Movement from register-based Census to the creation of a Statistical Population Register

Instructions: Click on the link to access each author's presentation.

Participants:

Inga Masiulaityte-Sukevic: Statistical Population Register: from needs to goals and implementation

Lidija Brkovic: Population Register

Betsy Williams: Testing Enablement with Paper Forms versus Internet Code in New Zealand's 2023 Census

Apostolos Kasapis: Beyond Compliance: The Impact of Data Protection on Statistical Excellence - A View from the 2021 Population-Housing Census in Greece

Federico Segui: First combined (register-and-questionnaire-based) census in Latin America and the Caribbean? Innovations of the Uruguayan 2023 population census.

Overview

- History of creation of Statistical Population Register (SPR)
- Purpose and tasks of the SPR
- Objects of SPR
- Administrative data
- Future Plans

History of creation of Statistical Population Register

2011

Traditional Population and Housing Census

2013

First thoughts about creation of Individual person database based on Census data for Demographic statistics

2019

- State Data Governance Information System was established
- Start of modernisation and standartisation of statistical process

2021

Population and Housing Census based on administrative data

III Q 2021

Start of creation of Statistical Population Register at the methodological and technical level

The need for Statistical Population Register

2021 Population and Housing Census is foundation for Statistical Population register

Future annual Population Census

The need to have demographic statistics, international migration statistics of better quality, more relevant, more frequent and detailed, aligned with the census data and satisfied national and European needs

Have a relevant permanent population frame for sampling

Use for experimental statistics (circular migrants, etc.)

Harmonised statistics through different domains: define core variables

Definition of Statistical Population Register

- Statistical Population Register is defined as an individualized data system, that is a mechanism of continuous statistical recording (reusing), and/or of co-ordinated linkage, of selected information pertaining to each member of the resident population of a country in such a way to provide the possibility of determining up-to-date information concerning the size and characteristics of that population at selected time intervals.
- Organization and update of SPR based on legal acts of registration of vital events, change of place of residence and other acts.
- Statistical Population Register has been constructed based on the 2021 Population Census base and construction algorithm.

Purpose and tasks of Statistical Population Register

- The purpose is to collect, accumulate and update data on permanent residents: updated continuously by the current information on the fact of birth, death, adoption, legitimation, marriage, divorce, change of place of residence, change of citizenship, change of occupation, change of education, change of name, fact of disability, change of marital status, territorial changes.

- The goal is to ensure that data in the Statistical Population Register is automatically collected and integrated from administrative sources, registers and statistical surveys.

- Tasks: evaluate incoming data flows, periodicity of provision, methods of transmission, define objects of the Statistical Population Register, prepare algorithms for data collection and recording in the register, create a database structure.

Condition for building of good quality Statistical Population Register

Quality	• Existence of administrative data and registers of good quality and coverage
Uniques identifiers	• All registers and administrative data have been used the same Personal ID Adress ID, Building ID, Enterprise ID number
Legal Basis	• Legal base for primary data acquisition, data linkage
Relevance	• Variables relevant to statistics

Data Sources for Statistical Population Register [1]

- 2021 Population and Housing Census
- Population register
- Main other state registers
- Administrative data

- The integration of administrative data is still ongoing.

Data Sources for Statistical Population Register [2]

- 34 administrative data sources were analyzed
- 19 administrative data sources were chosen for census 2021

Quality indicators
- Relevance and completeness
- Timeliness and punctuality
- Accuracy
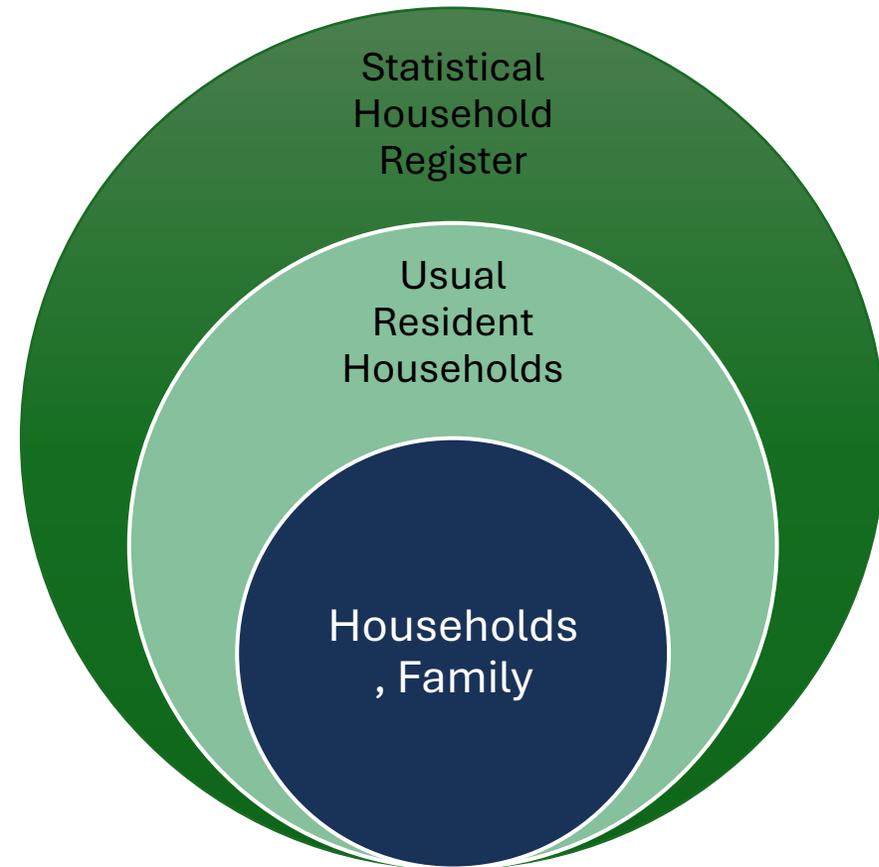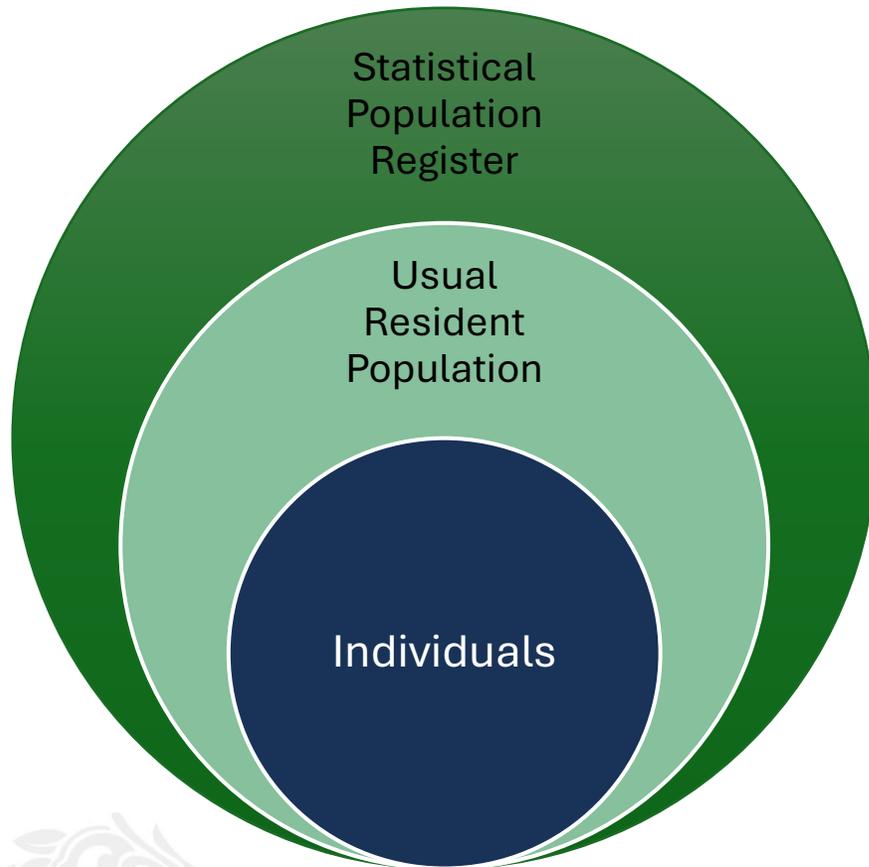- Comparability and coherence
- Accessibility and clarity

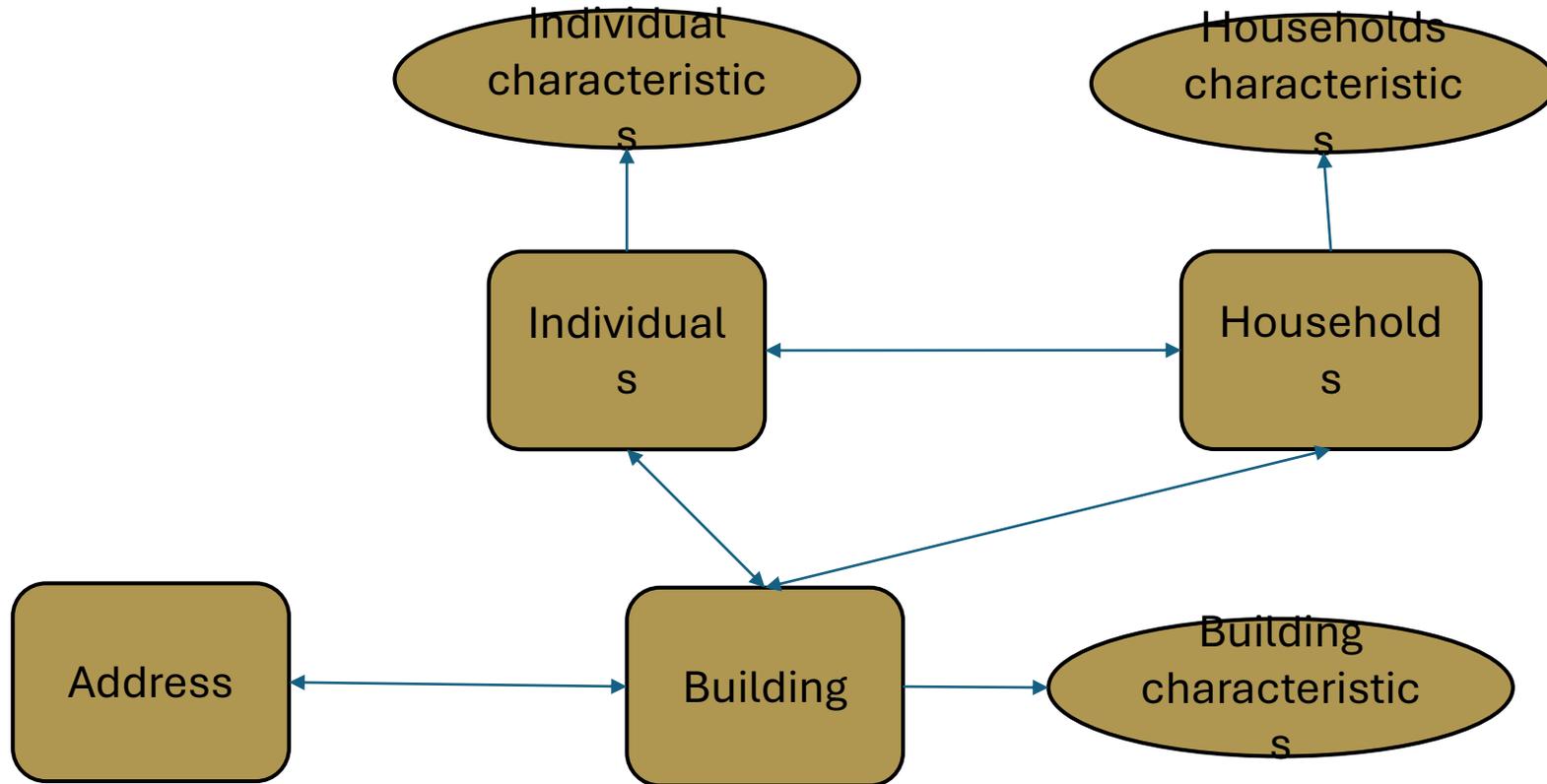- Personal ID, Adress ID, Housing unit/Building ID, Enterprise ID were used for the data linkage

