A mixed mode approach to census data collection in Malta

Conference of European Statisticians

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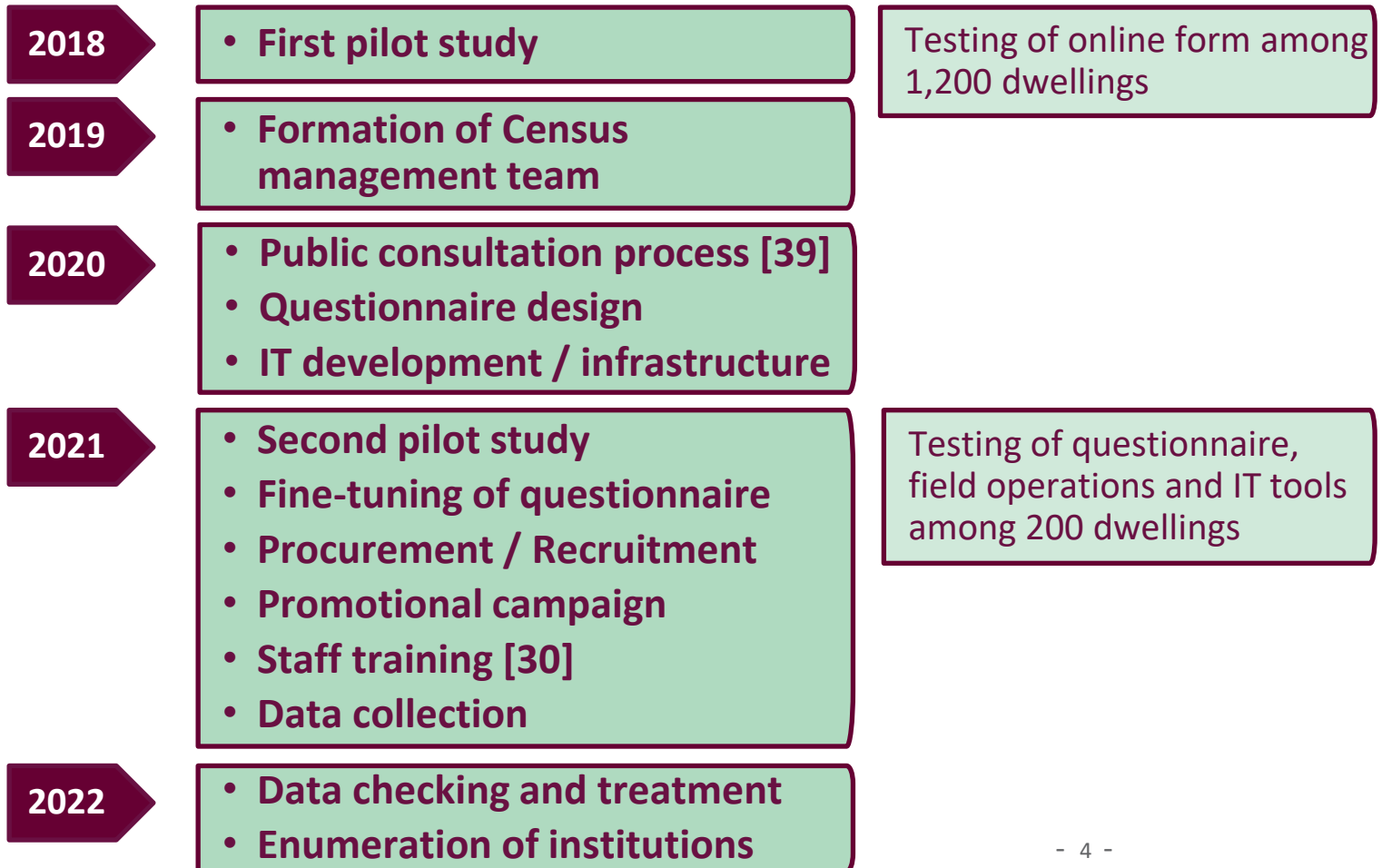
21-23 September 2022

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Census objectives

- Pragmatic approach that encourages public participation
- Enhanced data security
- People support and wellbeing
- Low environmental impact
- Better data quality
- Study of results on a 1 km^2 grid
- Minimal burden on respondents
- More use of administrative data
- Real time data capture
- Periodic thematic analyses

o Reaching out to the public
o Staff training
o Better data quality
o IT infrastructure

