ESMS implementation in Statistics Estonia

Q2016 in Madrid

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Statistics Estonia
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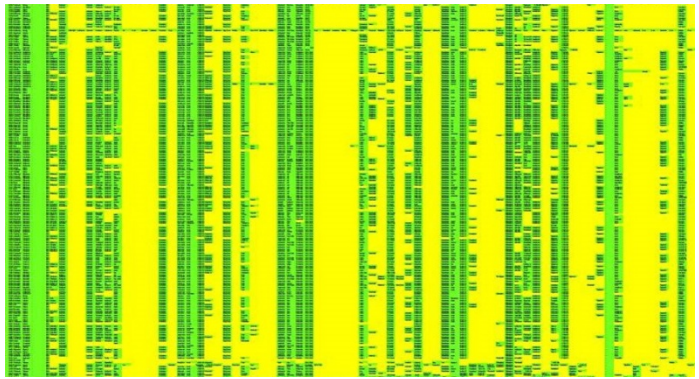
The Motivation. Why? (in 2012)

- Lack of
  - systemized / written / regularly updated
  - information / metadata about statistical activities
- Need to have
  - data in the future: more data + more metadata
  - = smart data → smart decisions → smart society
- ESMS
  - agreed and accepted standard



Statistical Programme

The Official Statistics Act § 4, §16 states the following

- Official Statistical Programme and statistical activities

  The official statistical programme is a list of demographic, social, economic and environmental statistical activities which is compiled each year for the following five years according to the national or international demand for statistics. Statistical activities are, for example, statistical surveys, censuses, statistical publications or statistical registers.

§16 (2) The programme shall include the following data about statistical activities: title, legal basis, statistical Indic.s, periodicity, reference period or moment, estimated cost, information on amendments planned to methodology.

Statistical Programme

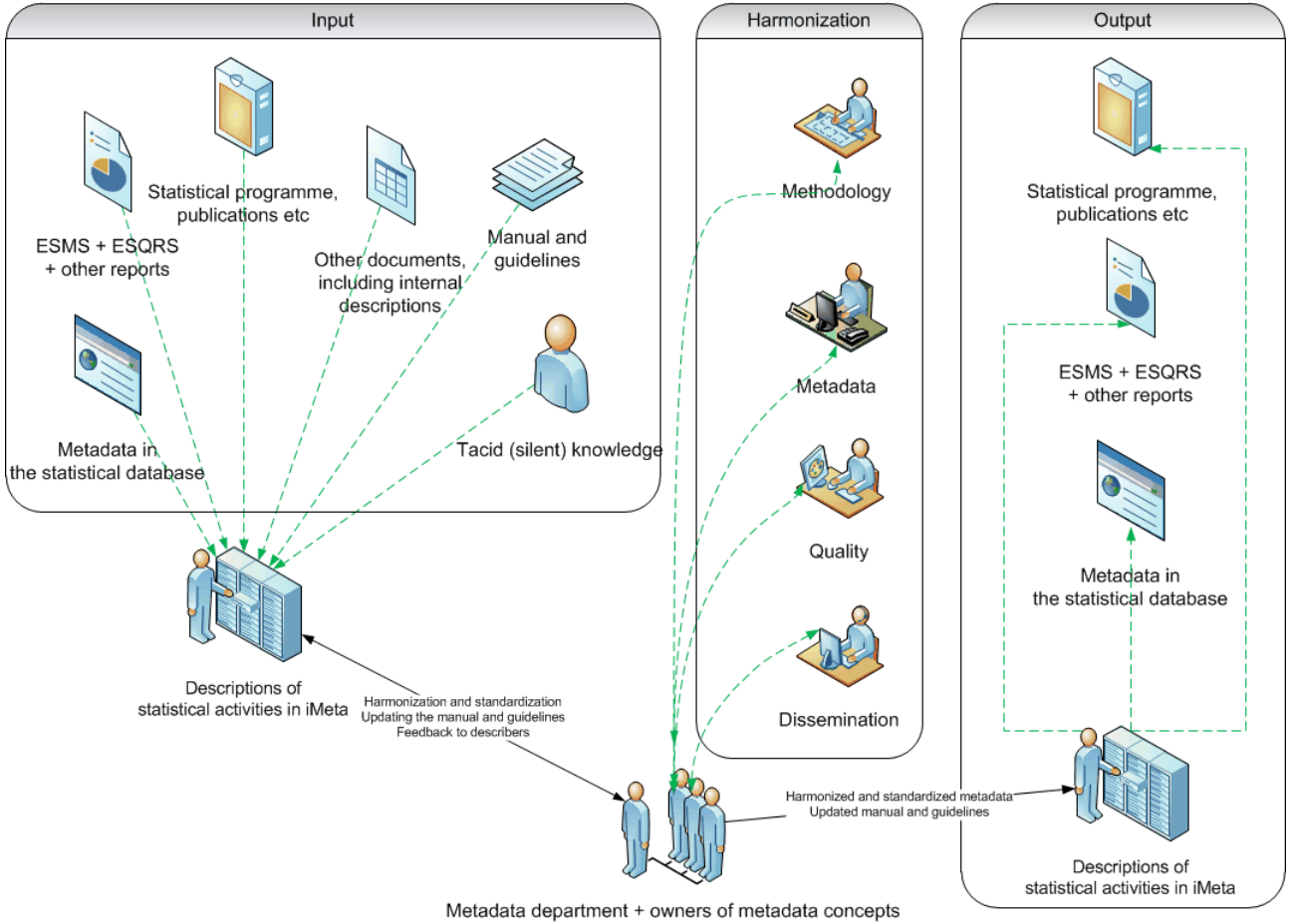
- (5) Statistics Estonia shall prepare and present to the Ministry of Finance a list of statistical activities specified in §16 (1) 1) of this Act not later than by 1 July each year.
- (6) The list of statistical activities to be performed by Statistics Estonia shall be approved by an order of the Government of the Republic.