Conceptual model [1]

Population Register

Administrative data

Statistical Population Register

Usual Resident Population

Individuals
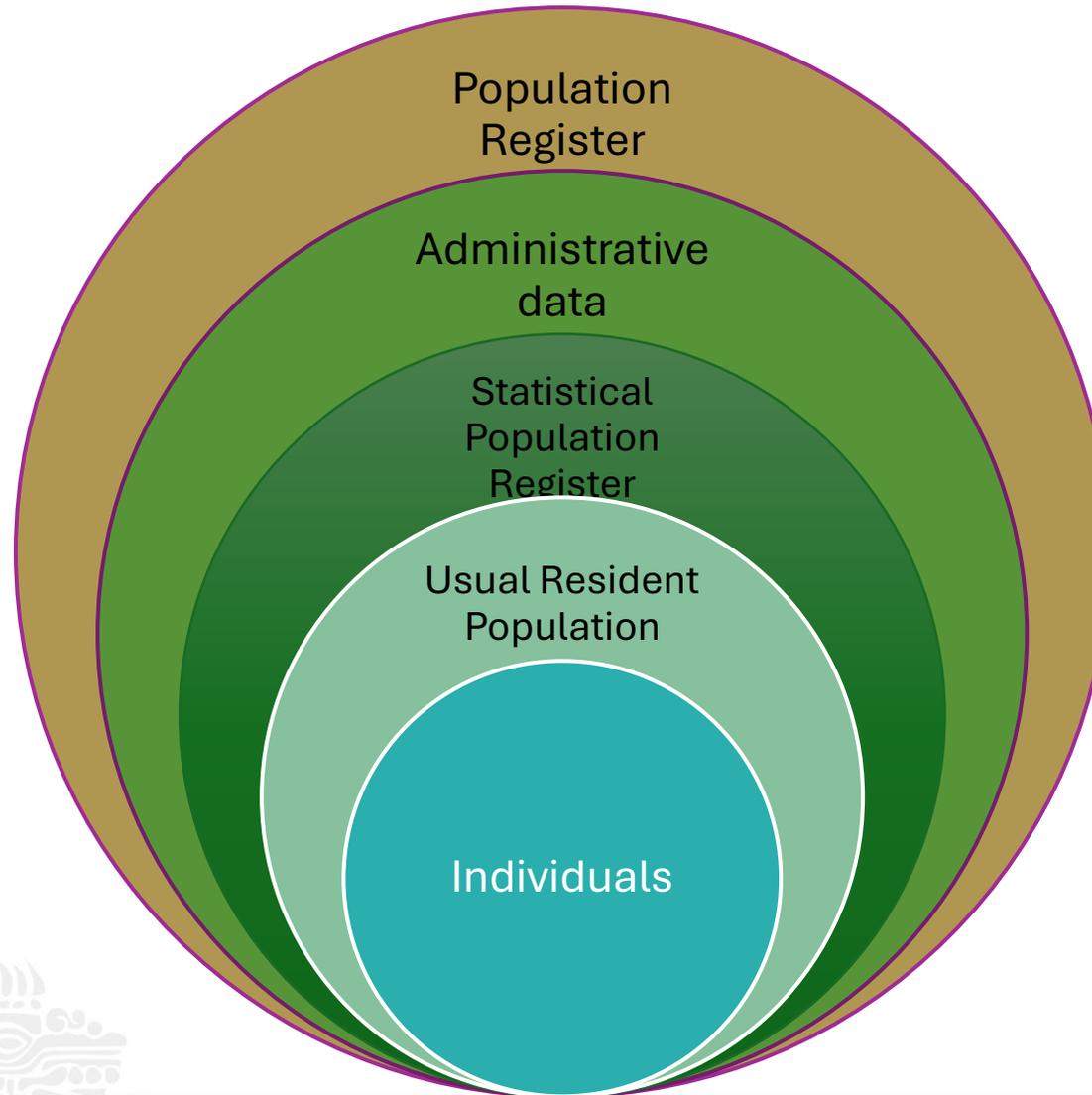
Conceptual model [2]

Conceptual model [3]

Units and variables

- Units
  - Persons
  - Families
  - Buildings
  - Households
  - Companies (enterprises)
- Variables
  - Identification variables
  - Demographic variables
  - Socioeconomic variables
  - Technical variables (date of registration, date of changes, source variables, etc.)

- Unique identifiers
  - Personal ID number
  - Address ID number
  - Building ID number
  - Enterprise ID number

Coverage of Statistical Population Register

- Usual resident population (stock population)
- Foreigners
- Short-term migrants
- Homeless
- Residents of institutional homes
- History of usual resident population
    - Dead persons
    - Non-resident population (persons who declared leaving abroad)

Variables in Statistical Population Register

- Identification variables
  - Personal ID number
  - Pseudoamised Personal ID number
  - Name and surname of person
  - Address / GIS coordination

- Demographic variables
  - Sex
  - Date of birth / age
  - Marital status
  - Nationality
  - Citizenship
  - Family relationship

- Socioeconomic variables
  - Education
  - Employment status
  - Occupation
  - Disability

- Technical variables
  - Date of changes

- Some variables are still under construction.

Standardized classifications, code lists

- Classification of countries
- Classification of territorial units
- Sex
- Age
- Legal marital status
- Nationality
- Citizenship

Specification of statistical variables

For each variable need to define
- Statistical definition
- Available data sources
- Understanding the difference between statistical definition of variables and definition in administrative data
- Legal basis defined for variable in administrative data
- Variable's construction algorithm
- Code list, classification

Compliance with international standards and definitions

- Definition of usual resident population:
- Permanent resident:
  - Lived in Lithuania continuously for at least 12 months at the reporting date;
  - or within the last 12 months arrived in the country before the reporting date with the intention of staying in for at least one year;
  - and established "signs of life" indicator (found in two or more administrative sources).
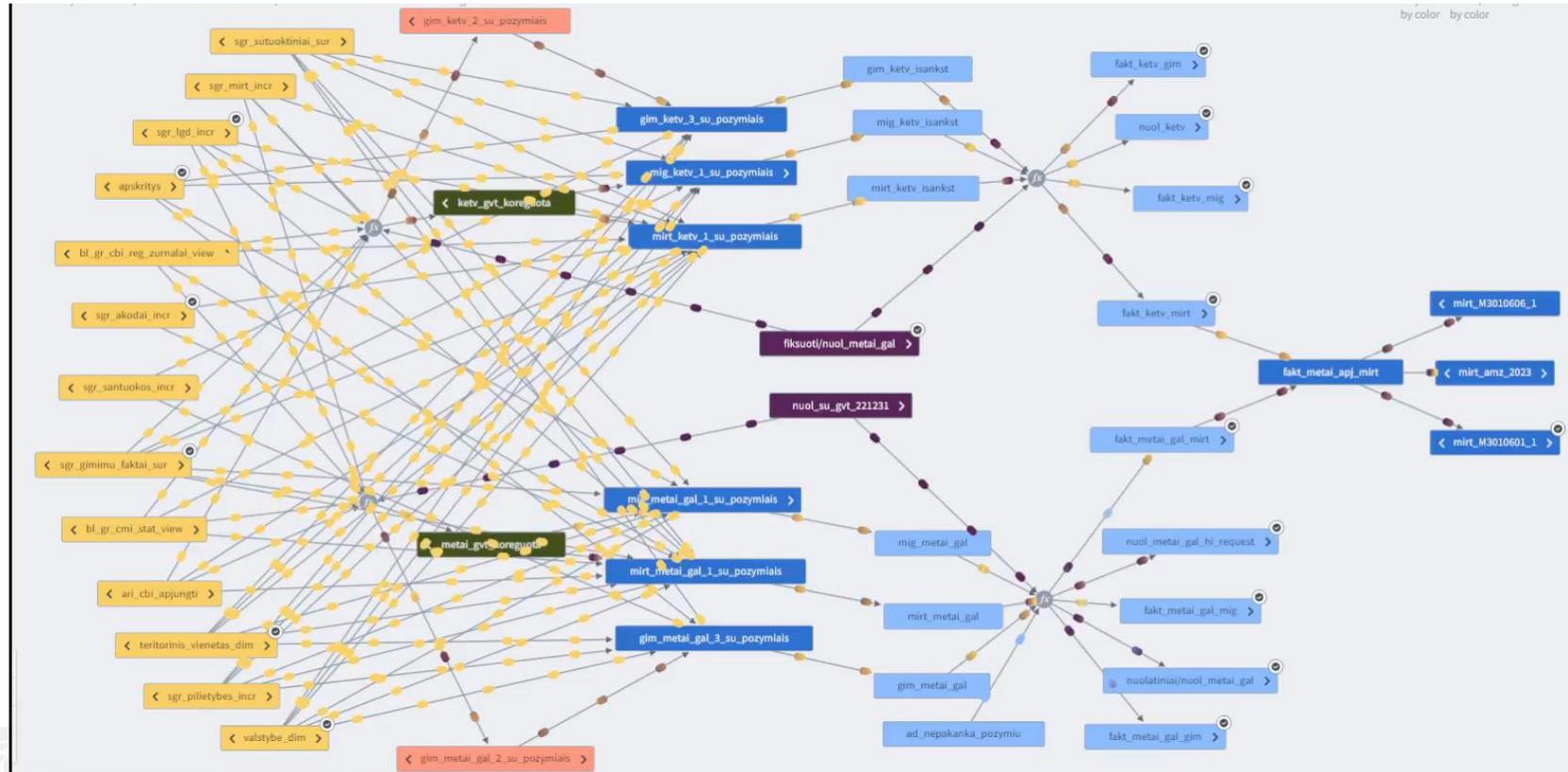
Outputs of Statistical Population Register

- Demographic statistics (Population statistics, Fertility statistics, Mortality statistics, Marriages statistics, Divorce Statistics)
- International migration statistics
- Internal migration statistics

Schema of Statistical Population Register

Challenges

- Reliance on administrative data holders, communication is not always smooths
- Complex methodology requires a lot of scrutinized data analysis which is very time consuming
- New software is used. Not enough experience

Future Plans

- Continue of integration of administrative data
- Development and integration of "Signs of life" method
- Usage of Statistical Population Register for sampling frame and for the weighting
- Creation of Statistical Households (Family) Register
- Household composition, family relations
- Creation of Statistical Buildings Register

History

1746 and 1754

''TERESI'' CENSUSES first population censuses in the territory of today's Republic of Croatia

1785

''JOSEPH'S'' CENSUSES

1850/1851

Census was carried out for two years due to the circumstances of the time

1857

The first Census containing comprehensive dana for the entire territory of today's Republic of Croatia was conducted in the 1857 in the then Austro-Hungarian Monarchy

1941

Preparations were made for 1941, but the Census was not conducted due to the war

1948

''SHORT CENSUS''