Time plan

2018	• **First pilot study**	Testing of online form among 1,200 dwellings
2019	• **Formation of Census management team**	
2020	• **Public consultation process [39]** • **Questionnaire design** • **IT development / infrastructure**	
2021	• **Second pilot study** • **Fine-tuning of questionnaire** • **Procurement / Recruitment** • **Promotional campaign** • **Staff training [30]** • **Data collection**	Testing of questionnaire, field operations and IT tools among 200 dwellings
2022	• **Data checking and treatment** • **Enumeration of institutions**	

Project management

Mailing of Census letters

- Around 230,000 dwellings
- Basic Census details provided
- Credentials to access online form

Sept – Oct 2021

Freephone service

- Assistance at all levels
- Mon to Sun (8am-10pm)

1 Oct – 30 Nov 2021

Online form

- Quick and easy
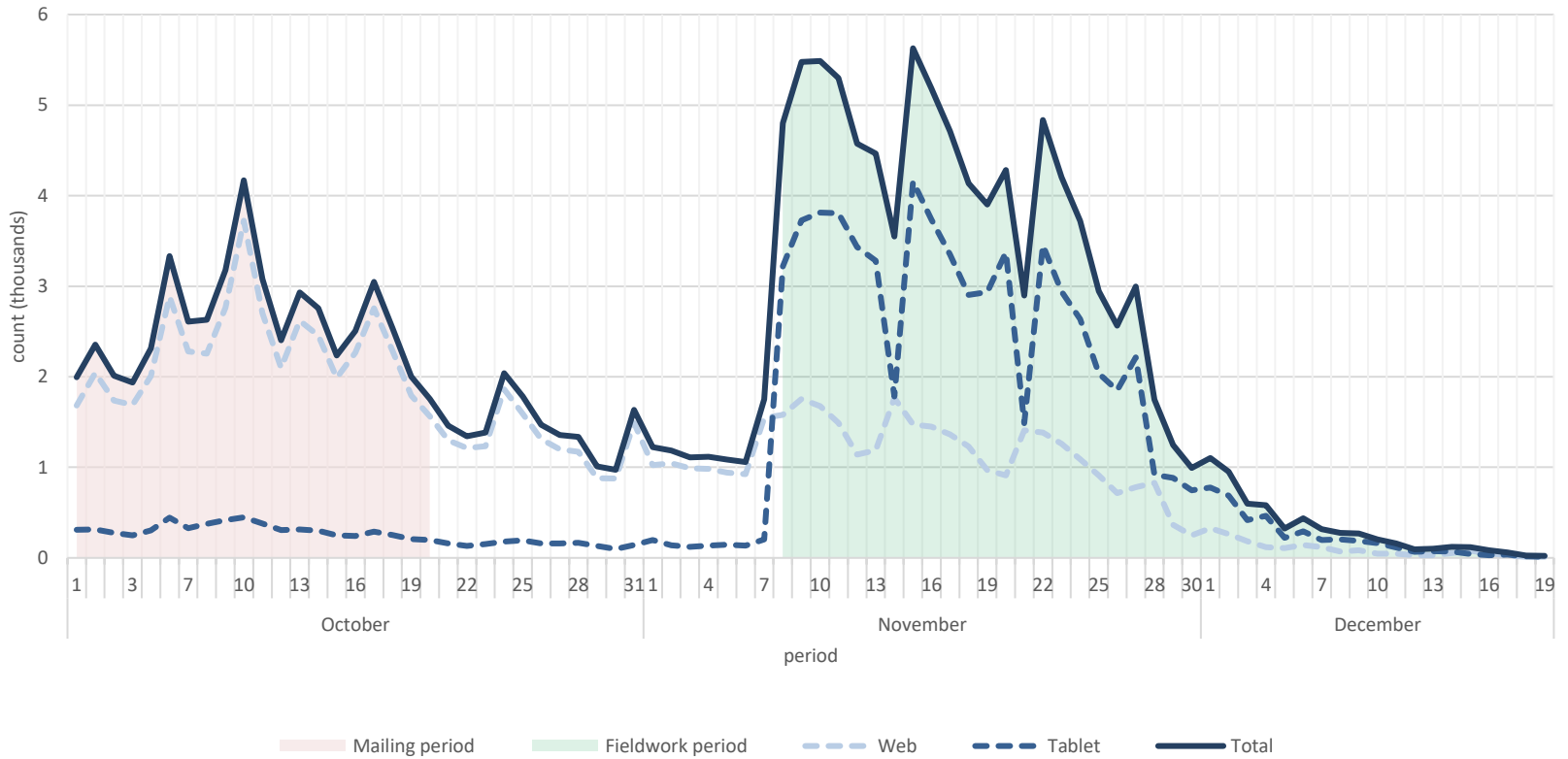- Multilingual, including Italian and French

