



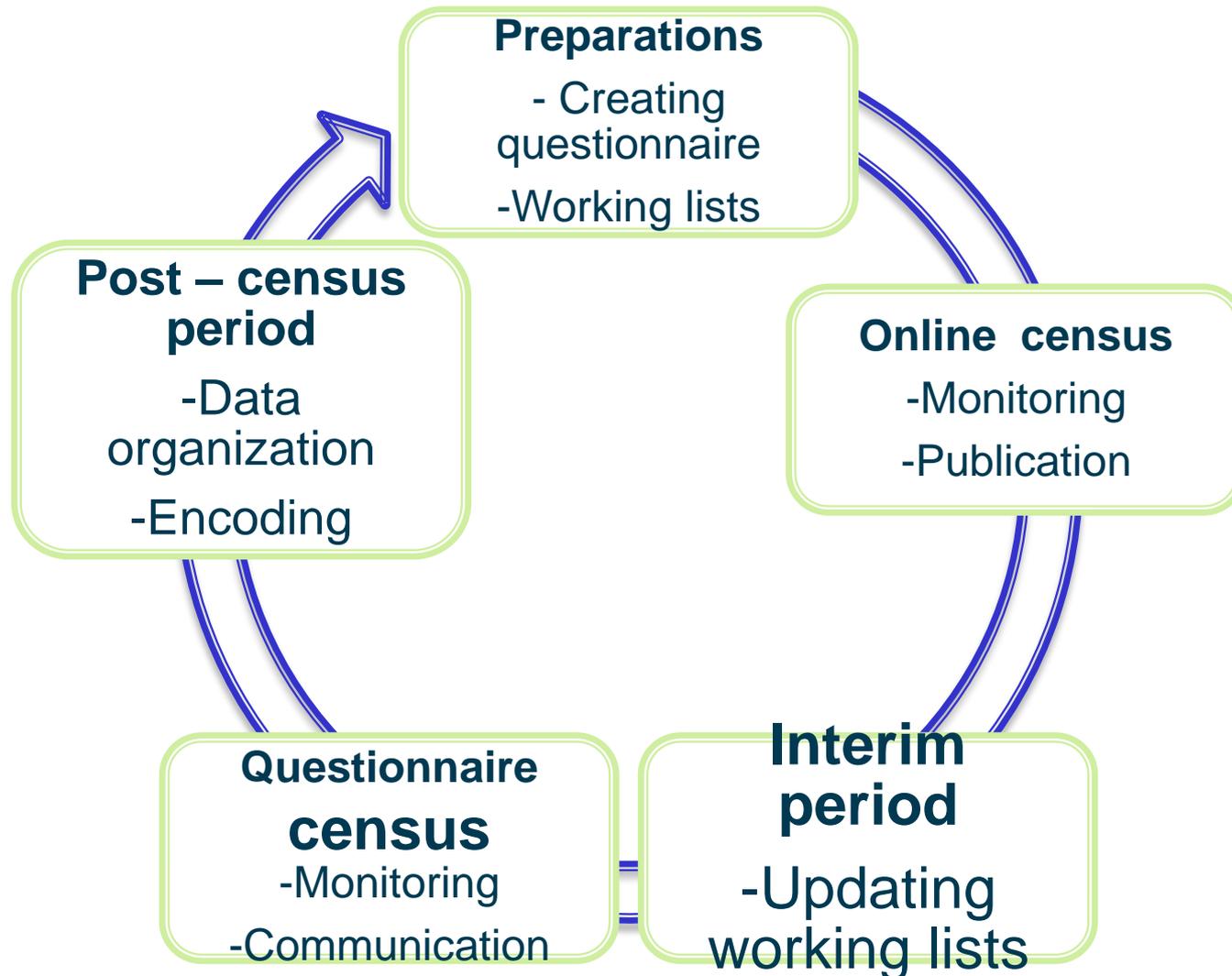
Workshop on censuses for Eastern
European, Caucasus and Central Asian
countries

**Information technology and its impact on
productivity**

By Diana Beltadze and Ene-Margit Tiit



Main automated activities in census stages





Creating questionnaire. Objective: minimising burden of/time spent by the person, ensuring high quality

- The automatic directing of interview based on previously asked questions (every person is only asked questions relevant to them, e.g. men are not asked about giving birth);
- Pre-filling: persons can check and correct register data on themselves;
- For questions with many different options (e.g. citizenship), a menu was used;
- Logic checks to detect incorrect responses, impeding the discontinuing of filling out the questionnaire;
- For place of residence, in addition to marking the address, it had to be marked as a dot on the map (incl in online submission).