1961

The Census has been conducted at regular ten-year intervals

2021

Last Census in the Republic of Croatia

General information about 2021 CENSUS

Carried out from 13 September to 14 November 2021

Reference day – August 31, 2021

CAWI and CAPI methods were used

Costs: about 5 € per person

CAWI and CAPI method

➤ Citizens had the opportunity to fill out a **digital questionnaire**

➤ One **reference person** provides all the data for one household

➤ National **"e-Citizen"** platform was used

➤ Round **40% of population** have been self enumerated

➤ Help-desk was organized

➤ The **Census 2021** was implemented with a Public Health Security Protocol

➤ All enumerators had to have **COVID-19 certificates**

➤ Each **enumerator has been responsible** for certain enumeration areas

➤ About **eight thousand enumerators** were enlisted
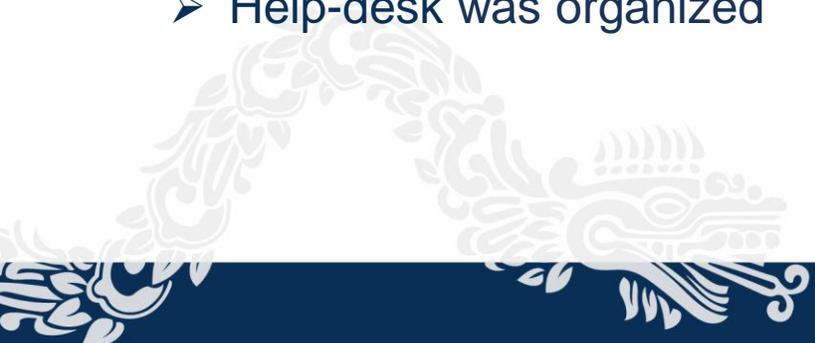
The development of OFFICIAL STATISTICS SYSTEM in the context of strengthening administrative sources

ADMINISTRATIVE REGISTER FOR:

➢ Redefining the system of social benefits

➢ Implementation of balanced measures

➢ Timely availability of data

SUBSTITUTE FOR THE CENSUS

PRINCIPLE ⟹ Proportionality in the collection of personal data

Current state

PREREQUISITES FULLY MET

- The overall **geographical coverage**

- Statistics on population and vital events refer to the **usually resident population**

- Legislative **authority**

- Unique identity number **(OIB)**

- Strong **political will**

PREREQUISITES TO BE FUFILLED (IN PROGRESS)

- Coordinated linkage **of the population register** with other administrative sources

- Legal **background**

- Methodological harmonization of **administrative sources**

- Standardizations of **codes and code books**

- Introduction of **Register of buildings and dwellings**

The role of CBS in creating prerequisites for the establishment of the POPULATION REGISTER

Long experience in exchanging data

Assistance in various **methodological solutions** and in creating its content

Members of the Working Group

Assistance in creating **legal framework**

Thorough analysis of all administrative databases relevant to the **Population Register**

Content of the POPULATION REGISTER

GENERAL PART

OIB, personal name

birth, death, citizenship

marriage, civil partnership

consanguinity

legal custody and guardianship

the place of residence, the place of stay

disability

SPECIAL PART

education

housing unit and housing quality

basis of insurance

employment

nationality

SPACIAL PART – statement of the person

domestic partnership, informal partnership

religion, native language

contact information

Decree of the Government - individual variables for the area of personal data

Functionality of the POPULATION REGISTER

Data in the **POPULATION REGISTRE** is entered by downloading

from other registers:

➢ in **GENERAL PART** – in real time

➢ in **SPECIAL PART** – quarterly

Exceptionally – the person **may declare data** on:

➢ domestic partnership, informal partnership
➢ cultural and ethical characteristics – religion and native language
➢ household composition

➢ institutions data sources – maximum data entry

➢ lack of specific data – *POPULATION REGISTER* as a long-term solution

Conclusion

➢ **CBS** has been encouraging and pointing out the need for establishing a **POPULATION REGISTER**

➢ The goal of introduction of **POPULATION REGISTER** is to simplify and administratively relieve the procedures

➢ Tax Administration plans that the Population Register will be established **by June 3, 2026**

➢ **2031 Census** – **CBS** plans to conduct a Population Census based on data from the **POPULATION REGISTER**

Testing Enablement with Paper Forms versus Internet Code in New Zealand's 2023 Census

Dr Betsy Williams, Chris Yang, Jayden Mudge, Dr Love Umesi
Statistics New Zealand – Tatauranga Aotearoa

Census | Stats NZ

Need for clear evidence relevant to Aotearoa New Zealand

Motivation

International comparison

2018 Census gave about 3% paper, seen as inadequate

Paper enablement has greater financial costs and may:

+ Increase response rate

- Cause mode shift from online to paper,

       Reducing data quality

       Increasing time to respond

       Requiring more NRFU

Census | Stats NZ

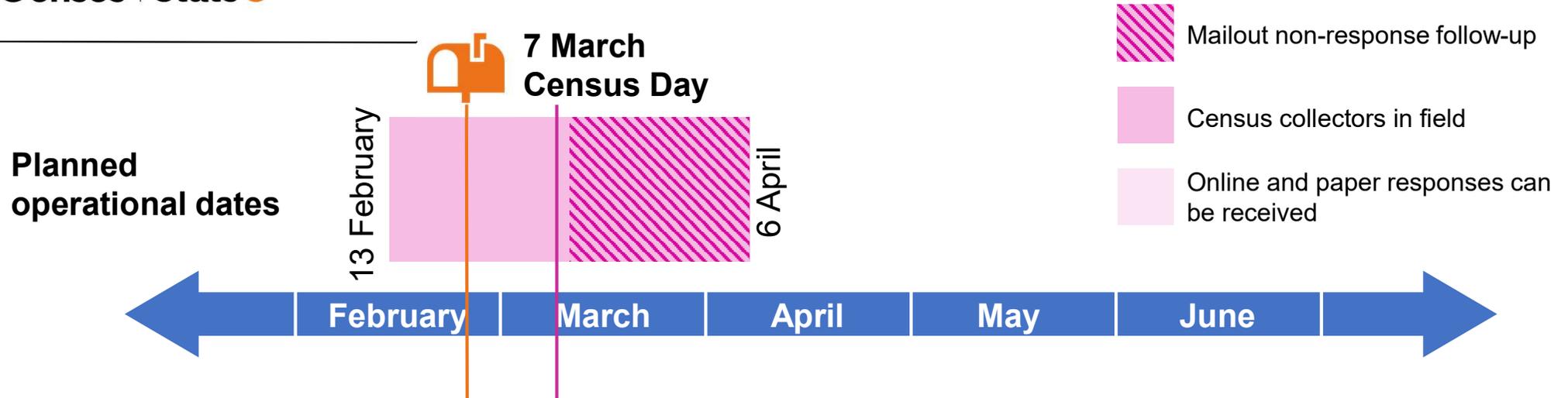| Outcome Concept	Outcome Measure
Self-Response before NRFU	Any response from dwelling received by the end of 9 March (i.e. before Non-Response Follow-Up (NRFU))
Mode Shift to Paper away from IAC	Whether the dwelling returned at least one online form
Data Quality	Equal-weighted average of the following
Dwelling response completeness	% of responses listed on dwelling or hh form also on individual form; 0 if there is no dwelling/hh form or no one listed on the form

Dwelling response quality	0 if dwelling had Manual Intervention for linking
	   OR had multiple dwelling/hh forms or no dwelling/hh form
	   OR had within-household enumerations

Attribute completeness	% of responses with ≤ 1 missing attribute from Priority 1 variables
Attribute quality	1 – (% of submitted forms going to Manual Intervention, except linking)
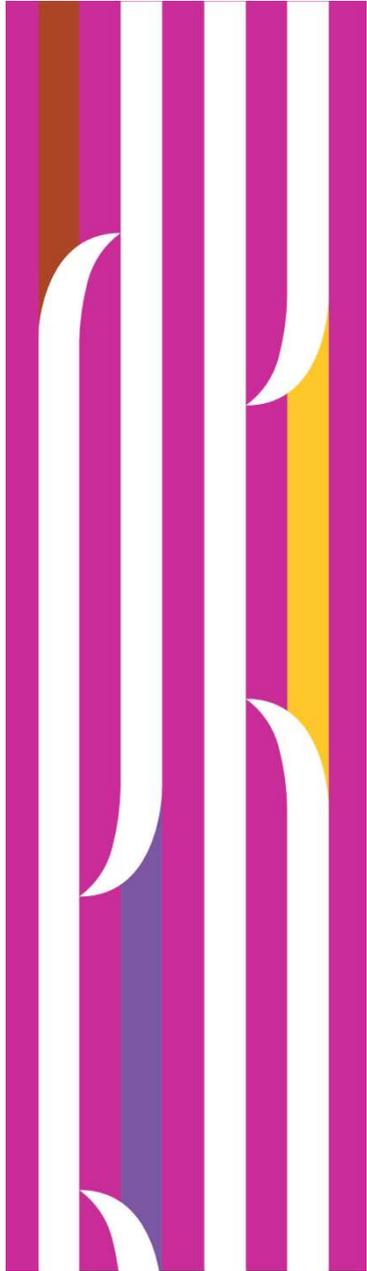
Context: Mailout stream

**70% of private dwellings in the country**

Enablement: 20% paper packs

80% letters with internet codes

Census | Stats NZ

Planned operational dates

13 February

7 March Census Day

6 April

	Mailout non-response follow-up
	Census collectors in field
	Online and paper responses can be received

