BY BROADBAND

EAs with
measurements



Thank you!

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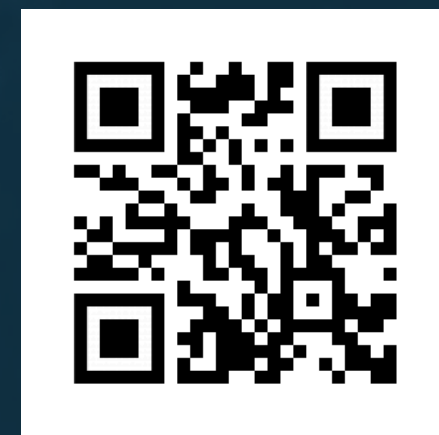
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