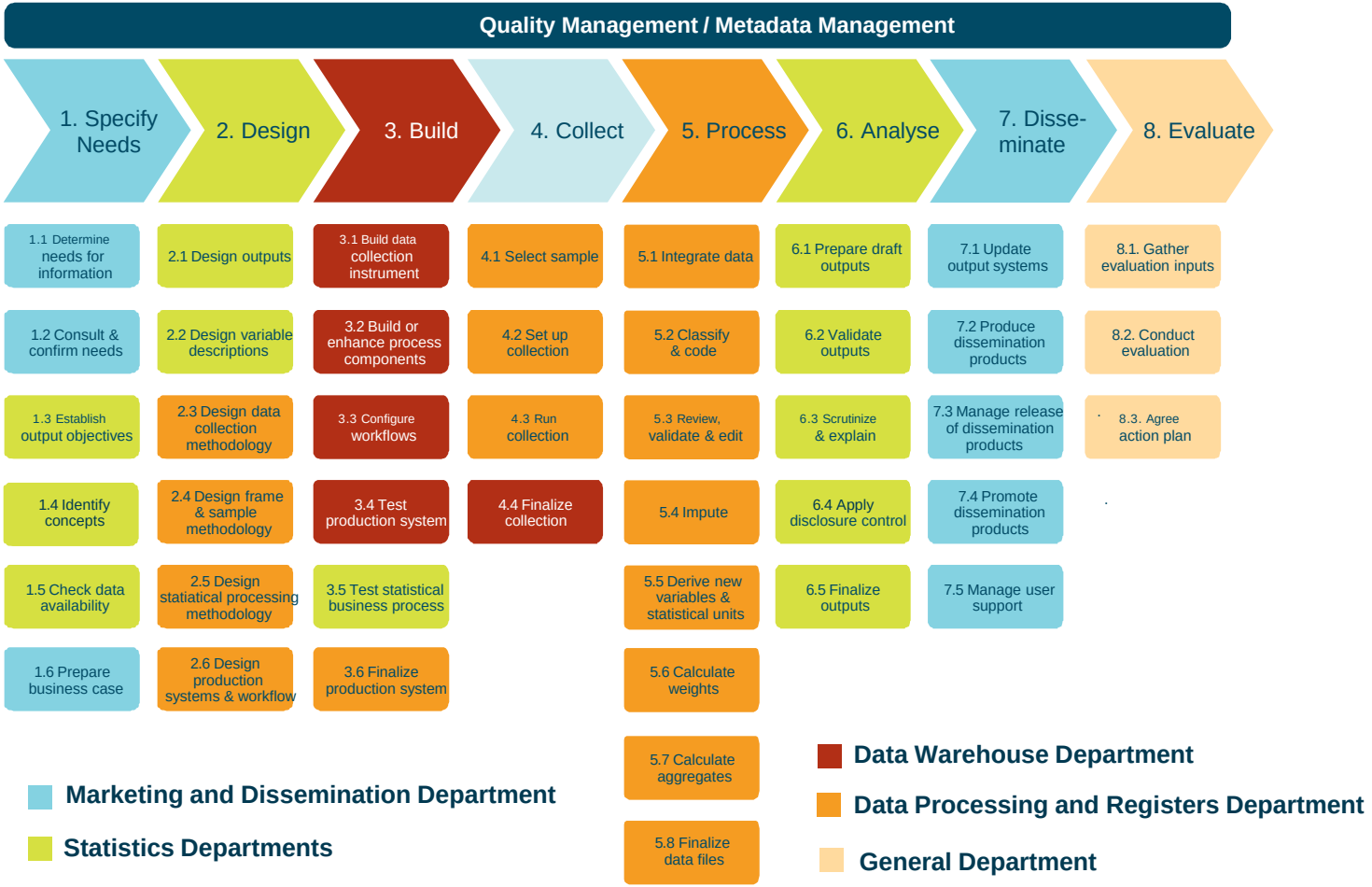
ESMS metadata

- ESMS (Euro-SDMX Metadata Structure) metadata are based on the SDMX Cross-Domain Concepts. These concepts describe statistical processing, the presentation and quality of statistical information, and so on. The ESMS metadata are aimed at describing the statistics released by the European Statistical System.
- Statistics Estonia (SE) decided to implement Euro SDMX Metadata Structure (ESMS) for better horizontal and vertical integration across processes and organizations.

ESMS metadata implementation

- ESMS based describing, harmonizing and standardizing activities were more actively carried out in 2012-2015.
  - Metadata are updated and complemented at least yearly.
- Metadata are described in metadata management system iMeta.
- ESMS is implemented for all statistical activities of SE.
- Metadata are described in two languages – estonian and english.
- Internal guidelines for describing content of metadata are generated and updated in one manual (50+ pages).
- Trainings for survey managers are carried out regularly.


Input
Harmonization
Output
Statistical programme, publications etc
ESMS + ESQRS + other reports
Other documents, including internal descriptions
Manual and guidelines
Metadata in the statistical database
Tacid (silent) knowledge
Descriptions of statistical activities in iMeta
Harmonization and standardization
Updating the manual and guidelines
Feedback to describers
Methodology
Metadata
Quality
Dissemination
Harmonized and standardized metadata
Updated manual and guidelines
Statistical programme, publications etc
ESMS + ESQRS + other reports
