Los censos de población y vivienda en contextos de pandemia: panorama regional y desafíos urgentes

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President

November 23rd, 2021
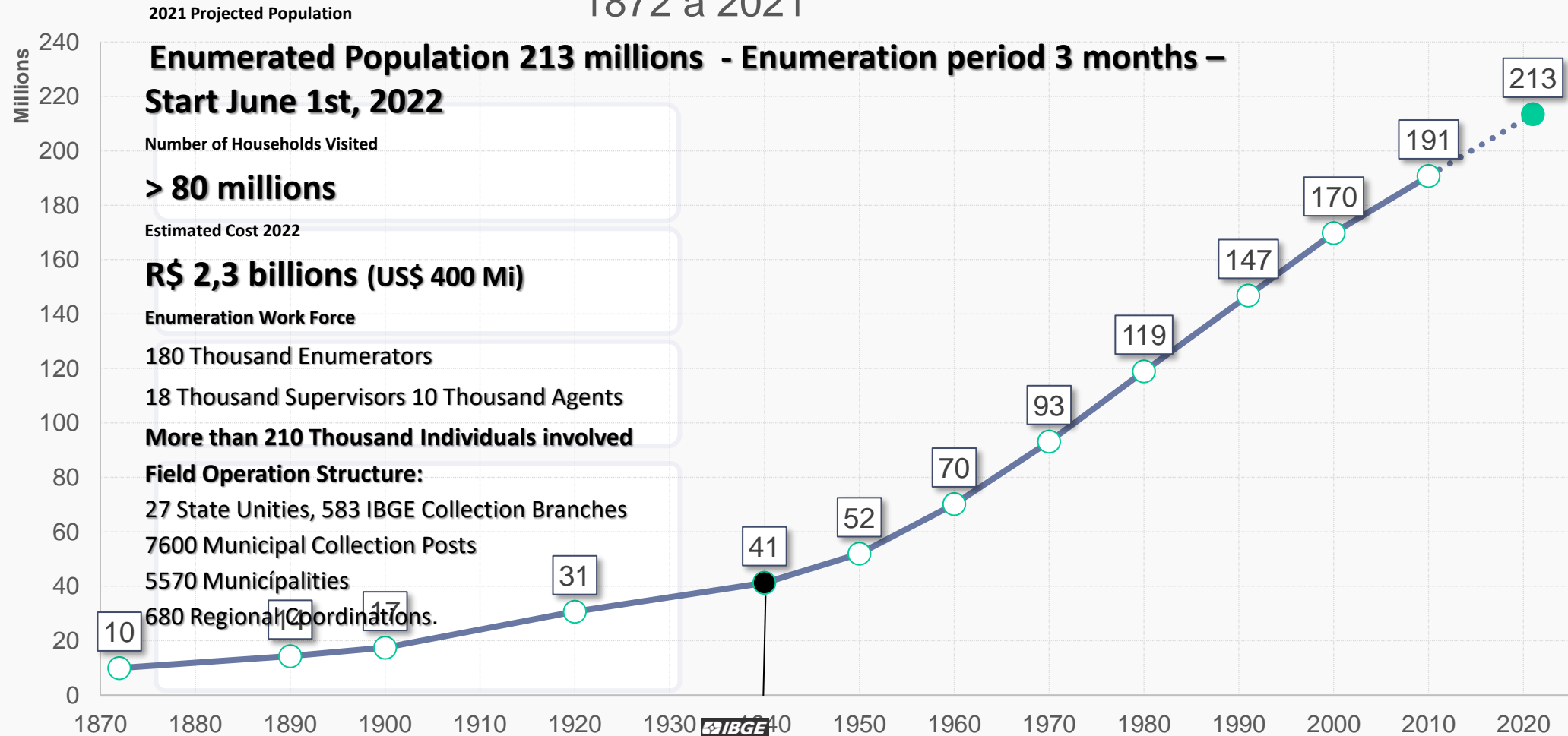
SIDE EVENT

Instituto Brasileiro de Geografia e Estatística   IBGE

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SUMMARY

1. IMPORTANCE – OPERATION´S DESCRIPTION, RELEVANCE OF CENSUS

2. CHALLENGES – INNOVATION

3. CHALLENGES – DATA COLLECTION – CAPI, CASI (CAWI), CATI

4. CHALLENGES – COVID-19 - PPE

5. CHALLENGES – COVERAGE, IMPUTATION

6. Tests

General Features 2022 Demographic Census

Population Brazil
1872 a 2021

2021 Projected Population

Enumerated Population 213 millions - Enumeration period 3 months – Start June 1st, 2022

Number of Households Visited

> 80 millions

Estimated Cost 2022

R$ 2,3 billions (US$ 400 Mi)

Enumeration Work Force

180 Thousand Enumerators

18 Thousand Supervisors 10 Thousand Agents

More than 210 Thousand Individuals involved

Field Operation Structure:

27 State Unities, 583 IBGE Collection Branches

7600 Municipal Collection Posts

5570 Municípalities

680 Regional Coordinations.

Granular information of the Brazilian Populaton at municipal level, allowing the implementation of **public policies**.