Oct- Dec 2021

Enumerator assistance

- Surveys by:
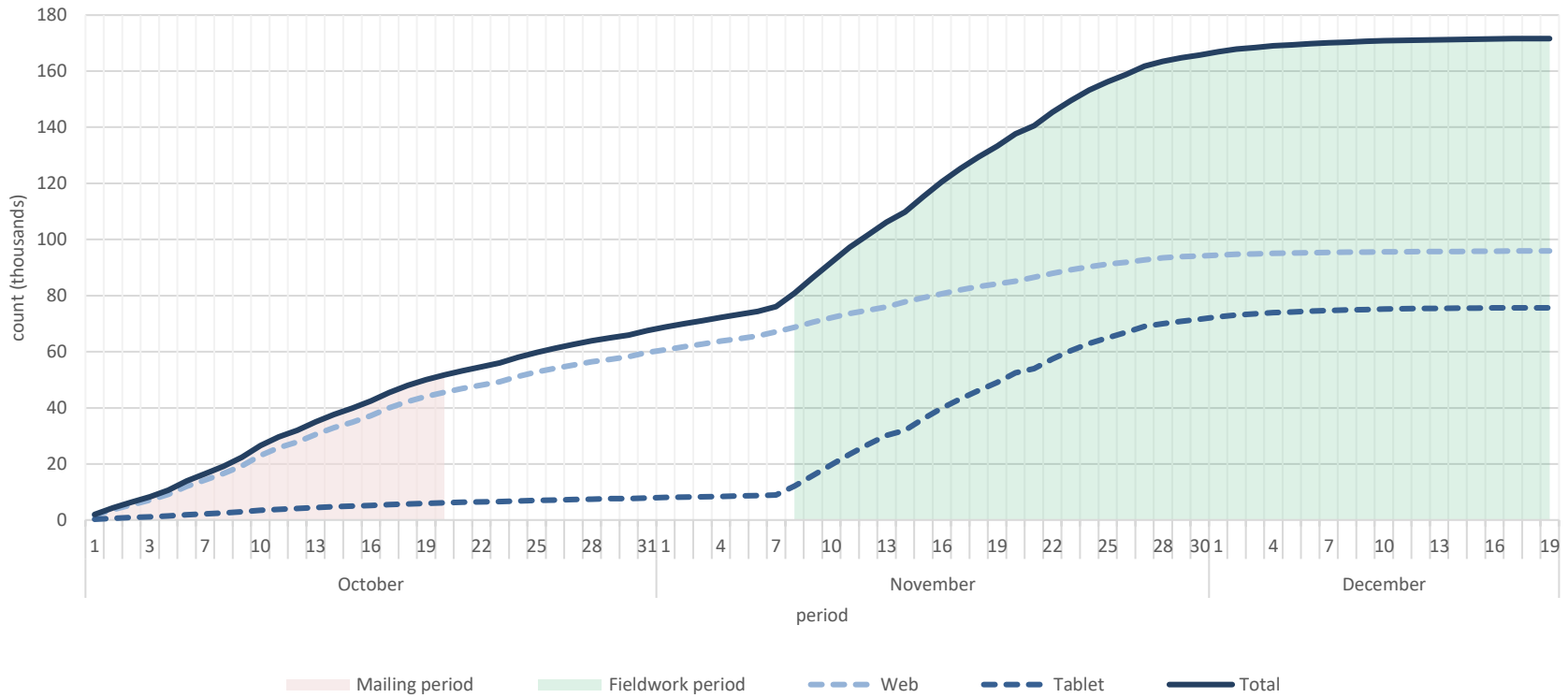 - Telephone
  - Tablet
  - Paper forms
- Canvassing