Metadata in the statistical database
Descriptions of statistical activities in iMeta
Metadata department + owners of metadata concepts


Quality Management / Metadata Management
1. Specify Needs
2. Design
3. Build
4. Collect
5. Process
6. Analyse
7. Disse-minate
8. Evaluate
1.1 Determine needs for information
1.2 Consult & confirm needs
1.3 Establish output objectives
1.4 Identify concepts
1.5 Check data availability
1.6 Prepare business case
2.1 Design outputs
2.2 Design variable descriptions
2.3 Design data collection methodology
2.4 Design frame & sample methodology
2.5 Design statiatical processing methodology
2.6 Design production systems & workflow
3.1 Build data collection instrument
3.2 Build or enhance process components
3.3 Configure workflows
3.4 Test production system
3.5 Test statistical business process
3.6 Finalize production system
4.1 Select sample
4.2 Set up collection
4.3 Run collection
4.4 Finalize collection
5.1 Integrate data
5.2 Classify & code
5.3 Review, validate & edit
5.4 Impute
5.5 Derive new variables & statistical units
5.6 Calculate weights
5.7 Calculate aggregates
5.8 Finalize data files
6.1 Prepare draft outputs
6.2 Validate outputs
6.3 Scrutinize & explain
6.4 Apply disclosure control
6.5 Finalize outputs
7.1 Update output systems
7.2 Produce dissemination products
7.3 Manage release of dissemination products
7.4 Promote dissemination products
7.5 Manage user support
8.1. Gather evaluation inputs
8.2. Conduct evaluation
8.3. Agree action plan
Marketing and Dissemination Department
Statistics Departments
Data Warehouse Department
Data Processing and Registers Department
General Department