Give basis for the **master sample** that allows the construction of all household samples at IBGE, and also for several household samples conducted in Brazil during the decade.

Importance and Uses of the Demographic Census

Basic information for intercensal **population projections** at National and State levels, as well **population estimates**as at municipal level.

It is the basis for the calcultation of the amount or **resources transfered** to the municipalities and states (FPM) and also to determine the size of political representation at the three Federation levels.

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Tool for resources allocation

Knowledge of specific segments of the Brazilian Population

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Display Family living conditions and household access to piped water and sewerage system

Demographic Census - 2022

Themes Covered

BASIC (Short)
(All Households – 26 Items)

Roster of Individuals in the HOUSEHOLD

HOUSEHOLD Carachteristics

Individuals Carachteristics in the Household
Race/Color Identification
(*Quilombolas e Indígenas*)
Civil Registration
Literacy
Income of Household´s Head

MORTALITY

LONG
(SAMPLE – 77 Items)

Individuals Carachteristics in the Household

Nuptiality
Fertility
Religion
Individuals with Disability
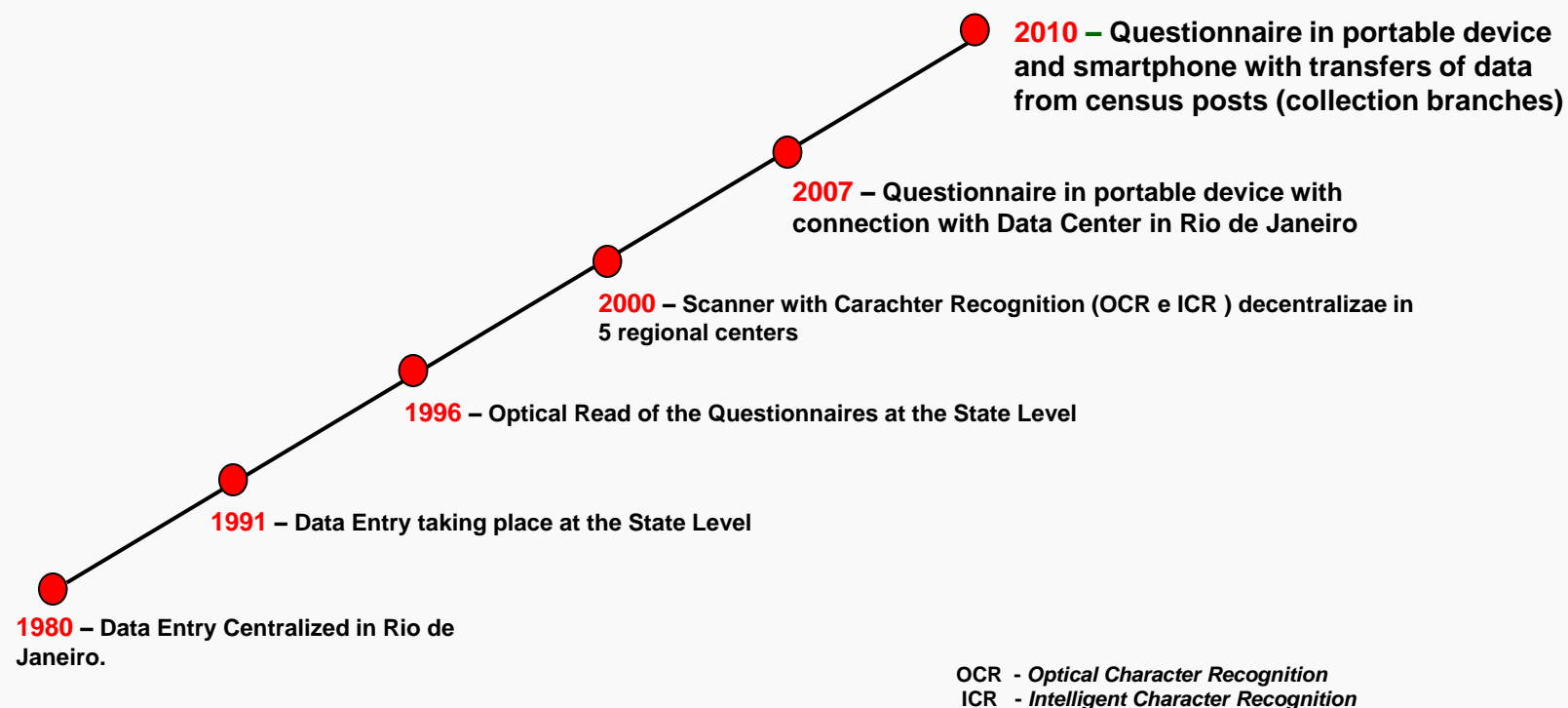Internal and International
Migration
Education
Work and Earnings
Commuting to Work and to Study
Autism