February | March | April | May | June

Mailout stream: high 2018 Census response, good address frame, and good postal coverage
- Internet access code or paper packs posted to dwellings
- Letters or packs arrive in letterboxes two weeks before Census day
- Respondents can call the contact centre for assistance or to request paper forms
- Collectors visit non-responding dwellings during follow up phase.
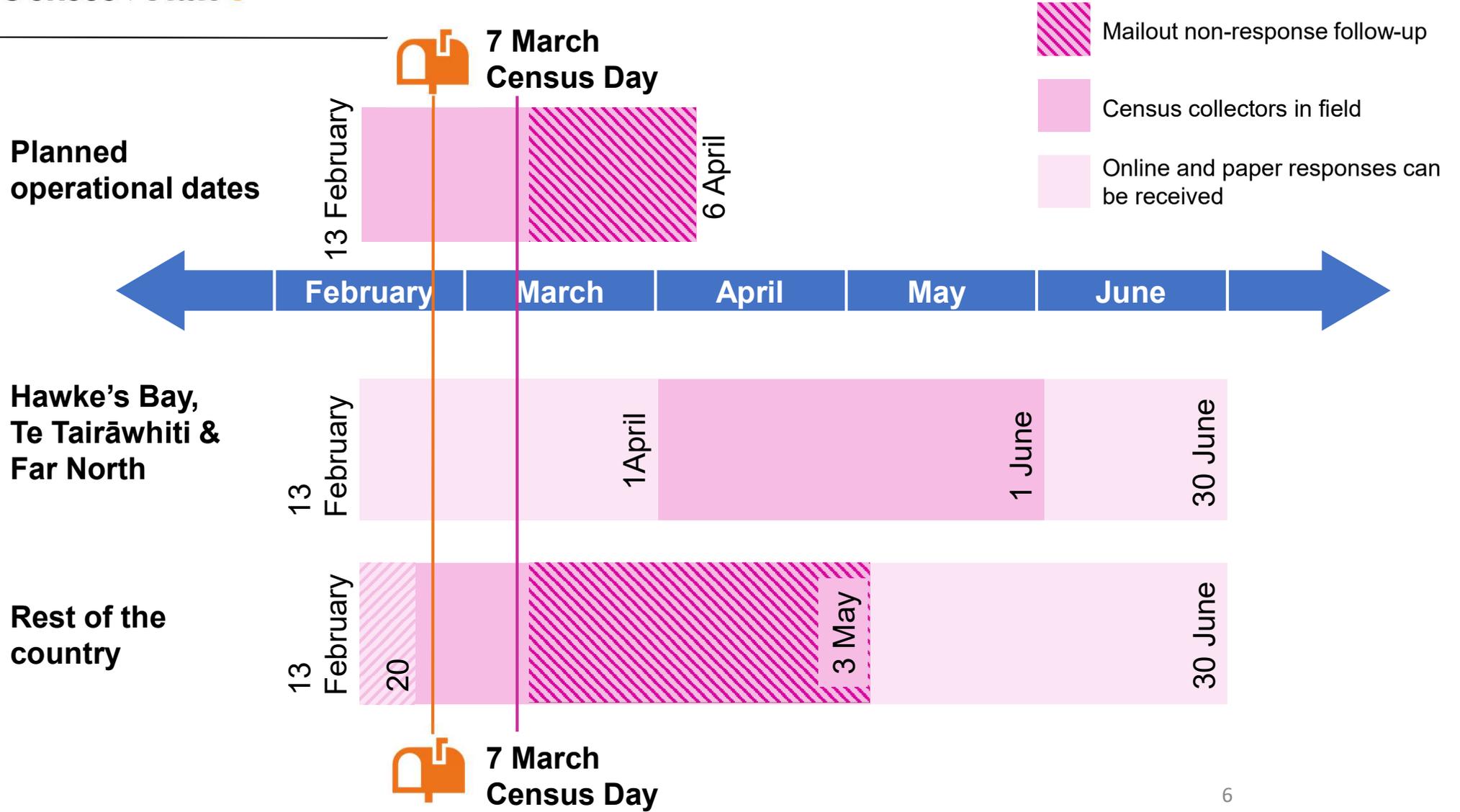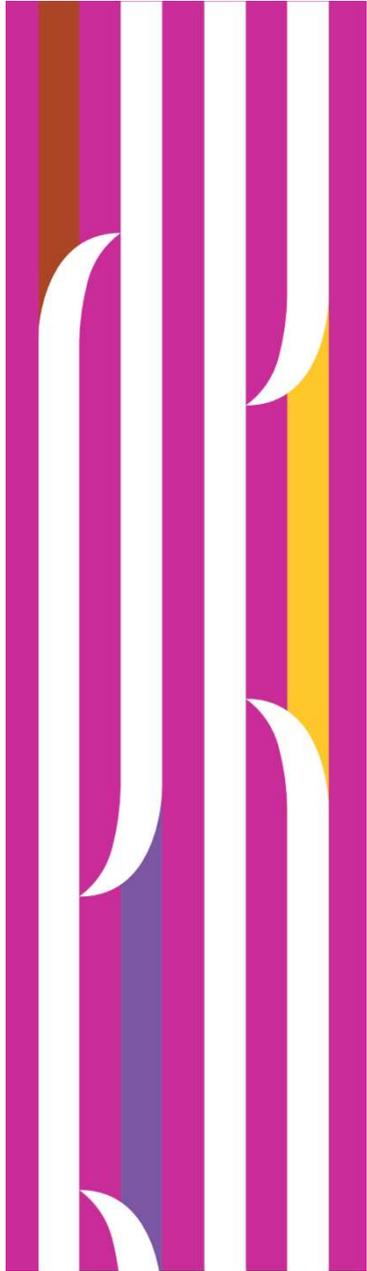
Assigning Enablement within Mailout

Identified meaningful indicators of paper need
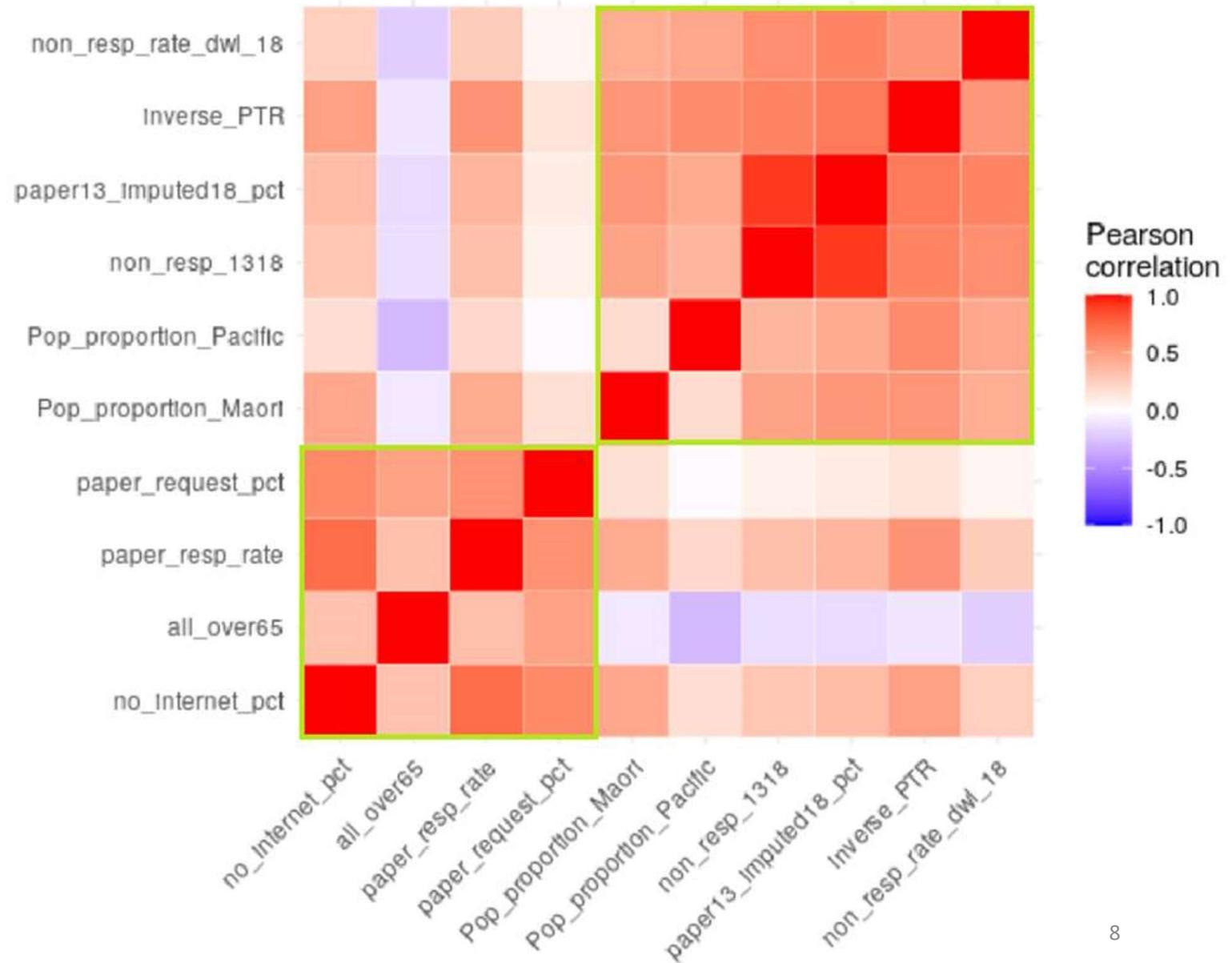**Reduced to two indices via PCA**
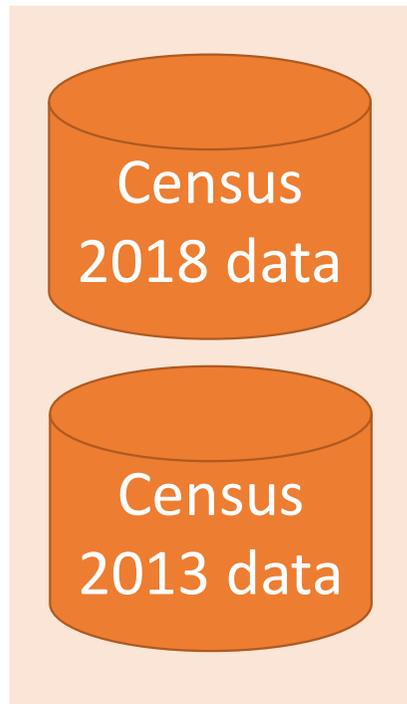
Non-response and paper response indexes

2018 and 2013 Census data

Conceptually related variables

Two groups of variables

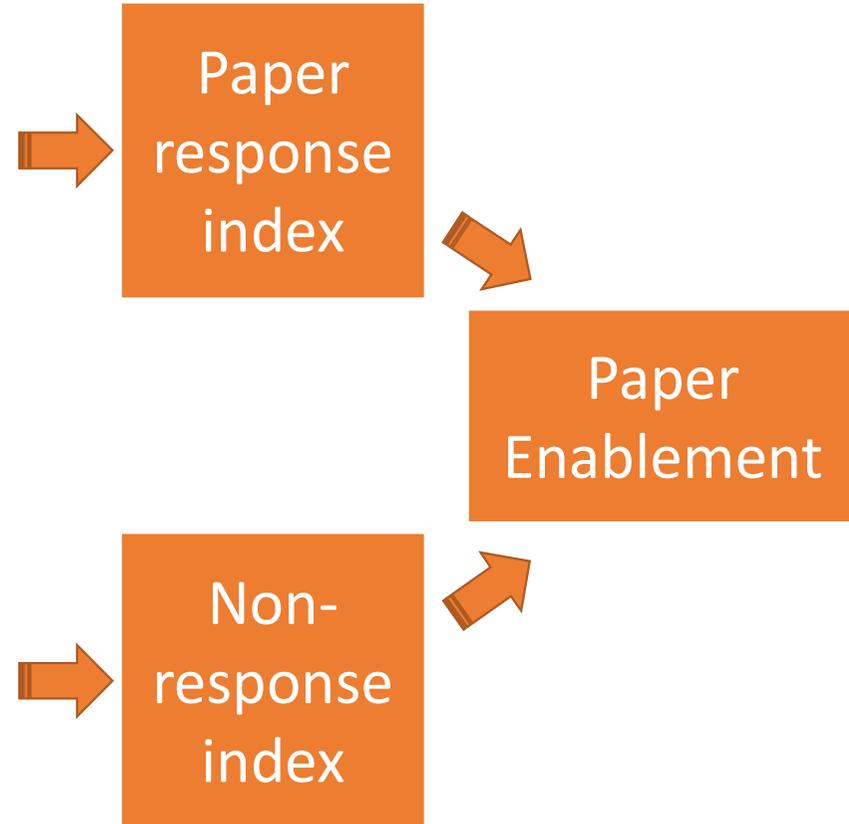Principal Component Analysis on each group
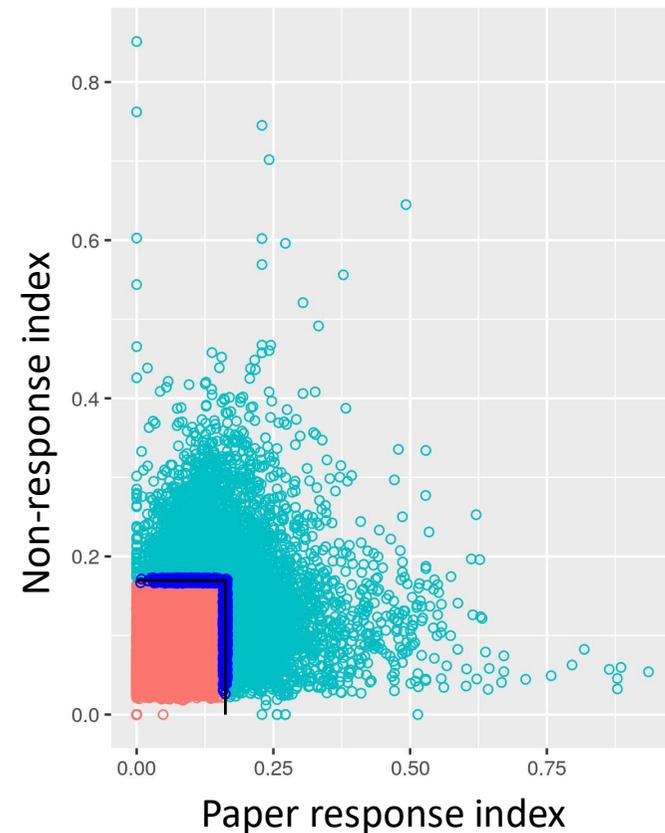
Census | Stats NZ

80% internet code
20% paper pack

Low index values for most areas

We are targeting paper selectively, so simply comparing outcomes is confounded.

