Business Case for Industrialisation in Statistics Estonia: Small Example of a Large Trend

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Outline

- Business case for Population and Housing Census 2011 (PHC 2011)
  A. Data collection phase
  B. Data processing phase
- The production system as a whole
- Conclusions and further developments

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PHC 2011 Data collection phase: Mixed mode was used for PHC 2011

- Modes of questioning
  - e-Census on the web (CAWI) → 66%
  - Interview (CAPI)
- Institutions filled in a special questionnaire
- Different data sources
  - Population and Housing Census 2000
  - Administrative registers
  - Data collection from persons
- New software was developed next to eSTAT

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The costs of data collection of PHC 2000 and PHC 2011

	e-Census participation rate	Number of enumerators	Cost of data collection, euros	Cost of data collection per enumerated person, euros
PAPI (prediction)	0%	4,592	17,710,000	13.2
CAWI+CAPI (prediction)	25%	2,970	10,910,000	8.14
CAWI+CAPI	66%	2,131	8,410,000	6.50

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The main reasons for lower costs of data collection during PHC 2011, compared to PHC 2000:

- There were no special data entry costs;
- Automatic checks diminished mistakes during interviewing in both cases (CAWI and CAPI);
- Less time was required for interviewing than planned, and therefore fewer enumerators were hired;
- Printing, communications and archiving costs were considerably smaller;
- Management of data collection was much cheaper because much fewer employees were needed, thanks to the management module of the new software.