Web applications: E-respondent map application

↓ Open Help

1 Apartment in an apartment building

E01. Please insert the address of your usual place of residence.

You may start inserting address with the name of the street/farm or settlement (e.g., Riia 8, Tartu).

If you see your address listed here, please click on it and enter your apartment number (except in case of a private residence). Then click the "Save and continue" button.

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Save and continue

Address search

Tatari 51

Search

-  [Eesti Vabariik, Harju maakond, Tallinna linn, Kesklinna linnaosa, Tatari tänav 51](#)
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If you did not find your address here, please check whether you entered the address correctly and search again. If you still cannot find the address, please locate it on the map.

To Map

Web applications: E-respondent map application

1 Apartment in an apartment building ▼

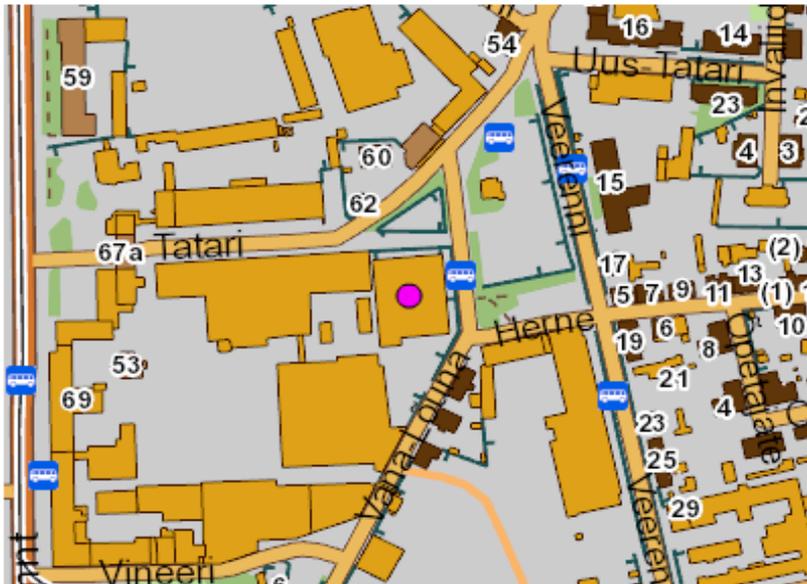
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Save and continue



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tänav 51**

Back to address search

Apartment no.



Creating working lists based on address data register and map application

- Working lists are optimized by monitoring the number of persons to be enumerated, the routes taken and landscape travelled.



Online census

- Burden on communications links was monitored, a relevant note was published on the website in the case of a danger of congestion;
- Number of persons enumerated online and their share by regions was published. This information was met with great interest by the population.



Data processing took place parallel to census

- Interim stage. During this stage, working lists were updated, all dwellings and persons who had been correctly enumerated online were removed from the lists.



Questionnaire census

- Questionnaire census took place as a traditional questionnaire survey with the help of laptop computers and GPS. In the process, the dwellings and persons that had not been enumerated online were enumerated now. The monitoring system monitored the success of the activity (keeping to the plan) of every enumerator and warned the census manager of any problems.
- In the process of conducting the questionnaire census, enumerators marked the locations of dwellings on the map, incl uninhabited dwellings, and checked the locations of dwellings marked in the online census.
- The system enabled connection between enumerators and census managers, and also the (encrypted) transfer of census data into a central database.



