

Using AI in Census

Bringing together modern technologies and resources in the GSBPM cycle



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Modernization of Census

The modernization of all areas of life also applies to population censuses
Simultaneous use of all modern information technologies

- Business Intelligence
- Big Data
- High-speed Internet with full coverage of the country
- Gadgets in the population
- Artificial Intelligence as One of the New Information Technologies
- Data explosion – extracting demographic data from administrative data



Covering GSBPM stages with AI

Preparation	Collection	Interview	Processing	Dissemination
Address verification Load forecast Logistics	Conducting the Census Data collection	Dialogue with the respondent	Aggregation Analysis	Dissemination Publication
				
BI - Data Warehousing - Data visualization	BI - Data collection	BI - Collection of questionnaire	BI - Aggregation (OLAP) - Calculation (OLAP)	BI - Visualization - Microdata
AI - Geo-analysis - Planning - Optimization	AI Extraction of demographic data from administrative data – registers, migration data, social networks	AI - Dialogue - Online Error Detection – Tips	AI - Anomalies - Duplicates - Imputation	AI - Depersonalization - Natural language queries

Preparation stage

AI

- Verify addresses, analyze satellite imagery , update enumeration area
- Load forecasting, calculate of the need for personnel, equipment, offices
- Optimize enumeration areas and enumerator routes

BI

- Dashboards with geo maps
- Integrated AI Advisors



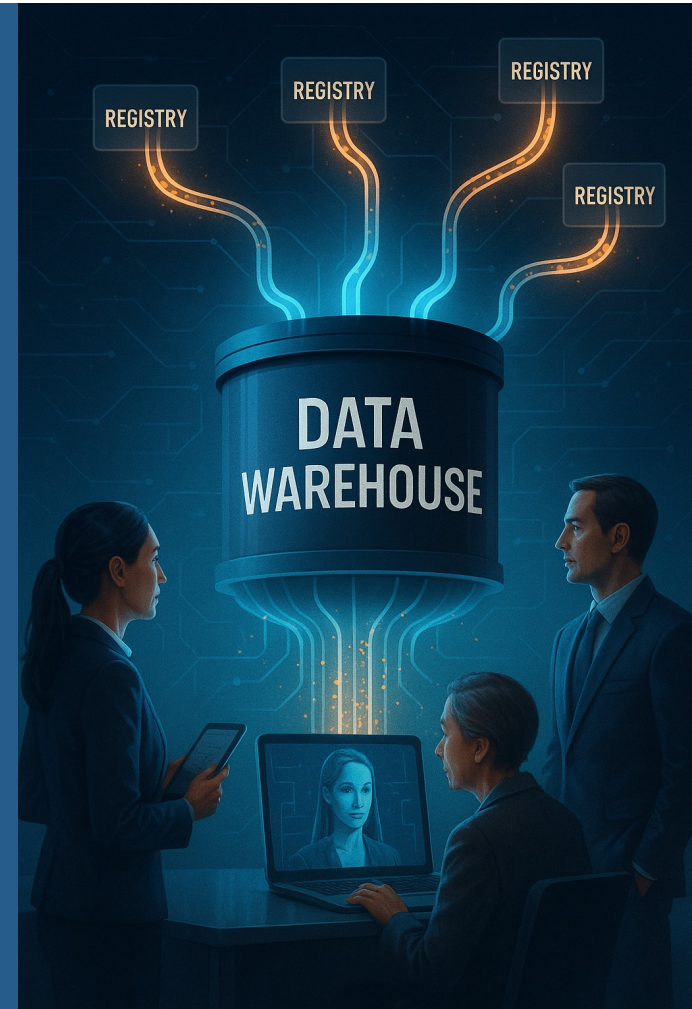
Data collection stage – admin data

BI

- Collection of administrative data:
 - Tax registers
 - Migration registration
 - Social assistance
 - Data Storage

AI

- Extract demographic data from administrative data
- Populating the Census Data Warehouse



Data collection stage – monitoring

BI

- Collection and storage of results
- Dashboards by country and region
- Monitor of progress in percentage

AI

- Early detection of regions with low response
- Populating the Census Data Warehouse



Interview stage

- Chatbot as an artificial interviewer
- Voice, text, gestures
- Multilingual, support dialects
- Animated avatars for trust & inclusiveness
- Error detection, bias, correction
- Accessible on PC, tablet, smartphone, call center



Data processing stage

AI

- Data validation and cleaning
- Duplicate detection
- Identification of anomalies – outliers and inconsistencies in different responses
- Cross-check with registers & administrative data
- Geocoding addresses
- Imputation of gaps

BI

- OLAP Aggregation and Interactive Analysis
- Storing corrected and calculated data in Data Warehouse
- Dashboards for data quality monitoring



Dissemination stage

BI

- Publications in Fixed Form: Brochures, PDF
- Interactive dashboards (OLAP)
- Ready-to-use datasets (open data catalog)
- Microdata queries

AI

- Natural language queries
- Security of depersonalization in BI tools
- Smart search for datasets in the Open Data Catalog



Additional features

BI

Demographic calculations based on Census data and demographic and migration registration

AI

Demographic forecasts: population change, migration scenario, etc.

POPULATION FORECAST



Potential benefits

- Efficiency: Optimized logistics & cleaning
- Inclusiveness: Multilingual AI interviewers
- Quality: Verified, consistent, real-time monitoring
- Transparency: Open data, dashboards, AI Q&A
- Innovation: Forecasting, conversational access



Thank you