CONFERENCE OF EUROPEAN STATISTICIANS

Workshop on Statistical Data Collection

10-12 October 2017, Ottawa, Canada

WP.5-4

22 August 2017

Activities to reduce response burden: pre-filling of questionnaires, development of questionnaires and electronic data submission environment eSTAT based on feedback from respondents and data processing phase

Epp Karus (Statistics Estonia)

epp.karus@stat.ee

Abstract

It is important to keep the response burden on legal units and need of statistical organisations in balance.

The organisational structure of Statistics Estonia is based on Generic Statistical Business Process Model (GSBPM) 4.0 from 2013, when major re-engineering of the statistical production process took place. Centralization of processes enables achievement of new strategic goals and implementation of new template based data processing system VAIS, including the harmonization and improvement the effectiveness of data collection and processing phases. In 2016 Statistics Estonia started to implement LEAN principles and teamwork. Aim is to achieve better coherence between strategic, tactical and operational level planning, to reduce accumulation of work through systematically organized management system and to intensify information movement between players by forming teams around the components. Team is responsible for preparing of component. Components are: Description of statistical activity, Questionnaire, Data loading package, Data processing package, Register and sample or list of respondents, Administrative data, Raw data of social surveys (Interviewers network), Final observation data, Statistics and analysis.

Preparation of the data collection instruments is done in an interdepartmental team, which consists of members of 4 departments. Main responsibilities of the team are: Design collection, Design variable descriptions and classifications, Build and testing collection instrument. Owner of the statistical activity (statistical domain department) is responsible for the input for a questionnaire design and build. Input includes information on variables and classification, quality of micro-data and questionnaire pre-filling sources and rules. If possible, the questionnaires are pre-filled from another questionnaire, another period of the same questionnaire and/or administrative data.

Evaluation of previous year data collection and processing process is carried out before questionnaire design by questionnaire team. Source for evaluation are:

- respondents feedback to questionnaire and to eSTAT (electronic data collecting system for enterprises) – recommendation index questionnaire;
- respondents feedback to contact centre of respondents – frequent questions and problems of data providers;
- statisticians' feedback – frequent errors in data editing;
- summary of process quality indicators.

The Recommendation Index is used to get from respondents feedback and developments needs on eSTAT, questionnaires and statistical work and to measure respondent's perceived burden. Web application recommy.com is used from 2014. Respondents' comments are coded to group input for development needs. Based on feedback from respondents several eSTAT and questionnaire developments were made.

All these improvements help to facilitate data submission, decrease respondent burden and improve data quality.

Activities to reduce response burden: pre-filling of questionnaires, development of questionnaires and electronic data submission environment eSTAT based on feedback from respondents and data processing phase

Epp Karus (Statistics Estonia)

epp.karus@stat.ee

Abstract: It is important to keep the response burden on legal units and need of statistical organisations in balance.

The organisational structure of Statistics Estonia is based on **Generic Statistical Business Process Model** (GSBPM) 4.0 from 2013, when major re-engineering of the statistical production process took place. Centralization of processes enables achievement of new strategic goals and implementation of new template based data processing system VAIS, including the harmonization and improvement the effectiveness of data collection and processing phases. In 2016 Statistics Estonia started to implement LEAN principles and teamwork. Aim is to achieve better coherence between strategic, tactical and operational level planning, to reduce accumulation of work through systematically organized management system and to intensify information movement between players by forming teams around the components. Team is responsible for preparing of component. Components are: Description of statistical activity, Questionnaire, Data loading package, Data processing package, Register and sample or list of respondents, Administrative data, Raw data of social surveys (Interviewers network), Final observation data, Statistics and analysis.

Preparation of the data collection instruments is done in an interdepartmental team, which consists of members of 4 departments. Main responsibilities of the team are: Design collection, Design variable descriptions and classifications, Build and testing collection instrument. Owner of the statistical activity (statistical domain department) is responsible for the input for a questionnaire design and build. Input includes information on variables and classification, quality of micro-data and questionnaire pre-filling sources and rules. If possible, the questionnaires are pre-filled from another questionnaire, another period of the same questionnaire and/or administrative data.

Evaluation of previous year data collection and processing process is carried out before questionnaire design by questionnaire team. Source for evaluation are:

- respondents feedback to questionnaire and to eSTAT (electronic data collecting system for enterprises) – recommendation index questionnaire;
- respondents feedback to contact centre of respondents – frequent questions and problems of data providers;
- statisticians' feedback – frequent errors in data editing;
- summary of process quality indicators.