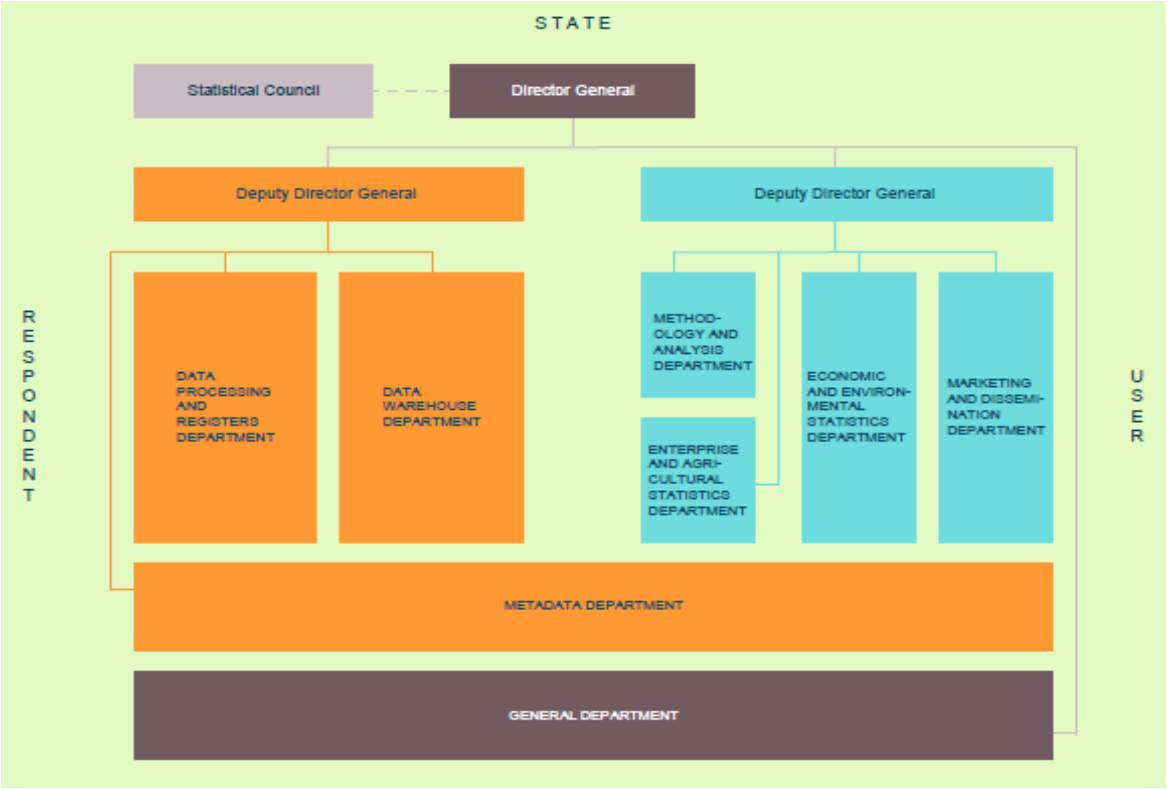
Use of GSBPM

- GSBPM is used as a basis for main processes and IT solutions.
- Responsibilities are based on job positions and job descriptions, which are all process-based (GSBPM and support processes) and domain-based (in case of statisticians and methodologists, for example).
- The organizational structure is also based on GSBPM and that is a good basis for standardising processes.