Types of Technological Innovations in the Censuses

The last Editions of the Censuses brought innovations in the data collection, entry, in all editions data collection took place at the household level enumerating all members

2010 – Questionnaire in portable device and smartphone with transfers of data from census posts (collection branches)

2007 – Questionnaire in portable device with connection with Data Center in Rio de Janeiro

2000 – Scanner with Carachter Recognition (OCR e ICR) decentralizae in 5 regional centers

1996 – Optical Read of the Questionnaires at the State Level

1991 – Data Entry taking place at the State Level

1980 – Data Entry Centralized in Rio de Janeiro.

OCR - *Optical Character Recognition*
ICR   - *Intelligent Character Recognition*

Expected Innovations in 2022

- If previous innovations derived from censuses were associated with **data collection and data entry**, we expect that 2022 will be marked by **tecnhologies monitoring the census operation** in real time. A situation room will monitor the operation in real time.

- <u>**The following innovations should be mentioned:**</u>

  - GradePop – Households by Census Tract

  - Demographic Dynamics in Dashboards by Census Tract

  - Process Mining of the Census Operation – Analysis of Metadata

TOP-DOWN VS BOTTOM-UP POPULATION MODELLING

GradePop

Global top-down gridded population estimates are available from **www.worldpop.org**.

Bespoke country-specific bottom-up population estimates are available from **wopr.worldpop.org**.

See **Wardrop et al. 2018** for an overview of these methods.
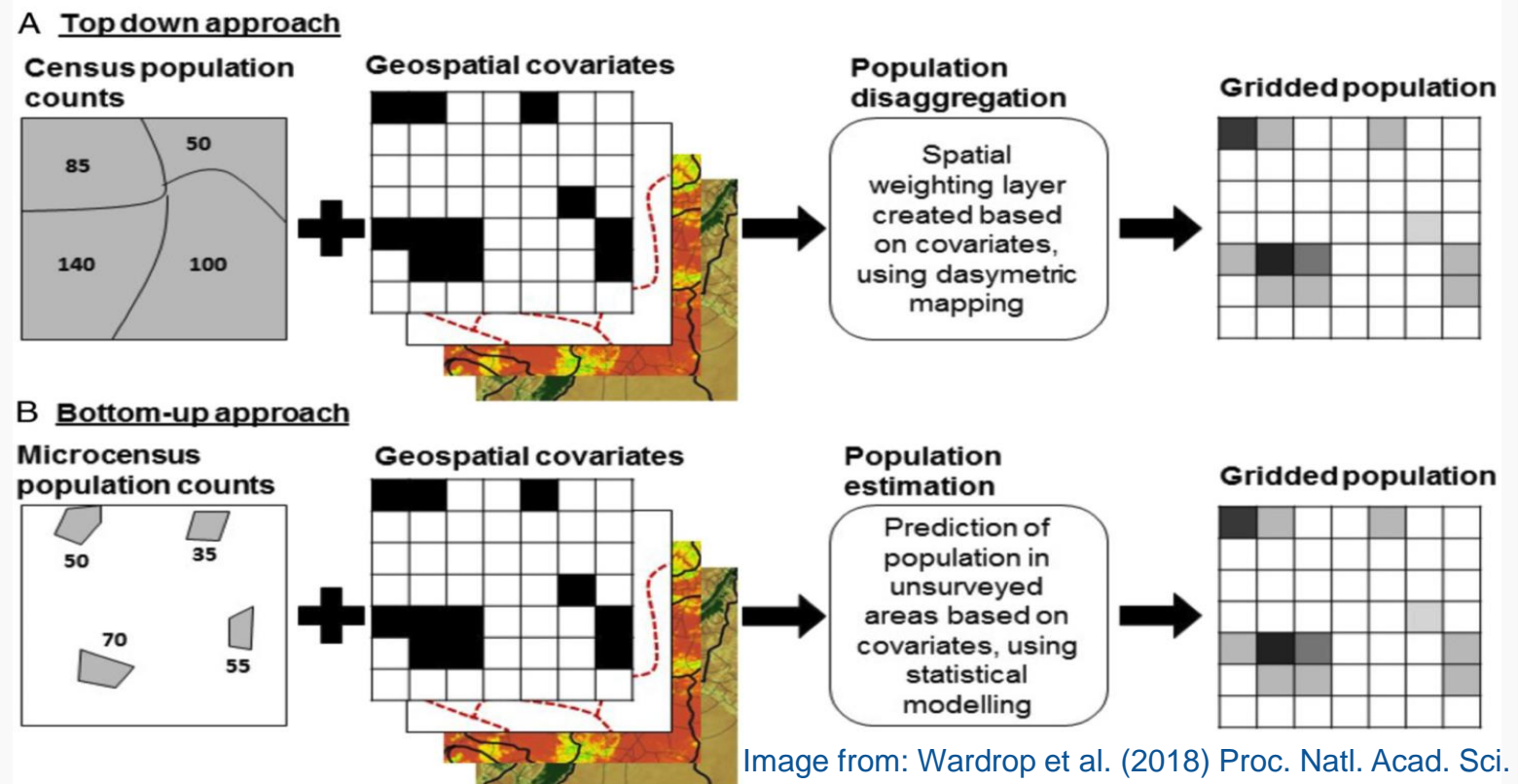
Image from: Wardrop et al. (2018) Proc. Natl. Acad. Sci. U.S.A