The Recommendation Index is used to get from respondents feedback and developments needs on eSTAT, questionnaires and statistical work and to measure respondent's perceived burden. Web application recommy.com is used from 2014. Respondents' comments are coded to group input for development needs. Based on feedback from respondents several eSTAT and questionnaire developments were made.

All these improvements help to facilitate data submission, decrease respondent burden and improve data quality.

Paper

It is important to keep the response burden on legal units and the needs of statistical organisations in balance. In recent years, the work organisation of Statistics Estonia (SE) has undergone changes and several developments have been introduced, which contribute to reducing the burden on respondents.

1. Work organisation of Statistics Estonia

The work organisation in SE is fully centralised. As of autumn 1993, when the central Marketing and Dissemination Department, and 2004, when the Data Collection was created, different functions have been consolidated year after year and the number of function-based departments has decreased. A major re-engineering of the statistical production process of SE took place in October 2013. There are in total eight departments, three of which are subject-matter departments and five departments are function-based. The current structure of SE is presented in Figure 1.

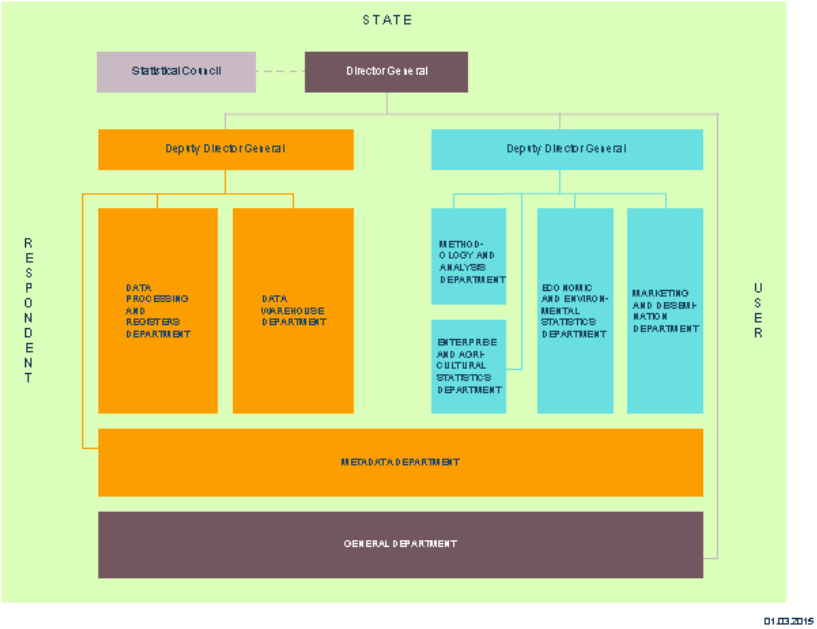

Fig 1 Organisational structure of Statistics Estonia

Since October 2013, the organisational structure of SE is based on the **Generic Statistical Business Process Model** (GSBPM) 4.0. The main reason for such a centralised work organisation is to increase resource efficiency. Consolidation of similar functions has contributed to standardisation, which in turn has positive impact on resource efficiency. Figure 2 gives an overview of task distribution between departments.