But we can have inference about people at the margin…

Enablement of Mailout meshblocks

Mailout internet code
Mailout paper
Randomised test
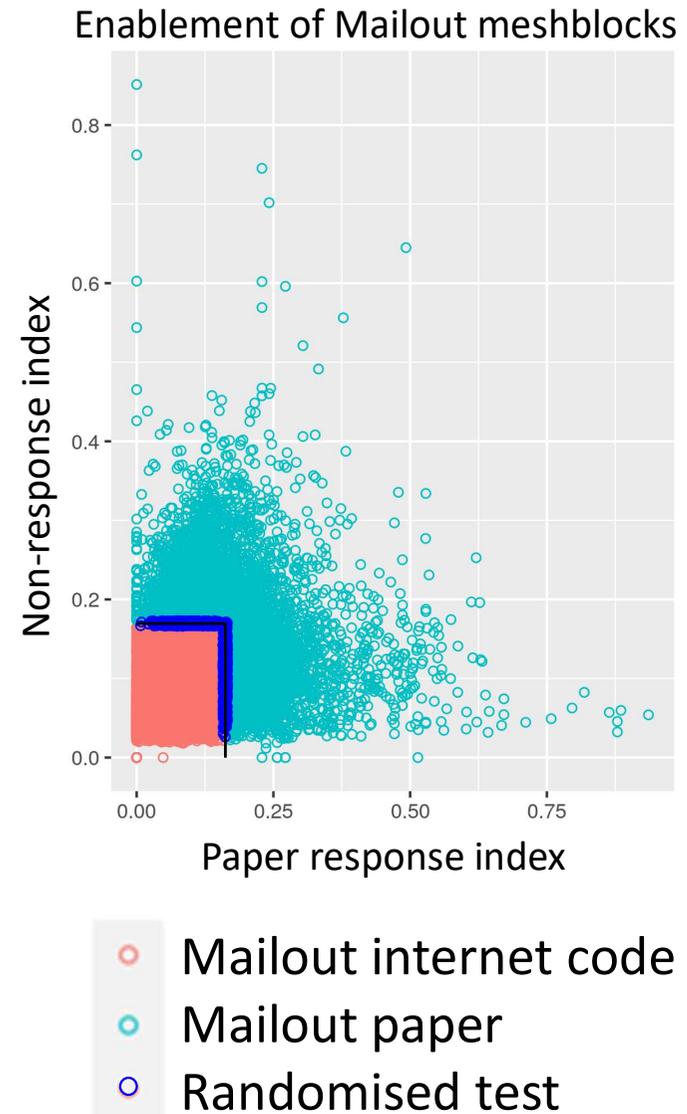
Randomised controlled trial of enablement mode

Meshblocks randomised

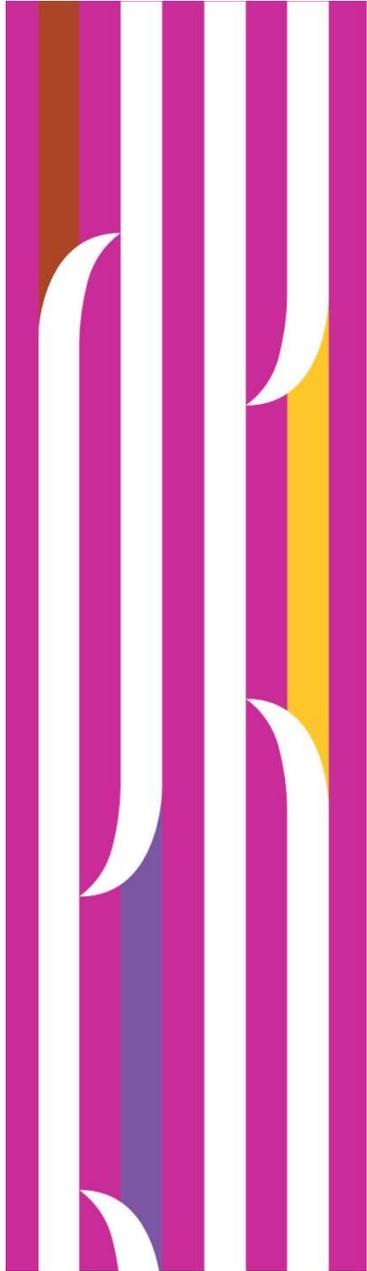Sample size: 1068 MBs

41,452 dwellings

< 3% of Mailout

Randomisation stratified within certain combinations of the indexes

Census | Stats NZ

Enablement of Mailout meshblocks

Mailout internet code
Mailout paper
Randomised test

Results: Cluster-randomised controlled trial

Local average treatment effects of paper enablement on online response, any self-response, and response quality

Estimating equations: Generalised Linear Mixed Model Logistic Regression

$$\text{logit}(Y_{ij}) = \gamma_{00} + \gamma_{01}T_j + S_j^T\theta + u_{0j} + e_{ij},$$

$$u_{0j} \sim N\left(0, \sigma_B^2\right) \text{ and } e_{ij} \sim N\left(0, \sigma_W^2\right)$$

Within four strata (S) the treatment of receiving paper (T) was randomly assigned to an entire meshblock (j) made up of dwellings (i).

Fixed effects for each stratum S

Random effects for each meshblock, in error term u_{oj}

See Raudenbush and Bryk 1986, Moulton 1986, Duflo, Glennerster, and Kremer 2006, Angrist and Pischke 2009, Imbens and Rubin 2015, Zhang and Yuan 2018
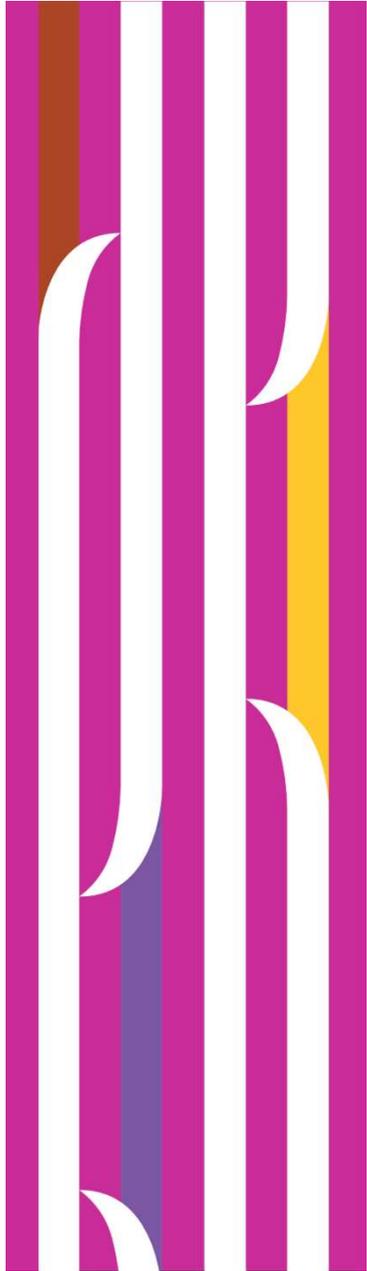
Results: Multi-rating regression discontinuity

Using more data to inform local average treatment effect

Regression Discontinuity Design

**Estimating equation:
Outcome as a
function of
enablement, paper
need index, and non-
response index**

$$\text{logit}(Y_{ij}) =$$
$$\gamma_{00} + \gamma_{01}T_j + S_j^T\theta +$$
$$\color{magenta}{\alpha x_j + \beta y_j + \delta x_j y_j + \lambda x_j T_j + \phi y_j T_j + \psi x_j y_j T_j}$$
$$+ u_{0j} + e_{ij},$$

$$u_{0j} \sim N\left(0, \sigma_B^2\right) \text{ and } e_{ij} \sim N\left(0, \sigma_W^2\right)$$

Add to the equation a linear function of distance to cutoff
for the paper need index, non-response index, and their
interactions with the treatment.

See Wong, Steiner, and Cook 2013, Porter et al 2014, Imbens and Wager 2019

Census | Stats NZ

RCTs & RDs yield clear causal effects

but generalisation may be limited

Tested in responsive areas

Paper on offer for all, and provided in NRFU to non-responding households

Results strongest before NRFU

Later processes moderated early differences

High paper response areas vs. high non-response areas

May relate to where extra paper response comes from (online vs non-response) and whether responses are high quality

Stats NZ
Tatauranga Aotearoa

Ngā mihi
Thank you
Gracias

Beyond Compliance: The Impact of Data Protection on Statistical Excellence - A View from the 2021 Population-Housing Census in Greece

Apostolos Kasapis[a], Dimitra-Artemis Kritikou[b]

[a] Director - President's Office, Hellenic Statistical Authority (ELSTAT)

[b] Legal Advisor - President's Office, Hellenic Statistical Authority (ELSTAT)

WSC-ISI 2024
MEXICO CONFERENCE

Background

- **Official Statistics** serve as vital role for modern States, providing crucial data for **policy-making** and **societal functions**.

- Since official statistics influence both people's lives and the trajectory of whole countries, **their production has to rely on solid foundations**.

- This foundations consist the **institutional framework** where official statistical data should be produced and communicated.

- At the same time, **data has taken center stage** as the world recognizes their value, not only for societal insights but also through an economic lens.

- **Data protection** is essential not only for safeguarding individuals' rights but also for ensuring fair competition and preventing its abuse.

Background

- Developments in **data protection**, notably in Europe with the adoption of the GDPR, intersect with **official statistical production**.

- Censuses are designed based on the **Fundamental Principles of Official Statistics** and the **European Statistics Code of Practice.**

- The **GDPR** introduced **specific tools and processes** for data protection, influencing the design of the **2021 Census**.

- Initial perceptions of **data protection as legal obligations** evolved into **opportunities** to strengthen statistical principles using the GDPR.

The proposed idea

- **Adherence to basic data protection principles during the preparation of statistical surveys,** despite imposing additional burden and complexity, can serve as **a tool to ensure compliance with the Fundamental Principles of Official Statistics and the European Statistics Code of Practice.**

- **Compliance with GDPR principles** should not only be seen as a legal obligation, but also as **a means to demonstrate adherence to official statistical principles to users.**

- The validity of this idea is demonstrated using **the 2021 Greek Population and Housing Census** conducted by ELSTAT, which was designed on GDPR data protection principles.

The 2021 Population-Housing Census in Greece

- The 2021 Greek Population and Housing Census, being a traditional Census, aimed to reach the entirety of the population

- The Census incorporated a new focus on data protection, reflecting GDPR principles.

- The Census involved extensive personal data processing operations, leading to heightened privacy considerations.