GradePop

1. **Pre-Enumeration Phase** - It gives a view on the number of households to be expected in the census enumeration phase. It combines with the virtual construction of housing address lists by Census Contract. Both compensate the lack of resources for pre-enumeration´s canvassing of the Census Tracts.

2. **Enumeration Phase** – It helps the evaluation of real time coverage of the census tracts during enumeration or data collection.

3. **Post-Enumeration Phase –** It helps to access data coverage and to input missing households. It will be conducted a post-enumeration survey (PES), but this tool and demographic analyis will contribute to evaluation of census´ coverage.

Demographic Dashboards

- IBGE applied demographic analysis in previous Census operation to access its quality.

- This analysis was done with a time lag in order to compute partial results from the field.

- Dimensions such as age structure, sex ratio, digital preference for certain ages (Myers Index), median age, education, etc. were computed in order to evaluate the quality of data collection.

- Now, dashboards replace this type of analysis in almost real time and high level of granularity, up to the census tract level.

Demographic Dashboards
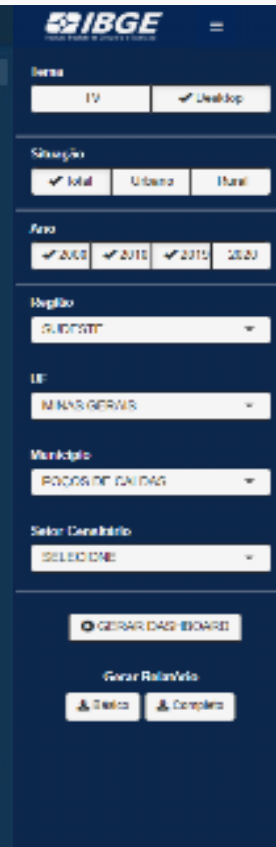
Demographic Dashboards

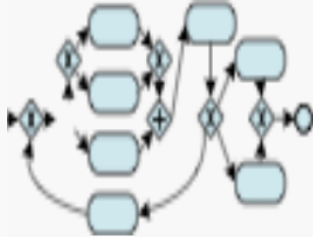# Process Mining of Data Collection

- A tool to evaluate data collection in real time, by enumerator, including the number of visits to the household, the time spent in each visit, completion of the questionnaire, reasons for not completing the questionnaire, supervision activities, etc.

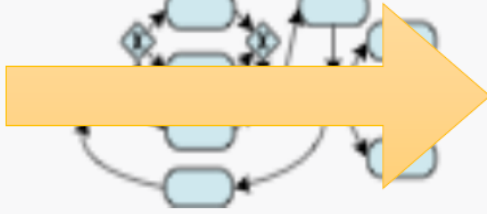# Process Mining of Data Collection

PLAY IN

PLAY OUT

REPLAY

REPLAY

- **Time of execution**
- **Frequencies**
- **Durations**
- **Diagnostics**
- **Predictions**

The Challenge of Data Collection

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Mixed Model of Data Collection

CAPI = Computer-Assisted Personal Interviewing

Internet

CASI = Computer-Assisted Self Interviewing

CATI = Computer-Assisted Telephone Interviewing

Mixed Model of Data Collection

1 Enumerator starts face to face contact:

If sucessful contact with resident:

1
- Face to Face Interview (**CAPI**)
- Make Appointment for telephone Interview (**CATI**)