8-28 Nov (Dec) 2021
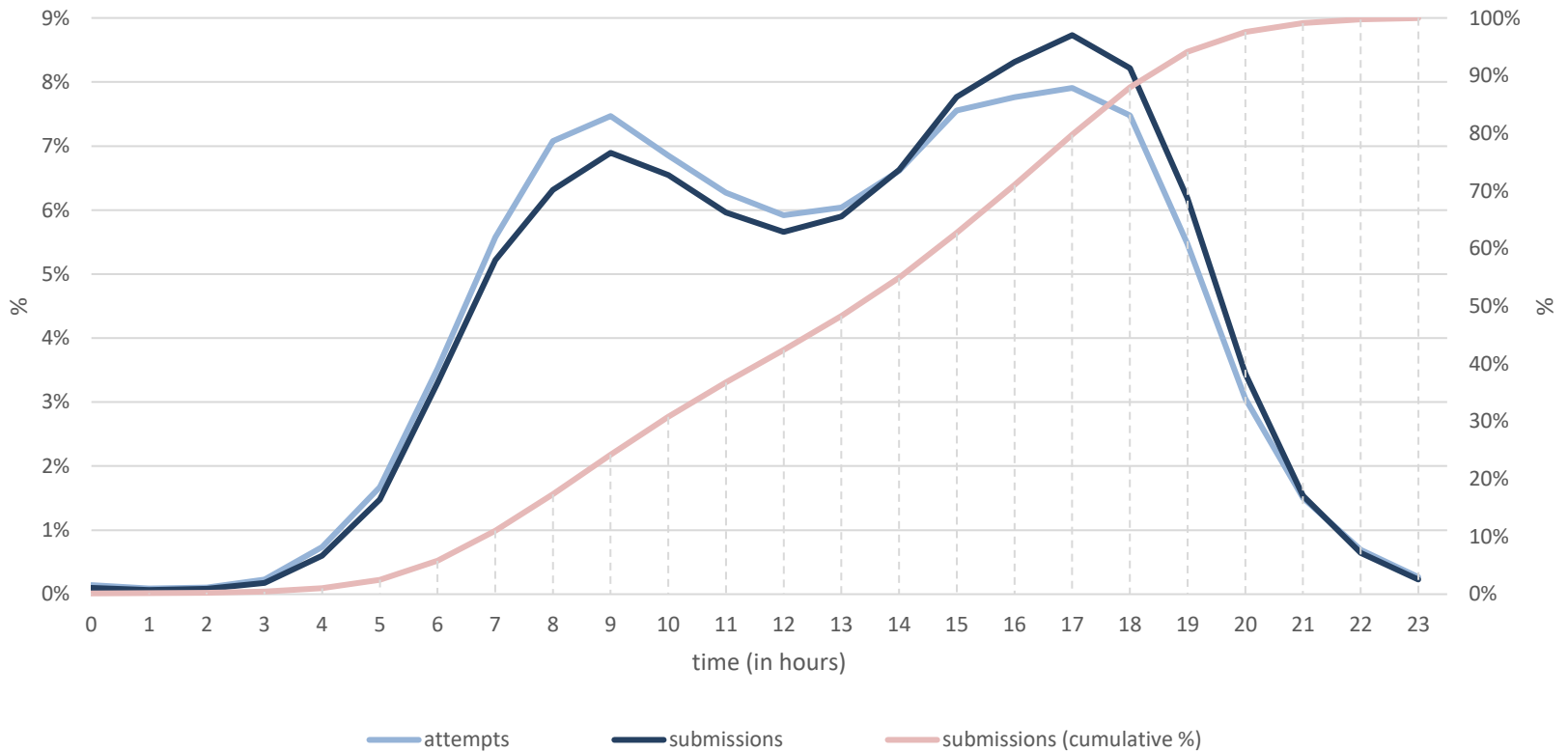
32,000 calls

83.4% response

Distribution of responses

Distribution of responses
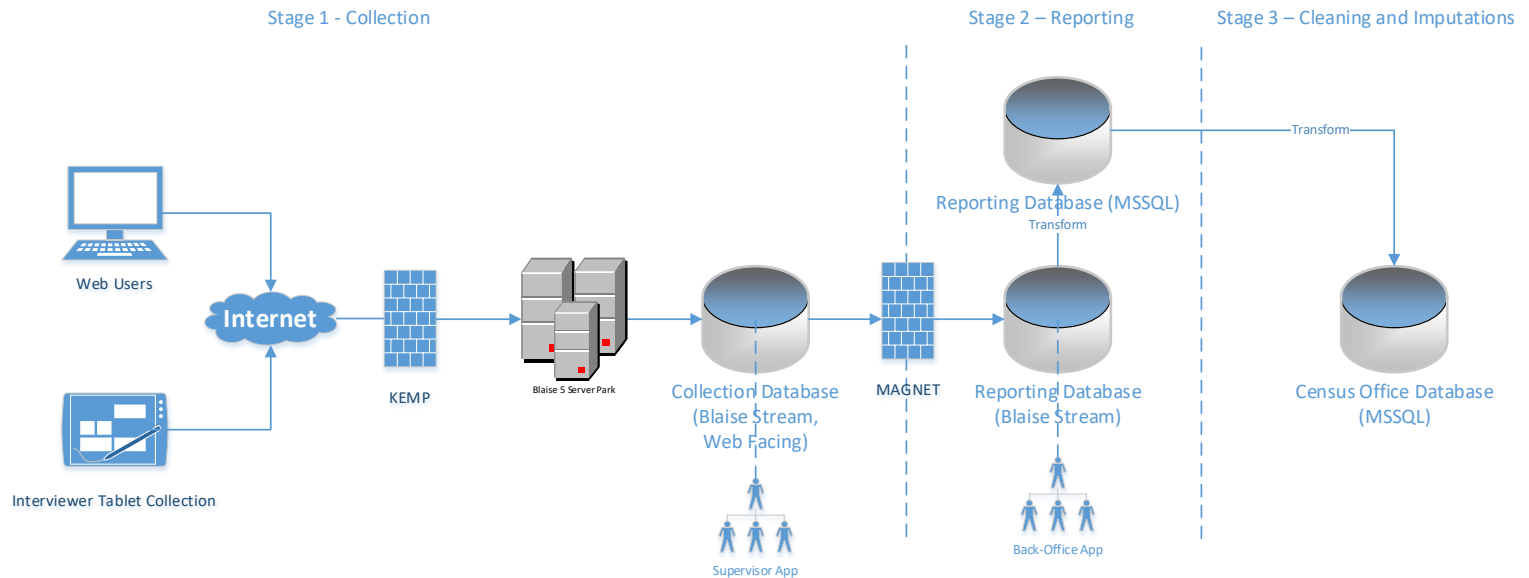
Distribution of responses

IT infrastructure

- 4 main system components:
    - Web questionnaire (Blaise 5)
    - CAPI module (Blaise for Android)
    - Authentication portal (.Net)
    - Microsoft SQL server database