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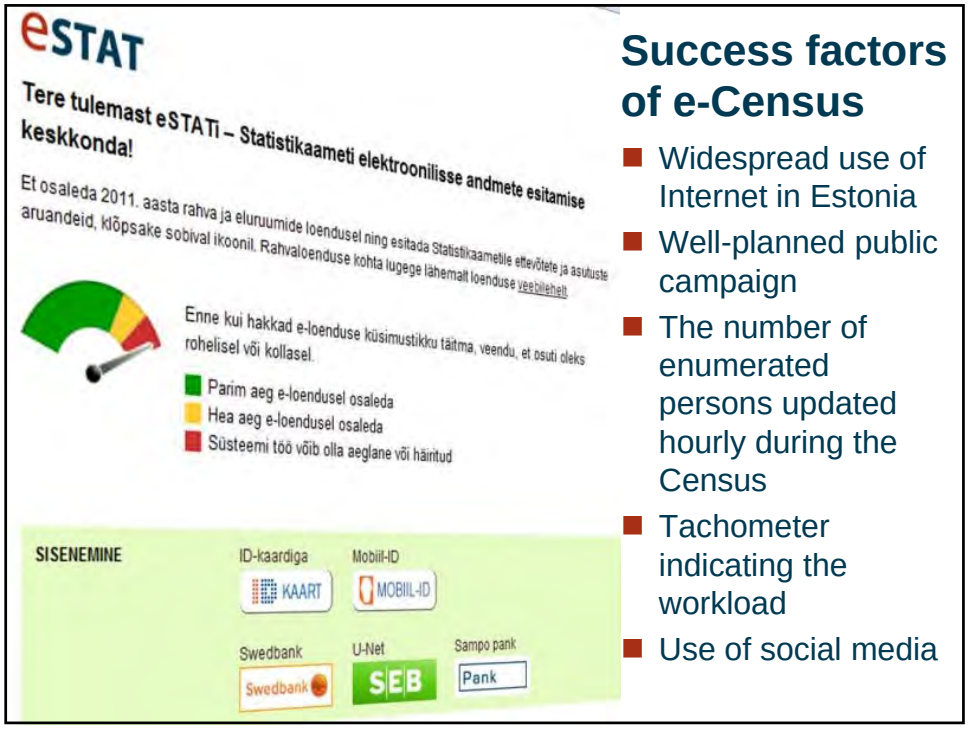
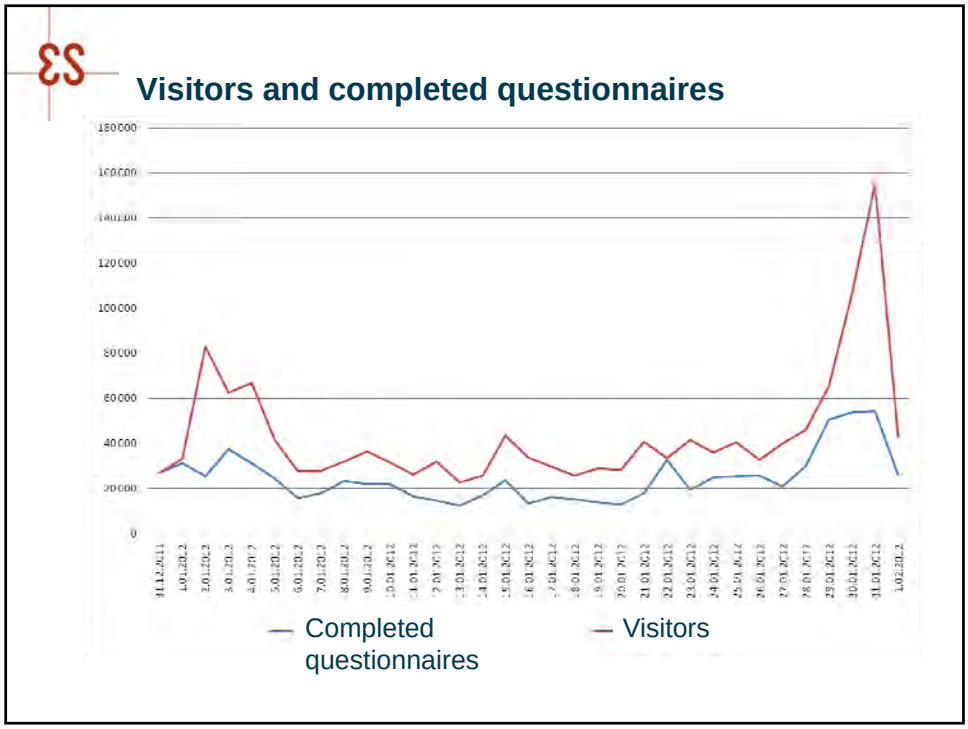
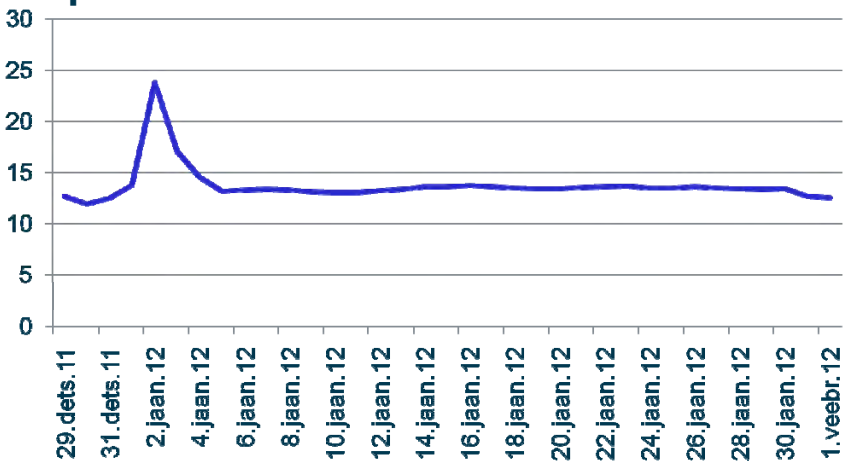


Success factors of e-Census

- Widespread use of Internet in Estonia
- Well-planned public campaign
- The number of enumerated persons updated hourly during the Census
- Tachometer indicating the workload
- Use of social media



Average completion time of questionnaire



Data processing phase

Costs of data processing of the PHC 2011

	e-Census participation rate	Number of operators	Cost of data collection, euros
PAPI (prediction)	0%	264	3,600,000
CAWI+CAPI (prediction)	25%	90	2,300,000
CAWI+CAPI	66%	30	1,090,198

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The main reasons for lower costs of data collection during PHC 2011

- Automatic checks diminished mistakes during interviewing in both cases (CAWI and CAPI);
- The first stage of data processing, primary data arrangement, was part of the data collection software and ran as parallel activity during data collection and immediately after collection. As a result the collected data was prepared for the next stages of data processing.
- Data processing was highly automated. Totally 35.7 million errors were corrected, 20.2 million of them corrected automatically and 15.5 million manually.
- Problems with data came out in early phases of processing, because statisticians were able to monitor data during the data processing.
- For checks and handling missing data was possible to use data from registries and from PHC 2000.
- Management of data collection was much cheaper because much fewer employees were needed, thanks to the automated data processing done by the new software.