2
- Suggest Internet self-interview (**CASI**)
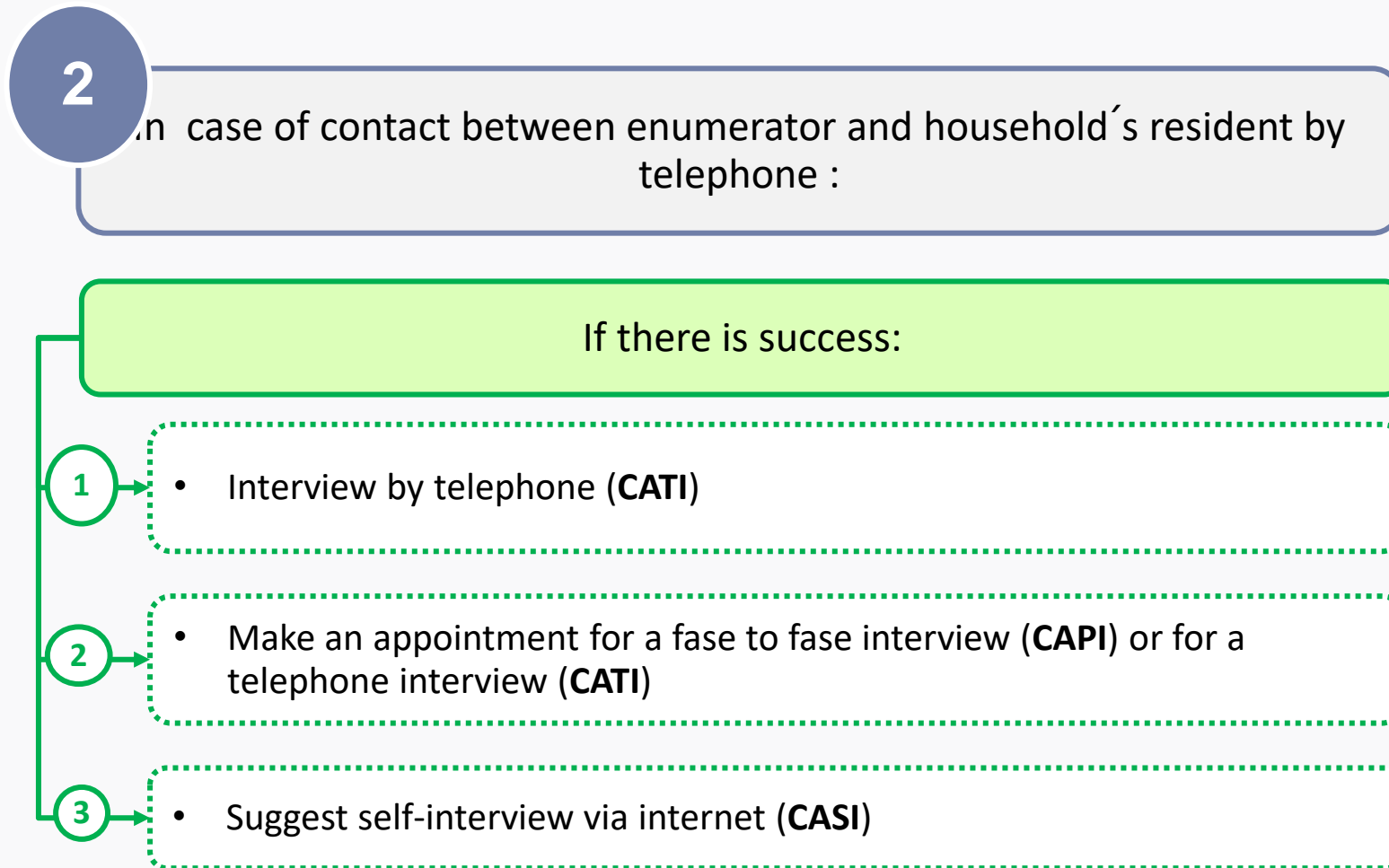
Data Collection Flow in Mixed Model

1 Starting point is always face to tace:

In case of not reaching a resident in the household:

- Leave a note with contact number; and

- Try to dial when there is a telephone number in the list for the specific household visited

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Data Collection Flow in Mixed Model

2 In case of contact between enumerator and household´s resident by telephone :

If there is success:

1 • Interview by telephone (**CATI**)

2 • Make an appointment for a fase to fase interview (**CAPI**) or for a telephone interview (**CATI**)

3 • Suggest self-interview via internet (**CASI**)

2022 Census data collection approach model

CATI + CAPI + CASI

1 **The enumerator starts the face-to-face stage:**
- o **In case of successful contact with the resident:**
  - ✓ **1ˢᵗ option - face-to-face or scheduling interview (CAPI) or telephone interview (CATI)**
  - ✓ **2ⁿᵈ option - offer self-completion via the Internet (CASI)**

- o **If the contact to the resident is not possible:**
  - ✓ **Leave a message letter with a contact number and**
  - ✓ **Try to contact by phone if there are phone numbers available (only after the unit is worked)**

2 **If the enumerator is contacted or is able to contact the resident by telephone:**
- o **In case of successful contact:**
  - ✓ **1ˢᵗ option - telephone interview (CATI)**
  - ✓ **2ⁿᵈ option - schedule a face-to-face (CAPI) or telephone interview (CATI)**
  - ✓ **3ʳᵈ option - offer self-completion via the Internet (CASI)**

CATI = Computer-Assisted Telephone Interviewing
CAPI = Computer-Assisted Personal Interviewing

Reference date = night from may 31 to June 1, 2022

Data Collection
Remote Call Center

(Centro de Apoio ao Censo - CAC)