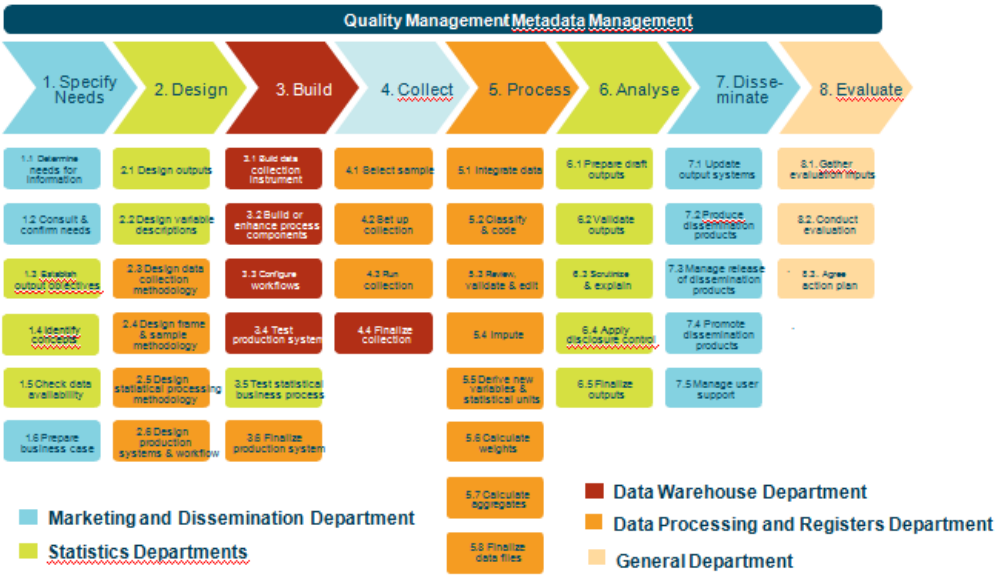

Fig 2 Task distribution between departments of Statistics Estonia

Centralisation of processes enables to achieve new strategic goals and implement the new template-based data processing system VAIS, to harmonize and improve the effectiveness of data collection and processing phases.

In 2016 SE introduced Lean tools and Agile methods to define the value stream and let value flow better to meet customer demands. Our objectives are:

- To reduce work-in-progress through a systematically arranged management system with defined components and component owners.
- To improve work flow in the value stream and information flow between employees by forming teams around components. Each team has all core competences and tools to produce a certain component. SE has an Agile coach to help teams to improve continuously.
- To gain better coherence between strategic, tactical and operational planning by entering all plans into the JIRA environment and introducing Kanban boards to visualize the work flow.

The components are: Description of statistical activity, Questionnaire, Data loading package, Data processing package, Register and sample or list of respondents, Administrative dataset, Raw data of social surveys (Interviewers' network), Final cleaned micro dataset, Statistics and analysis.

Implementation timetable of Lean tools and Agile methods:

- Forming teams around components, training of teams – 2016
- Visualisation of work flow and movement of information – 2017
- Measuring and monitoring processes – 2017–2018
- Improving processes
- Optimising the value chain

Lean internal audit results are presented in Figure 3.

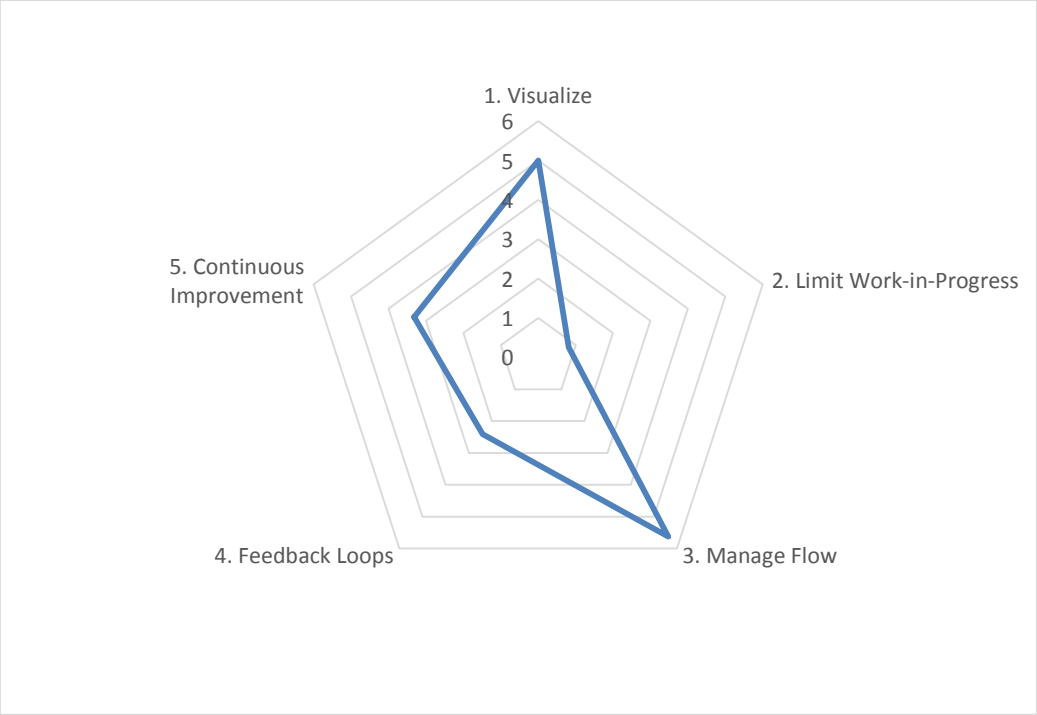

Fig 3 Lean internal audit results, May 2017

2. Collecting and analysing information from different statistical production processes

2.1. Respondents' feedback collected with the Recommendation Index questionnaire

The Recommendation Index questionnaire is used to get feedback from respondents. The recommendation index has been measured since 2014, using the web application recommy.com. The recommendation index is used to:

- receive input for the strategic goal "Reduce respondents' perceived burden";
- get feedback from respondents about eSTAT, questionnaires, statistical work and the reputation of SE;
- meet the respondent needs and develop eSTAT, questionnaires and communications.