- Separate application developed for Supervisor (for data monitoring and data quality purposes)
- Server farm composed of 7 VMs (incl. load balancer)
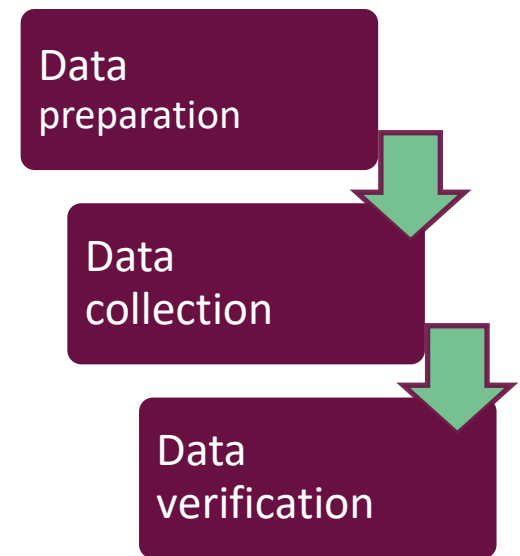- Scalable system that permitted further servers to be added on-the-fly

IT infrastructure

Stage 1 - Collection   Stage 2 – Reporting   Stage 3 – Cleaning and Imputations

Web Users

Internet

KEMP

Blaise 5 Server Park

Collection Database
(Blaise Stream,
Web Facing)