- **Conceptual and Operational Assistance** filling self-interview via web

- **Convincing Role Insistência** with those individuals contacted that opted for self-interview and never filled the questionnaire

- **Completing** the lacking information in partially filled questionnaires in the web

- Confirming the information about the **enumerator´s credentials**

Safety and Health

- Health Protocols

- Personal Protection Equipments (PPE)

- National and International Benchmark

Post-Enumeration Survey (PES)

- Coverage was an issue in the 2010 Demographic Censuses

- Coverage problem in high income neighborhoods due to difficulties of access

- Coverage problem in census tracts located in "slums" or "sub-normal sectors", mainly due to violence

- Coverage problem in rural census tracts

- Post-Enumeration surveys conducted independently of the data collection team and immediately after enumeration give basis for the estimation of coverage rates and inputation

- Demographic projections and GradePop provide alternative measures of coverage
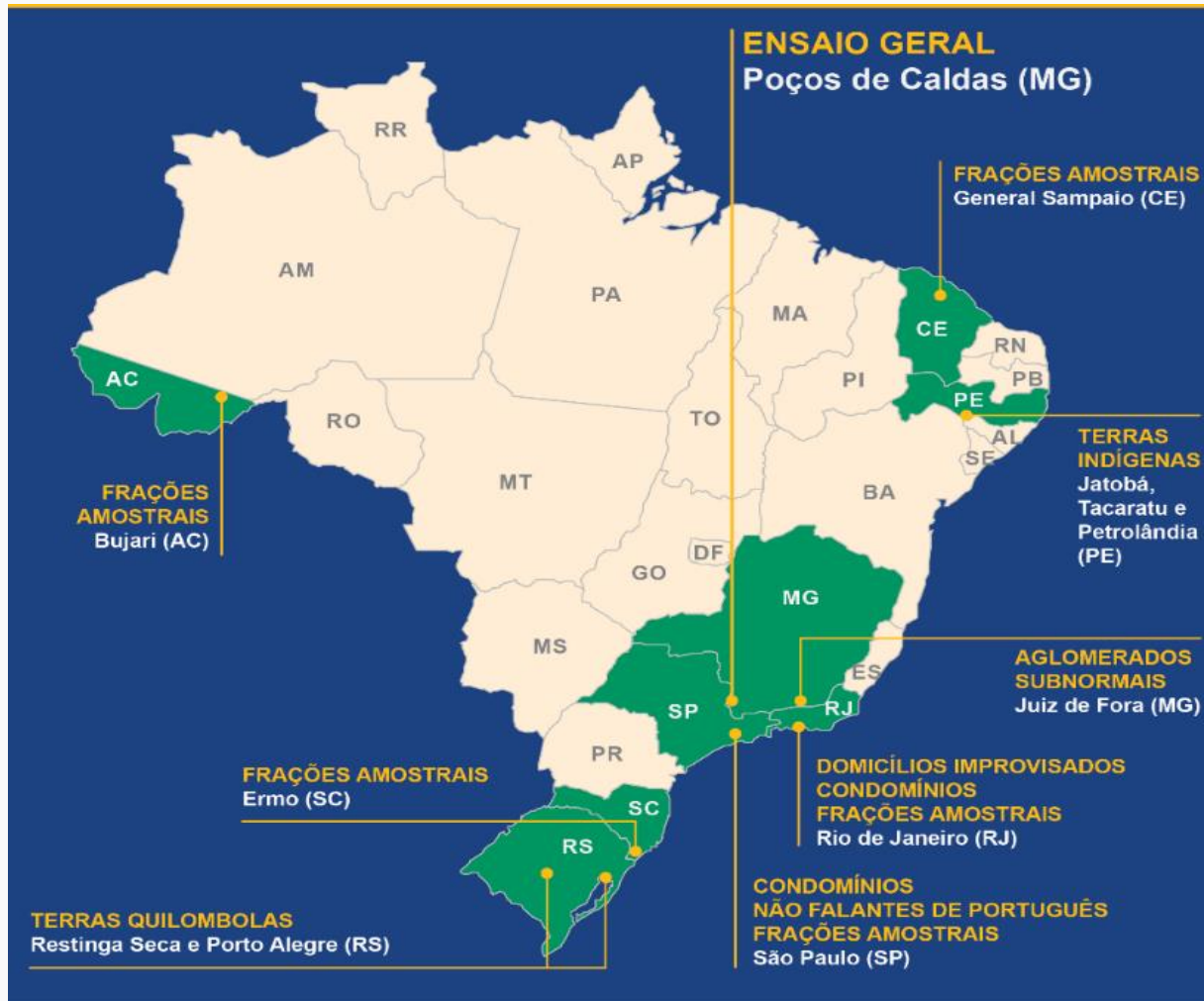
Tests – Demographic Census 2022