The Census Method

Preparatory Phase

The Building Census

Phase A

Electronic self-enumeration

Phase B

Interviews

Phase C

Electronic enumeration & Supplementation

Data collected

On buildings	On residence	On people	On collective accommodation	On immigration outflows
Regional Unit, Municipality, Municipal Unit, Community, Settlement, Census area, Block number, Postal address/location/ owner, Number, Building indicator (building or other residential area), Floors and other relevant elements, Construction period, If the building adjoins a neighboring one, Basic construction material, Type of roof, Uses or destination of uses, Number of lifts, Number of houses in the building, Operation of a Collective Accommodation in the building, Disabled access to the entrance and/or the elevator	Regional Unit, Municipality, Municipal Unit, Community, Settlement, Postal address, Census area, Block number, Building ID, Name of Household Representative, Registered persons, Type, Residential status, Type of building, Floor, Construction Period, Availability for short-term rental, Total area, Number of rooms, Water supply, Bath/shower, Toilet/WC, Heating/cooling/thermal insulation, Main energy source used for cooking/heating/hot water, Regime of possession, Number of cars of the household, Number of parking spaces, Household contact details, Name and kinship relationships between household members	Surname, First name, Father's name, Mother's name, Gender, Date of birth, TIN number, Social Security number, Relationship to the household, Family status, Place of birth, Nationality, Municipal Unit in which the person is registered, Previous residence in Greece and date of establishment in the present settlement, Previous residence abroad, country of previous residence and reason for establishment in Greece, Level of education, Degrees, Main occupation, Description of economic activity, Job description, Position at work, Place of work, Number of children born	Regional Unit, Municipality, Municipal Unit, Community, Settlement, Postal address/ location/name, Census area, Census department, Block number, Building ID, Number of permanent residents, Number of registered persons, Type, Title or name of owner, All information required for individuals for the people registered in the accommodation	(i.e. former household members, that immigrated abroad from the year 2010 onwards) Surname, First name, Father's name, Mother's name, Relationship with the household, Gender, Date of birth, Marital status when they left, Country of birth, Nationality, Level of education when they left, Degrees when they left, Year of departure, Country of initial destination, Country of residence during the Census, Reason for departure abroad, Reason for stay abroad

Purposes of Use

Production of Statistical Information

Information on population, dwellings, households, emigration patterns

Compilation of Registers for People and Buildings

Census data is the basis for compiling Statistical Population and Buildings Registers

Sampling Frames

Census data serve as sampling frames for other surveys

Processing activities by phase of operation

Processing activity	Preparatory phase			Main phase			After phase	
	Collection	List compilation	Monitoring	Collection	Monitoring	Processing	Storing	Compilation of Registers
Who:	ELSTAT employees			Enumerators ELSTAT through automated systems	ELSTAT employees		ELSTAT employees	
What:	information on number, use, characteristics and coordinates of buildings, indicated on pre-prepared charts			the questionnaire data	the questionnaire data and received administrative data		all information collected through the Census, administrative sources and ELSTAT surveys	
How:	performing on-site inspections	creating lists of buildings and corresponding dwellings	assessing the speed of collection and performing real-time quality controls	conducting on-site or telephonic interviews with data subjects collecting through the electronic questionnaire	performing controls, data cleaning, supplementation and linking processes	processing the data to compile statistical information	keeping the data stored	incorporating the collected data into the Registers, linking and updating through administrative sources and ELSTAT surveys
Where:	cloud database through an app on tablets ELSTAT database	ELSTAT database	Management and Monitoring System	paper questionnaire ELSTAT database through a web application or the Census app	automatic controls in the e- questionnaire Management and Monitoring System	ELSTAT database	ELSTAT database	

Data Protection Considerations

The design

Design Dictated by Socio-Political Conditions

Human Exposure

Human error is the main source of incidents

Linked Registers

The creation of a Population Register permanently linked to other registers

Privacy by Design

Privacy by design was implemented to address dangers

GDPR Compliance

may RESTRICT
statistical production

but

ENHANCES
statistical principles

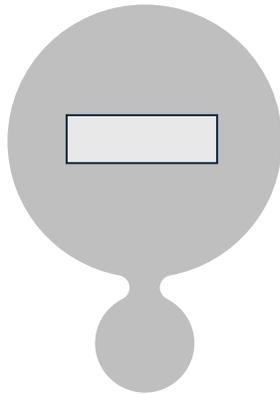# GDPR Principles

legality

transparency

purpose limitation

minimization

accountability

CIA

accuracy

GDPR restrictions on statistical production

Data Minimization

Purpose Limitation

Privacy by Default and Design

Transparency
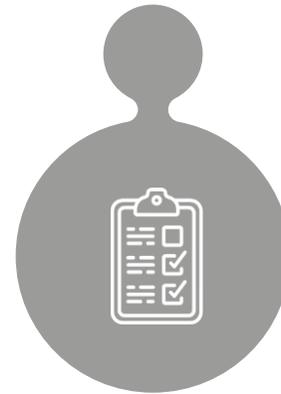
Data Subject Rights

GDPR alignment to statistical principles

Protection of privacy

Minimization and purpose limitation

Accountability

Lawfulness and transparency

Accuracy

Statistical confidentiality

Non excessive burden on respondents and relevance

Quality, independence and ethical practices
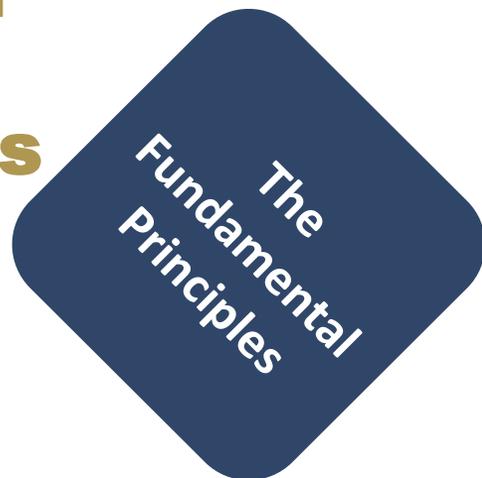
Impartiality, objectivity, accessibility, clarity, mandate for statistical collection
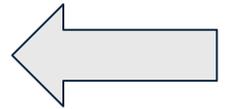
Statistical quality and reliability

Privacy by Design

expectations →

← implementation

The Privacy by Design approach

MINIMIZE DANGER

Minimize data
Eliminate danger

ADDRESS DANGER

Protection tools
Procedures
Training

ACT IN TRANSPARENCY

Communication

PLAN FOR FURTHER PROCESSING

Registers

Focus areas

Processing Only Necessary Data:

Questionnaire design

Consultations with stakeholders

No sensitive data collected

ΑΦΜ and AMKA to facilitate data linkage

Considering Data Protection in Design

Extensive consultations and DPIA

Pocedures to address privacy issues

Establishing IT Protection Features and Procedures

In-house development of systems with built-in security features

Training and written guidelines

Incident response procedures

Ensuring Identification of Responsible Parties

DPO information easily accessible

Contact information for all ELSTAT departments readily available

Adopting Plain Language for Transparency

Clear communication through website, social media

Immediate response to inquiries by the DPO

Actions per principle

Have Privacy as the Default Setting
Limited collection to essential information (ΑΦΜ, ΑΜΚΑ)
Consultation
No sensitive personal data
Embedding Privacy into Design
Minimized data collection
Secure IT systems
Procedures and policies for data handling
Be proactive, not reactive
DPIA and stakeholder consultations
Institutional arrangements with data holders
End-to-End Security
Encryption, pseudonymization, access restrictions in IT systems

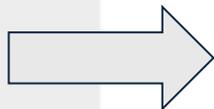Detailed processing rules provided to personnel
Visibility and Transparency
Clear communication of Census procedures and purposes
DPO information easily accessible
Reporting of incidents and notifications

Principle 1

Have privacy as the default setting

→

Non-excessive burden on respondents

Relevance

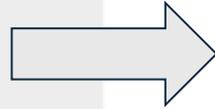Methodological soundness

Clear mandate for data collection

Professional independence

Respect for privacy

Principle 2

Embed privacy into the design

→

Quality

Accuracy

Protection of privacy and confidentiality

Principle 4

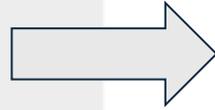## Implement end to end security

→ **Protection of privacy and confidentiality**

Principle 5

Ensure visibility and transparencY

→ Transparency and clarity

Lessons learnt

The GDPR...

it is a tool

Base Registers of the Integrated System (SIREE)
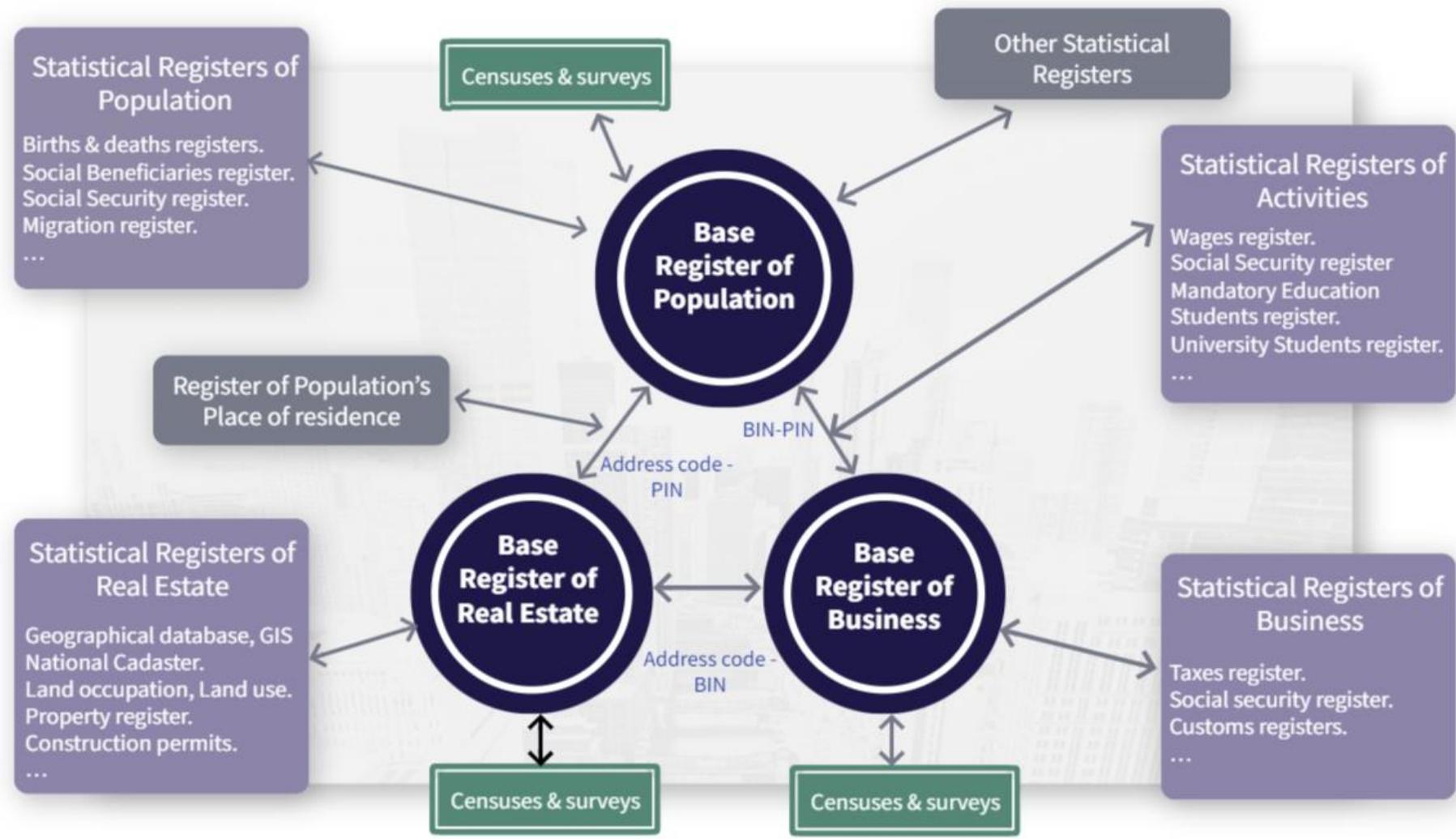
Current status at the NSI of Uruguay

Business register:

- Last traditional business census: 1998.
- Administrative data from Tax and Social Security authorities (among others).
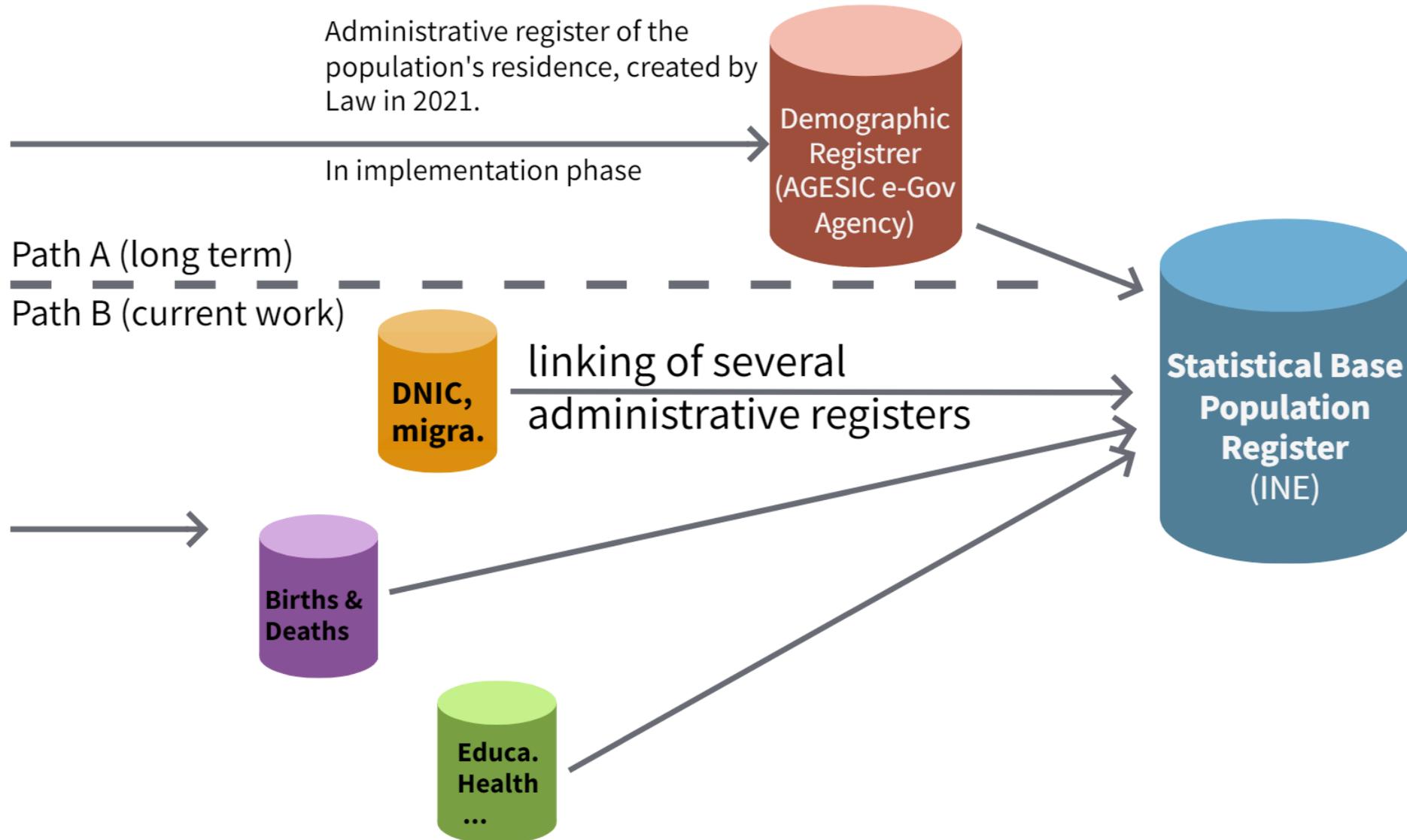
Wages & activities registers:

- Wages and activities of civil servants (public sector) from Ministry of Finance. Microdata with national ID.
- Ministry of Labor & Social Security Authority provide data on wages and activities of private workers (with national personal ID & business ID).

Population register:

- Manly based on data from SIIAS initiative (Ministry of Social Development). SIIAS = Information System on Social Matters.
- National Civil Identification Authority.
- Births & Deaths, migration.

Buildings & Real Estate registers:

- National Cadaster.
- Construction permits from City Hall.
- Public services (electricity, drinking water, sanitation systems, telephone).
- Google Open Buildings (Satellite imagery, AI).

- NSI periodically receives more than 400 datasets from several admin sources.
- Our approach is to access the data as the data providers have it (no matter the format or transfer media).

Towards a Population Register

Administrative register of the population's residence, created by Law in 2021.

In implementation phase

Demographic Registrer (AGESIC e-Gov Agency)

Path A (long term)

Path B (current work)

DNIC, migra.

linking of several administrative registers

Births & Deaths

Educa. Health ...

Statistical Base Population Register (INE)

Population Register

Integrated Information System on Social Matters

- ASSE (Health services)
- MSP (Health, births, deaths)
- BPS (Pensions, Social security, Health)
- MIDES (Social Programs)
- INAU (Youth and disabilities)
- ANEP (Education)
- MGAP (Family farms)
- MVOTMA (Dwelling programs)

SIIAS

Ministry of Social Development

Transformation process
ETL & quality processes

Migration & other registers

Real Estate Register

NSI

Integrated System of Statistical Registers

Population Register

Business Register

- NSI is member of the SIIAS initiative (Ministry of Social Development). SIIAS = Integrated Information System on Social Matters.

- 62 administrative registers from 15 institutions (Social Security Authority, Min. Social Development, Min. Dwellings, Min. Agriculture, Min. Health, Public and Private Health Services, Public & Private Education Services, etc.).

- Every 6 months NSI receives data from SIIAS, it has 5 millions of people (Uruguayan population = 3.5M) including foreign, emigrant and deceased persons.