MAGNET

Reporting Database
(Blaise Stream)

Interviewer Tablet Collection

Supervisor App

Back-Office App

Reporting Database (MSSQL)

Transform

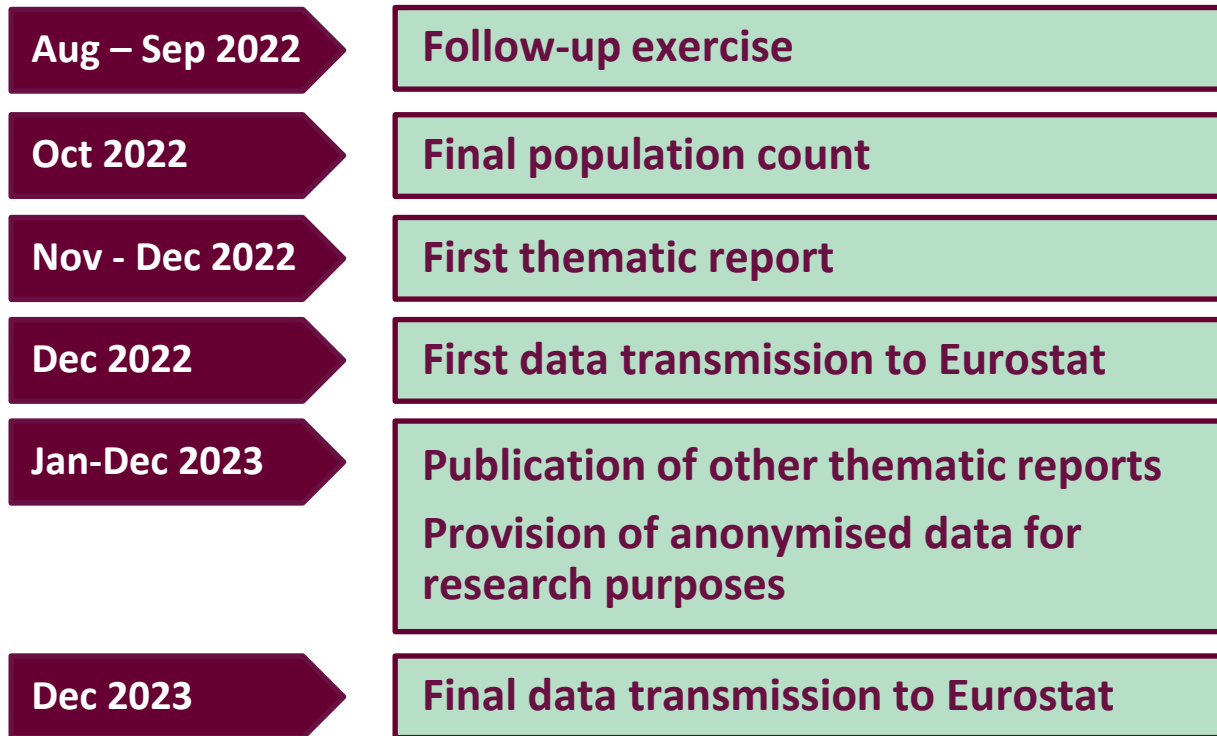Transform

Census Office Database
(MSSQL)

- Use of https to secure data exchange

- Tokens exchanged by system components

- Device encryption (Samsung Knox) and hardened (government-certified MDM software)

- Web portal making use of CAPTCHA to stop Denial of Service and inbuilt controls to prevent SQL injection attacks

- Use of Web Application Firewall

Use of auxiliary data

- Administrative and BIG data considered:
    - ID card register data
    - Residence-permit data
    - COVID-19
    - Tax data
    - Water and Electricity consumption
    - Application of the sign-of-life principle

Data preparation

Data collection

Data verification

Targets ahead

Aug – Sep 2022	**Follow-up exercise**
Oct 2022	**Final population count**
Nov - Dec 2022	**First thematic report**
Dec 2022	**First data transmission to Eurostat**
Jan-Dec 2023	**Publication of other thematic reports** **Provision of anonymised data for research purposes**
Dec 2023	**Final data transmission to Eurostat**

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