- Experimental Census in Poços de Caldas – Minas Gerais – November 2019

- Virtual Equipment Tests – November 2020

- Paquetá Island Test – September 2021

- Tests in all 27 States – November 2021

Experimental
Census
Poços de Caldas
Population: 168 million

2019

Experimental Census 2019

ENSAIO GERAL
Poços de Caldas (MG)

FRAÇÕES AMOSTRAIS
General Sampaio (CE)

TERRAS INDÍGENAS
Jatobá, Tacaratu e Petrolândia (PE)

FRAÇÕES AMOSTRAIS
Bujari (AC)

AGLOMERADOS SUBNORMAIS
Juiz de Fora (MG)

FRAÇÕES AMOSTRAIS
Ermo (SC)

DOMICÍLIOS IMPROVISADOS
CONDOMÍNIOS
FRAÇÕES AMOSTRAIS
Rio de Janeiro (RJ)

TERRAS QUILOMBOLAS
Restinga Seca e Porto Alegre (RS)

CONDOMÍNIOS
NÃO FALANTES DE PORTUGUÊS
FRAÇÕES AMOSTRAIS
São Paulo (SP)

Poços de Caldas-MG

-Enumerators: 180

-Supervisors: 25

-ACM: 4

-Sampling: 10%

16 other municipalitites with specific characteristics

Test Paquetá-RJ – Population Counted in Test 3612
Paquetá Island – carachteristics

SOUTH

NORTH

Boats

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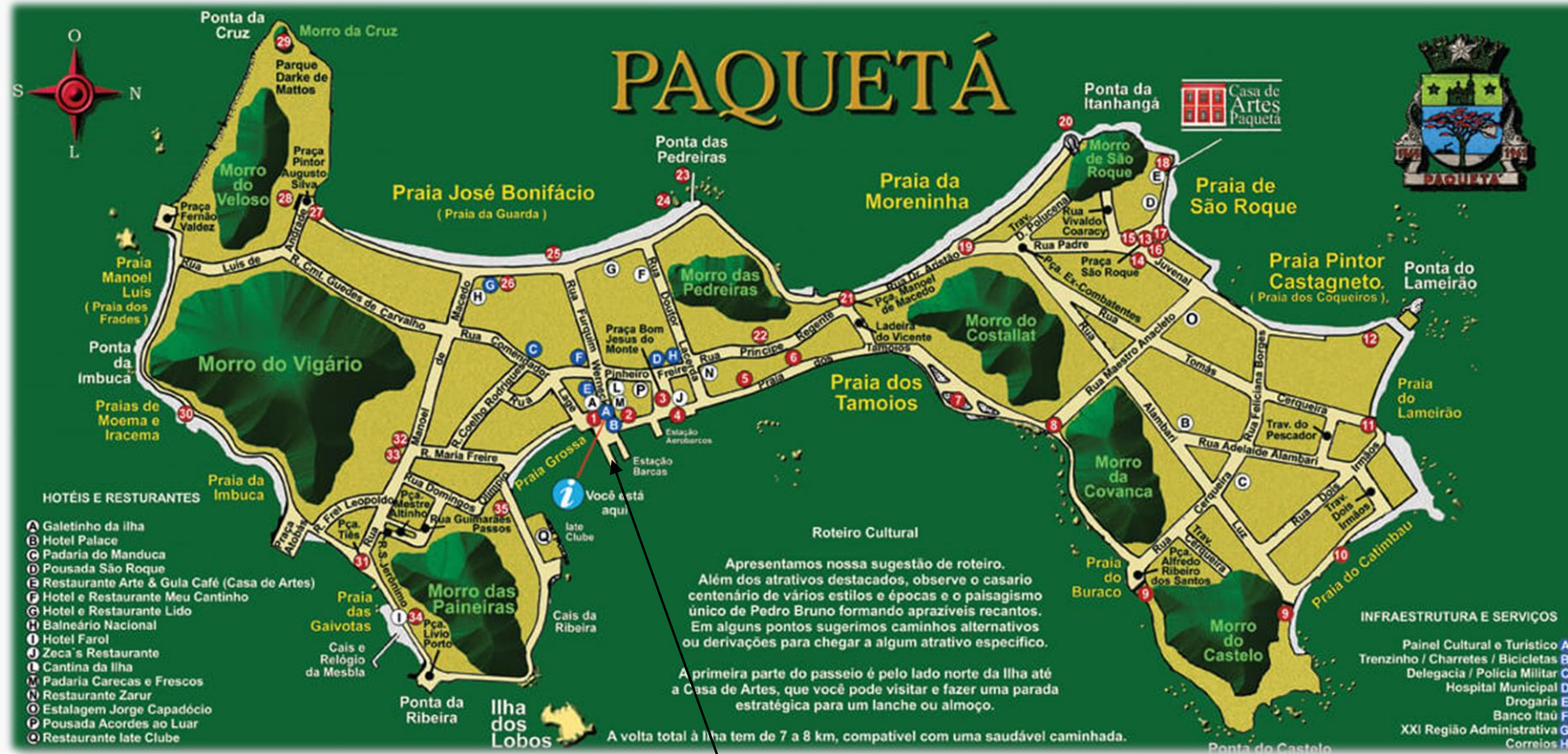
Pré-teste de Paquetá-RJ
Ilha de Paquetá – Banner na entrada da Ilha