Data organisation

- Questionnaire data were supplemented by data taken directly from the register (learning).
- A secondary logic check of data took place, household members' data were mutually checked. Logically contradictory or unclear/pointless data were deleted.
- Gaps in data (incl those appeared in the course of checks) were filled using data from existing registers, taking into account the agreed priorities;
- Text-form data were encoded, using an automatic encoding system as much as possible.
- Overcoverage (duplicated enumerations) was eliminated with the help of personal identification codes. The questionnaire the respondent had filled out was taken as the original, possible gaps in it were filled out with information from other questionnaires (if it was present) following the agreed priorities.
- Data were forwarded to the processing base, based on which the required tables (hypercubes) were formed.

Common challenges



- **Authentication and authorization** of people in digital environment + **digital signature** – **eID**



- **Secure/standardized identification and data exchange** of information systems – **X-Road**

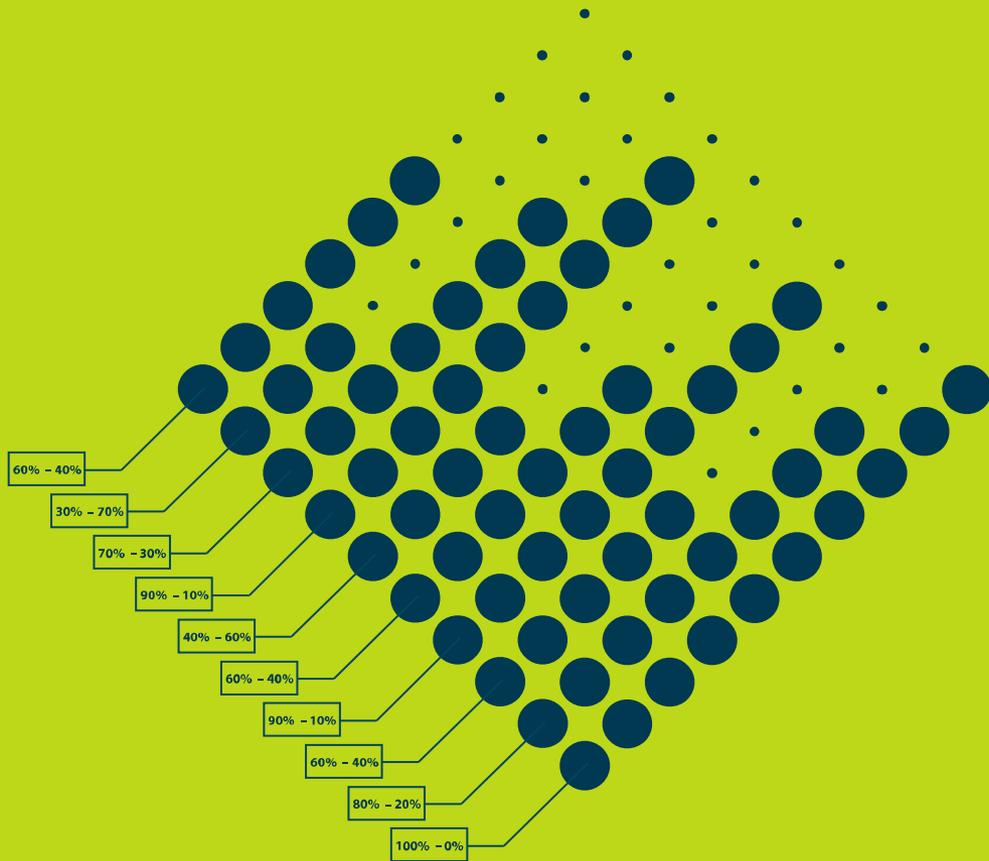
Conclusion

- For all persons who correctly enumerated themselves online, the census process was completely automated so that no census worker saw the person's responses. Manual processing (in some stages) only occurred if the person enumerated had made mistakes or there were any errors.
- Time of persons enumerated was saved due to:
 - Design of questionnaire;
 - Pre-filled answers;
 - Choosing answers from a menu (several stages in the case of some questions);
 - Characteristics submitted directly from register to database.
 - Possibility to fill out questionnaire online was also important as the person enumerated could fill it out at a time that suited them.



Future

- The next census is planned to be register-based. The described system (environment) will be used for surveys.



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