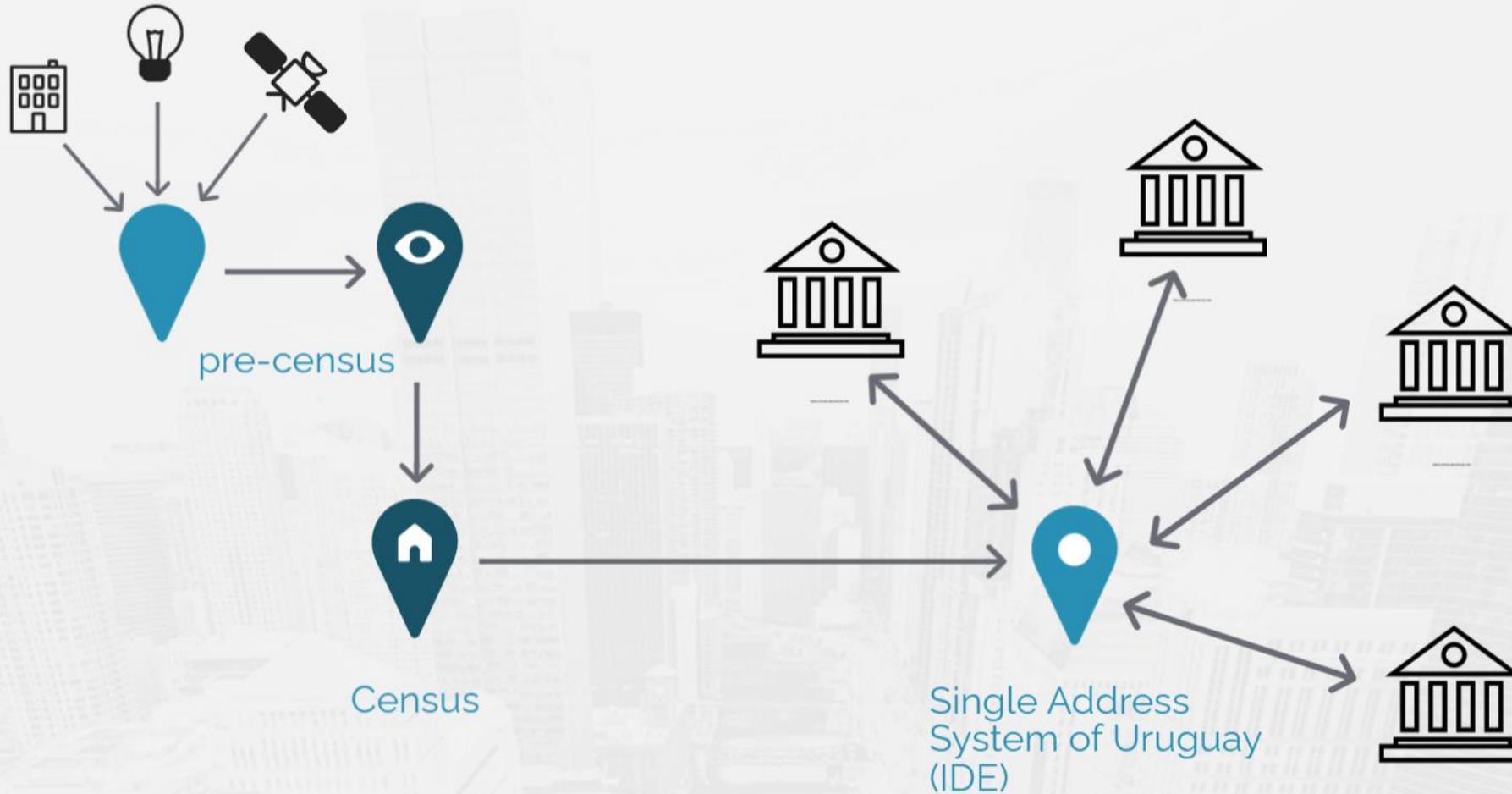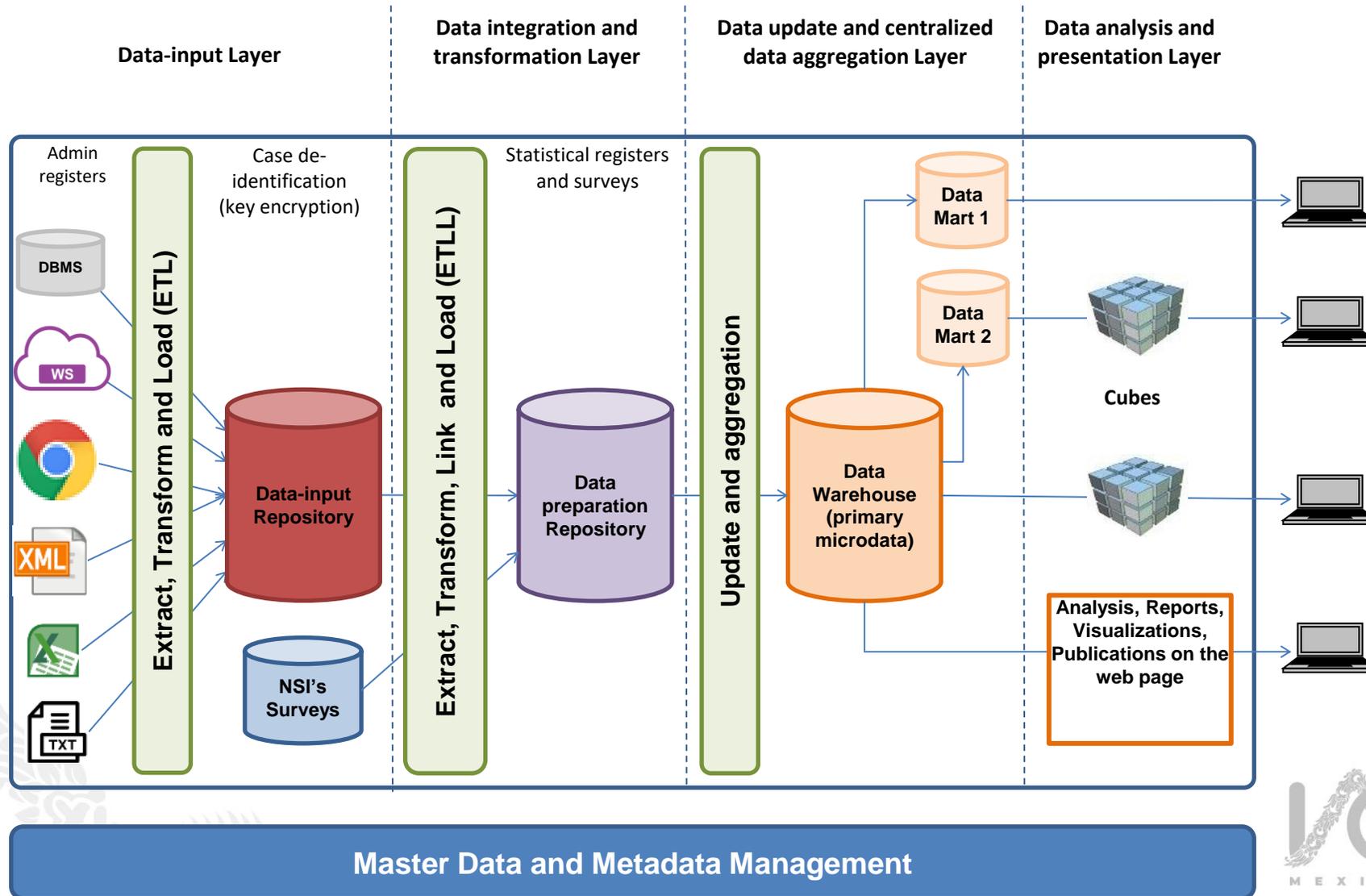- Apply the concept of "sign of life".
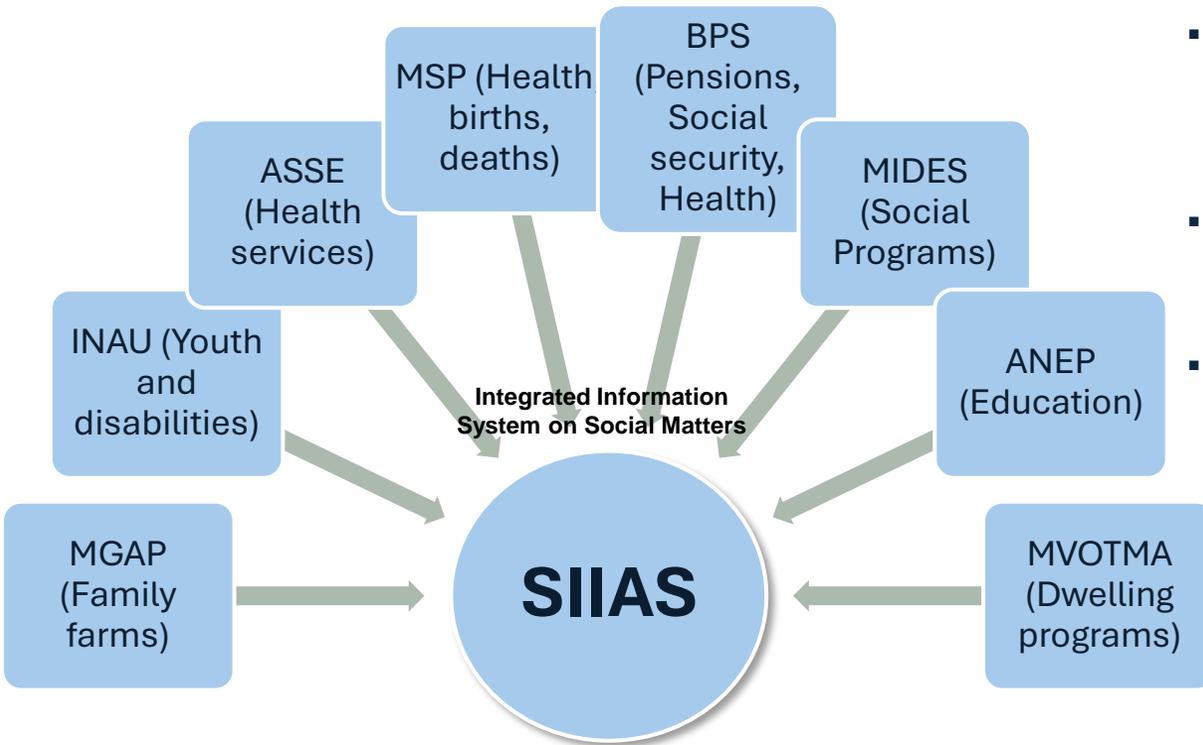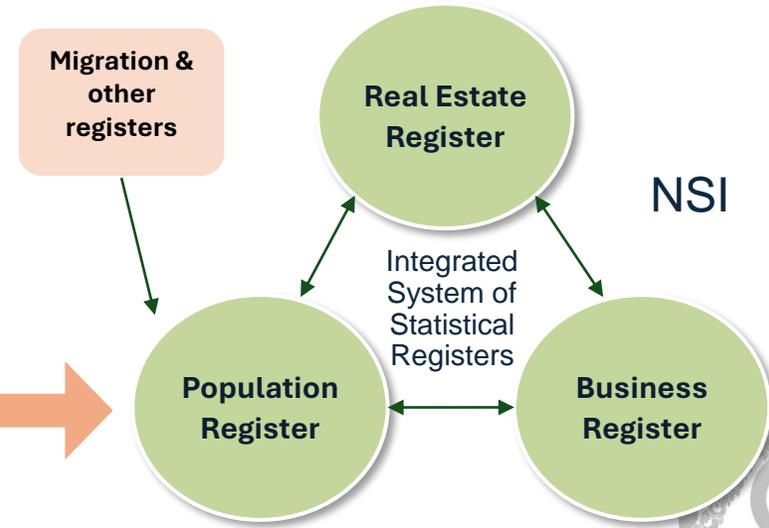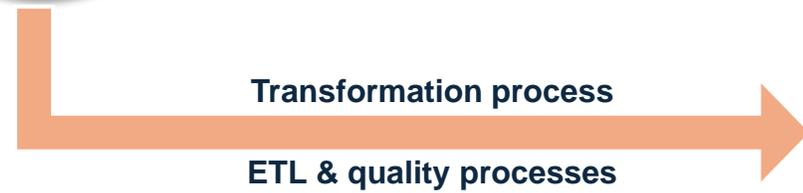
Single Address System of Uruguay (IDE – Spatial Data Infrastructure)

Geo-Statistical Data Warehouse Architecture

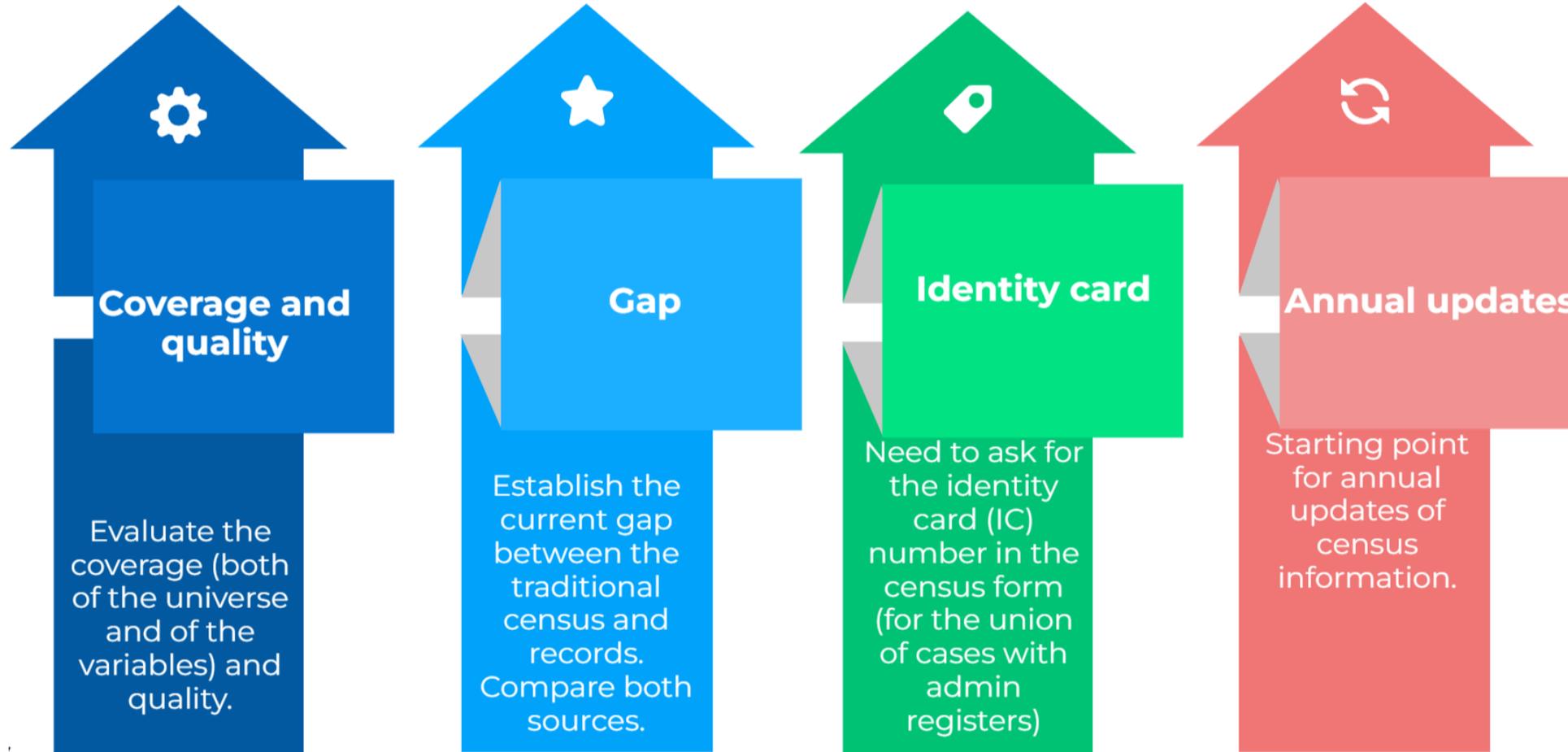# Benefits & challenges of a register-based census

Benefits

- **Lower cost.**
  - Traditional census = 5 US dollars per person.
  - Register-based census = USD 0,10 per person.
- **A continuous census every year.**
- **Faster.**
- **Fewer non-response issues.**
- **Less burden for informants.**
- **Flexible with new information requirements.**
- **More dimensions for analysis.**
  - Thanks to the **record linkage** with other admin sources (population, activities) and surveys.
  - **Integration with surveys** to improve the lack of coverage of the registers (informal activity) and secondary source of information.
- **Reallocation of resources for innovation.**
  - Resources devoted to field work in traditional censuses could be reallocated to innovation in the use of administrative registers in censuses, improving data quality, and incorporating technology into the register systems.

Challenges

- **Differences in concepts and definitions** (administrative vs. statistical).
- Dependency of public authorities on duty.
- **Opportunity** of administrative registers.
- **Different reference periods** of administrative registers.
- Sub-coverage: **unrecorded cases** (informality, minors, certain strata and other cases).
- Over-coverage: **cases that remain in the registers when they should have been removed**. (migration, companies closing, etc.).

2023 Pilot register-based census

Coverage and quality
Evaluate the coverage (both of the universe and of the variables) and quality.

Gap
Establish the current gap between the traditional census and records. Compare both sources.

Identity card
Need to ask for the identity card (IC) number in the census form (for the union of cases with admin registers)

Annual updates
Starting point for annual updates of census information.