According to the methodology, the recommendation index shows the number of loyal customers on a scale from 0–10:

- **References** – loyal and enthusiastic customers, who suggest services of the organisation to their colleagues or friends – answers 9,10;
- **Passive** – satisfied customers, with less enthusiasm – answers 7, 8;
- **Critical** – unhappy customers, who feel badly treated and can damage the organisation's reputation and image – answers 0–6.

The recommendation index is calculated as the share of positive answers minus the share of negative answers, and it may be between -100 to +100:

Excellent	+100 to +60	Satisfactory	-40 to -1
Very good	+59 to +20	Bad	-41 to -70
Good	+19 to 0	Very bad	-71 to -100

Questions asked with the Recommendation Index questionnaire:

> Q1: How likely is it that you would recommend to submit the questionnaire XXX using the electronic data submission environment eSTAT to your friend or colleague?
>
> Q2: Please give a justification for your assessment.
>
> Q3: How easy was the completing of this questionnaire in your opinion?
>
> Q4: Please give a justification for your assessment.

A coding list of respondents' comments to questions Q2 and Q4 was created on the basis of the replies to the 2015 Recommendation Index questionnaire. The final coding list was created by the Metadata Department. Comments are divided into three groups: eSTAT, questionnaire and reputation. Each category is divided into several development needs and positive feedback.

Several developments have been made in the eSTAT based on respondents' feedback, several are in progress. Based on respondents' feedback, 21 statistical 2017 questionnaires were developed.

2.2. Respondents' feedback to Contact Centre of Respondents (CCR)

The CCR was created in SE in January 2006. The purpose of the CCR is to assist respondents with submitting data to SE and to provide solutions to problems encountered by respondents. From the CCR, one can quickly obtain information about the respondents' problems. The CCR provides consultation to respondents of both social and economic surveys. As the main correspondence and tools of SE are in Estonian, the CCR consultants provide information also in English and Russian. Consultation is provided by telephone and e-mail.

To help the CCR consultants to answer respondents' questions, we have guidelines for every questionnaire of SE and a list of answers to frequently asked questions. The guidelines have been prepared in collaboration with the survey manager.

The average service level of the CCR's incoming calls is 80, i.e. 80% of the respondents are able to connect to SE information hotline within 1 minute. The CCR uses Solidus contact centre to measure the service level and get reports on incoming calls. In 2017, we started to code the topics of incoming calls. This gives us information about the main problems of respondents and the number of similar problems. The main problems of respondents are shared with the survey manager, questionnaire team and main users of data collection environments. If possible, the respondents' proposals are taken into account in developing the data collection instrument or application.

Respondents' e-mails sent to the CCR are answered within 5 working days. The list of answers to frequently asked questions is mainly used. If needed, the survey manager is consulted to answer a respondent's question.

2.3. Evaluation of the data processing process

SE uses the template-based data processing system VAIS. VAIS was first introduced in 2012 to process the 2011 Population and Housing Census data. Today, the data of about 2/3 questionnaires are processed in VAIS. This has created opportunities for standardizing the data processing of statistical activities and calculating standardized quality indicators in the final microdata database. The quality indicators are calculated automatically for all statistical activities that are processed in VAIS. The architecture of the information system of SE is presented in Figure 4.

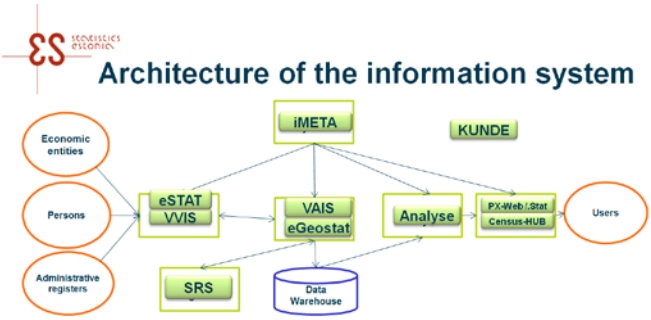

Figure 4: Architecture of the information system of Statistics Estonia

For questionnaire developing, we analyse microdata edits. We focus on the variables with the biggest number of edits. This indicates that the respondent has had difficulties with collecting and submitting the data for the questionnaire variable or table or that the respondent does not understand what data is required to be submitted.