Paquetá Island – City of Rio de Janeiro
Partnership – Municipal Health Department

TESTS IN 27 STATES - PARANÁ

TESTS IN 27 STATES – DISTRITO FEDERAL
Samambaia

TESTS IN 27 STATES – MINAS GERAIS
Bairro Minas Brasil in Belo Horizonte

Road Show in Four Northeast States -
Tests and Pre-Game Speech for the Census
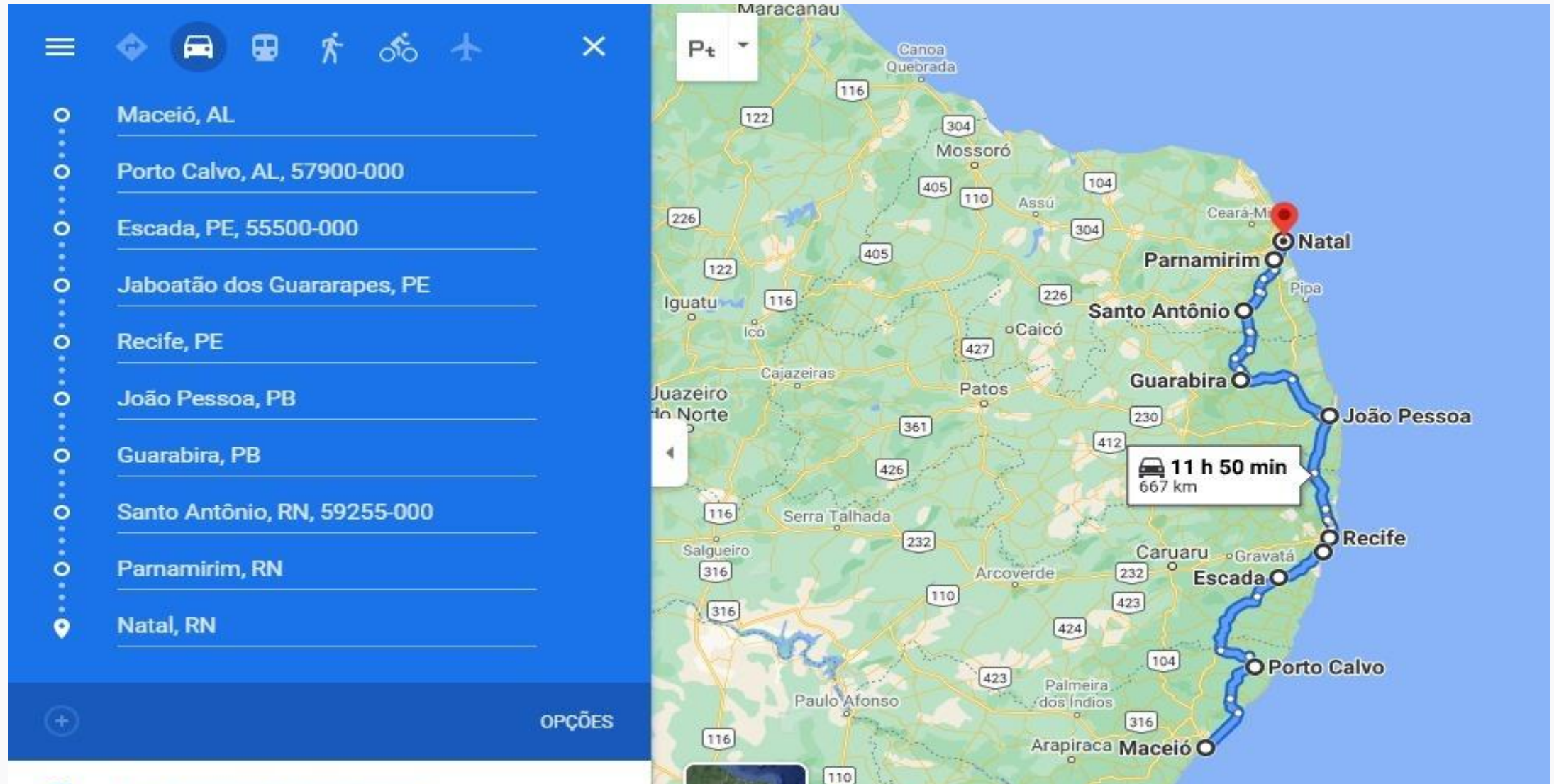
Como me sinto depois dessa maratona de testes?

Thank You!!!