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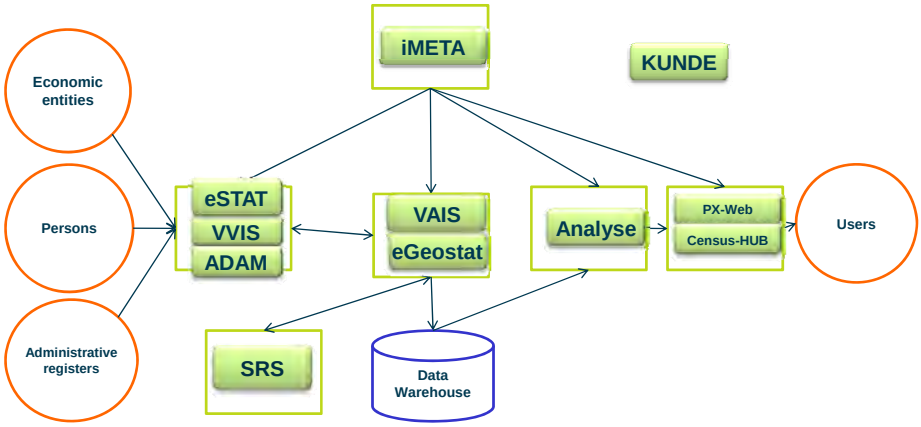
Architecture of the information system



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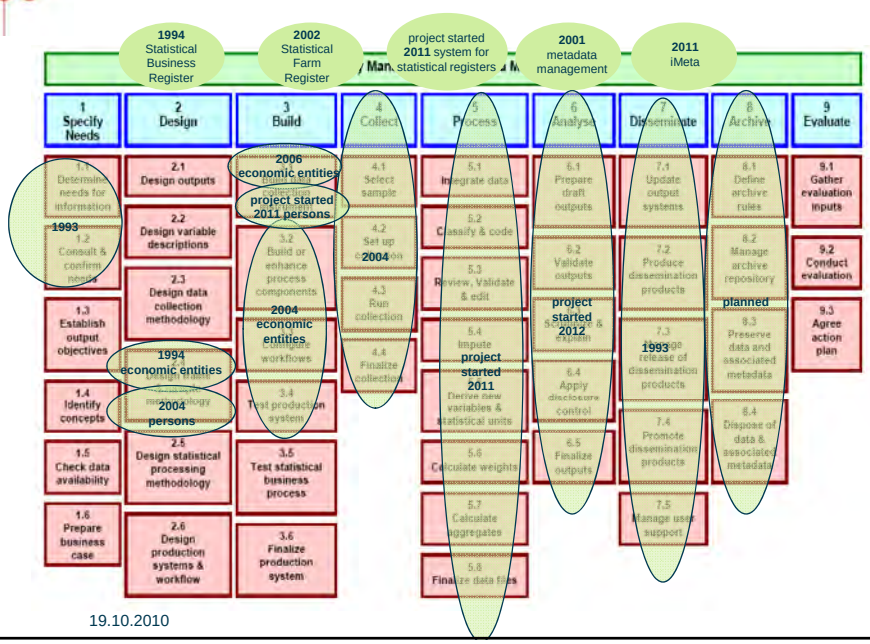
Generic Statistical Business Process Model



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Sources for efficiency gains of Statistics Estonia

- Central data collection department, i.e. standardisation of processes
- Generic office-wide software
- Administrative data instead of survey data if applicable
- Pre-filling of statistical questionnaires with administrative data

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Small developments, big efforts

- Reminders sent before the deadline instead of after the deadline
- Informing economic entities simultaneously about all the questionnaires they have to fill in next year
- Centralisation of the preparation of questionnaires from statistical departments to IT Department and within a few years to Methodology Department
- Standardisation and simplification of instructions about questionnaires for economic entities
- Creation of a list of input variables

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Next practical steps

- Introduction of CAWI as the main data collection method for surveys on individuals (2013)
- Introduction of CATI for data collection from both types of respondents: economic entities and individuals (step by step, starting from 2012)
- Implementation of generic office-wide software for other functions than data collection
- Reuse of data within the statistical office

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Strategic directions

- Training of data suppliers (economic entities, individuals, registers, etc.), incl. about their personal and public gains
- Closer cooperation between the data collection function and dissemination function within the organisation, for better communication with data suppliers (based on the experience of PHC 2011)
- Simplification of statistical reports (harmonisation of concepts, deadlines, practices, etc.)
- Development of infrastructure for selling data collection services

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Further challenges

- Wider use of administrative and commercial data
- Do we need two data collection tools?
- Centralization of data processing function?

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