Problematic questionnaires are evaluated in collaboration between the survey manager, questionnaire team and dataset team. At the questionnaire evaluation meeting, the participants analyse how to make questionnaires more understandable to respondents and more compatible with the accounting data of enterprises. We also analyse the following aspects connected to data submission:

- Are we collecting data from the right sample unit;
- Who owns the information in the enterprise and is a data provider;
- Does a questionnaire have multiple data providers and how to refer to it in the questionnaire;
- Which calculated variables or pre-fillings to add to the questionnaire to help enterprises to submit data;
- What additional data to collect from enterprises that would help them to provide SE with the necessary information.

3. Designing and building questionnaires for the new survey period

Preparation of data collection instruments is done in an interdepartmental team, with members from four departments. The main responsibilities of the team are: Design of collection, Design of variable descriptions and classifications, Building and testing of collection instrument. The survey manager is responsible for the input to the designing and building of questionnaires. Input includes information on variables and classification, quality of microdata and questionnaire pre-filling sources and rules. If possible, the questionnaires are pre-filled with data from another questionnaire, another period of the same questionnaire and/or with the data from administrative registers.

Before designing and building questionnaires for the new survey period, all available feedback information is studied by the questionnaire team. Complaints and proposals of respondents and feedback from the questionnaire evaluation meeting are taken into account as much as possible.

4. Recent developments targeted at respondents

4.1. eSTAT developments

The main user of the eSTAT regularly analyses the respondents' feedback on eSTAT. Several developments have been made in the eSTAT based on the respondents' feedback, several developments are in progress.

Smaller improvements can be implemented quickly. As regards bigger improvements, we are dependent on IT investments financing. Currently, an eSTAT design project and two eSTAT developments with financing from Eurostat grants are ongoing.

4.2. Improvements to questionnaires

Based on the respondents' feedback and questionnaire evaluations, 21 questionnaires for 2017 were improved. The main developments were: the wording of error messages, variable explanations, added pre-fillings, added auto-sums, decrease of variables, changed table structure, translation into Russian, changed coding list.

In 2017, we are going to pilot calculating into the questionnaire feedback information (ratios) to respondents based on the data collected with the questionnaire. With this development, we hope to motivate enterprises to submit data, increase the response rate and consequently improve the quality of statistics.

4.3. Improvements to notifications to respondents

At the end of each year, SE informs enterprises of their obligations in the forthcoming year. When we first contact the enterprises, we describe more precisely the principles of statistical production and the importance of data provision and provide instructions on creating the main user on eSTAT. During the year, we specify the activities of new companies and add new units to the data collection based on sample selection criteria. We inform new enterprises of samples of their data submission obligation on the 12th day each month.

eSTAT automated notifications are sent by e-mail -5, +3, +7, +20 days from the data providing deadline.

In 2017, we changed the content and number of notifications. We cancelled one notification sent before the deadline so that enterprises would not receive spam e-mails from SE. We have changed the content of the automatic notifications. The most important message is included at the beginning of the letter; the letter is easy to read and is of moderate length.

We inform respondents about enforcement and penalties only after the expiration of the deadline. SE has the possibility to implement enforcement.

4.4. Trainings for respondents

SE organizes regular trainings for respondents. We provide trainings on the eSTAT environment and various most complicated questionnaires. The main user of eSTAT is responsible for eSTAT topics and the survey manager for questionnaire topics. We inform potential enterprises interested in training about future trainings via e-mail. Registration for trainings takes place on the website of SE.

5. Conclusion

In recent years, SE has introduced a number of developments that facilitate data submission for respondents. These developments are:

- GSBPM based organisation structure
- Forming of teams around components
- Collecting and analysing respondents' feedback
- Evaluating the data processing process
- Improvements to notifications to respondents
- Trainings for respondents

All these improvements help to facilitate data submission, decrease respondent burden and improve data quality.

References

The Generic Statistical Business Process Model. Version 4.0, approved by the METIS Steering Group in April 2009. [www] http://www1.unece.org/stat/platform/display/metis/The+Generic+Statistical+Business+Process+Model (26.10.2012)