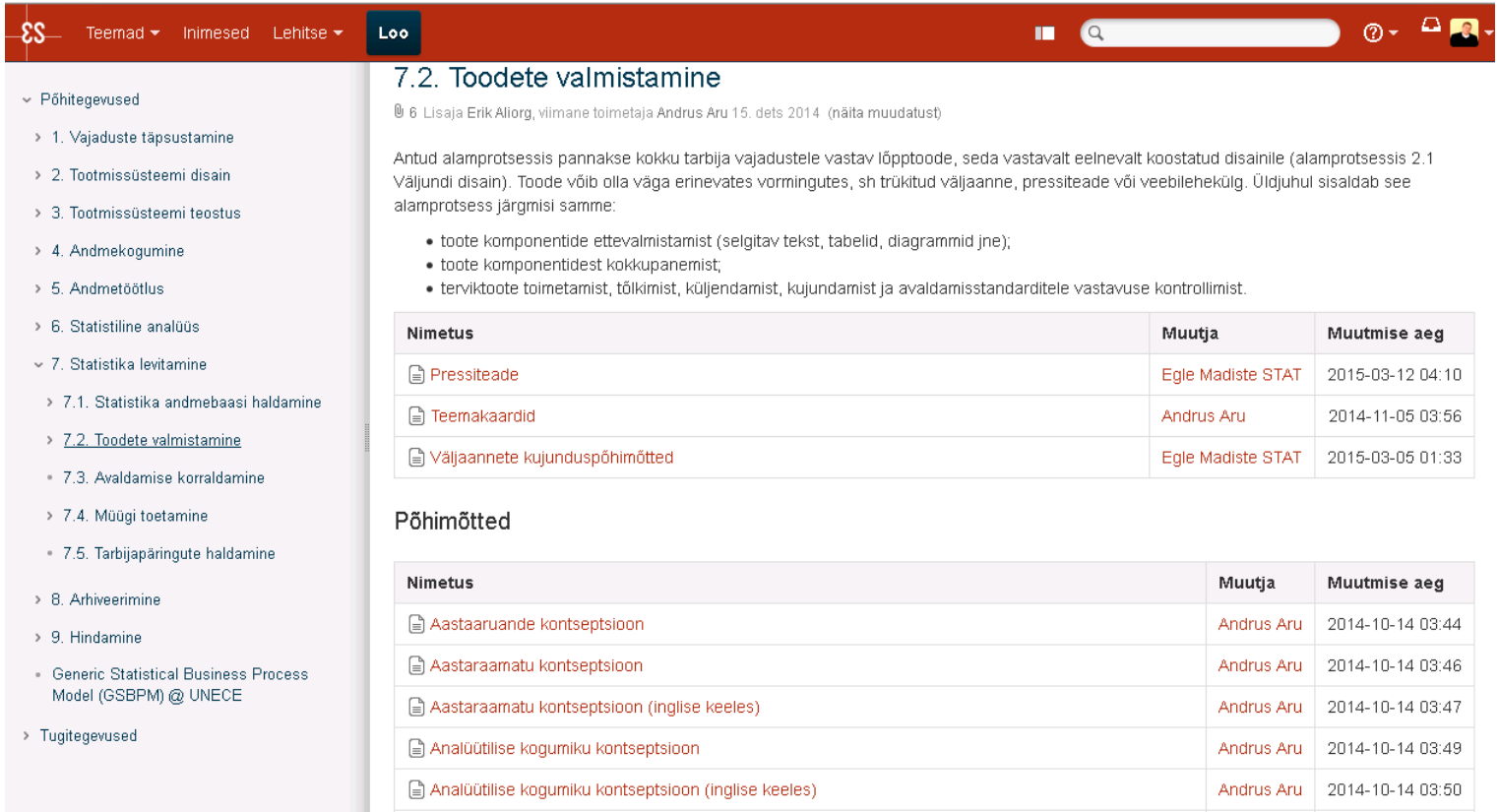
Use of GSBPM in job descriptions

3.6	Algatada või muuta statistikatöö (1.6)	3.6.1	Juhtivstatistikule on antud juhised statistikatöö sh registrimuutujate, kuubimuutujate, kuupide, pressiteadete, väljaannete jms kirjeldamiseks iMetas
		3.6.2	Statistikatöö kirjeldused on üle vaadatud ja vastavad ameti parimale praktikale
3.7	Disainida väljund (2.1)	3.7.1	Väljundi kontseptsioonid on koostatud (väljaanded, elektroonilised tooted jms)
3.8	Disainida ja arendada üldkogumi ja valimi metoodika (2.4)	3.8.1	Üldkogumi ja valimi tingimuste põhimõtted on koostatud, sh kihtide arv ja soovituslik suurus on määratletud
3.9	Disainida andmetöötlusmetoodika (2.5)	3.9.1	Valdkonnaspetsiifilised imputeerimise juhised, erindite käsitlemise reeglid, registrimuutujate kvaliteedinõuded ja arvutatavate muutujate reeglid on andmetöötluse ja registrite osakonnale esitatud
		3.9.2	Lähteandmebaasi põhimõtted on kooskõlastatud
		3.9.3	Ettepanekud andmetöötlusmetoodika arendamiseks on andmetöötluse ja registrite osakonnale esitatud
3.10	Pilootida (3.5)	3.10.1	Vajadusel on piloodis osaletud
3.11	Arvutada statistika (6.1)	3.11.1	Analüüsiks arvutatava statistika metoodika välja töötamine
		3.11.2	Juhtivstatistikud ja vanemstatistikud on juhendatud
3.12	Kontrollida statistika kvaliteet (6.2)	3.12.1	Statistika on ootuste ja valdkonna teadmusega võrreldud
		3.12.2	Üldkogumi kaetus ja vastamismäär vastavad nõutavale tasemele
		3.12.3	Statistika on eelmiste perioodidega ja teiste asjakohaste allikatega võrreldud
		3.12.4	Ühilduvuskontroll on tehtud
		3.12.5	Statistikas olevad vasturääkivused on selgitatud ning vajadusel lähteandmete parandamiseks teade edastatud andmetöötluse ja registrite osakonnale

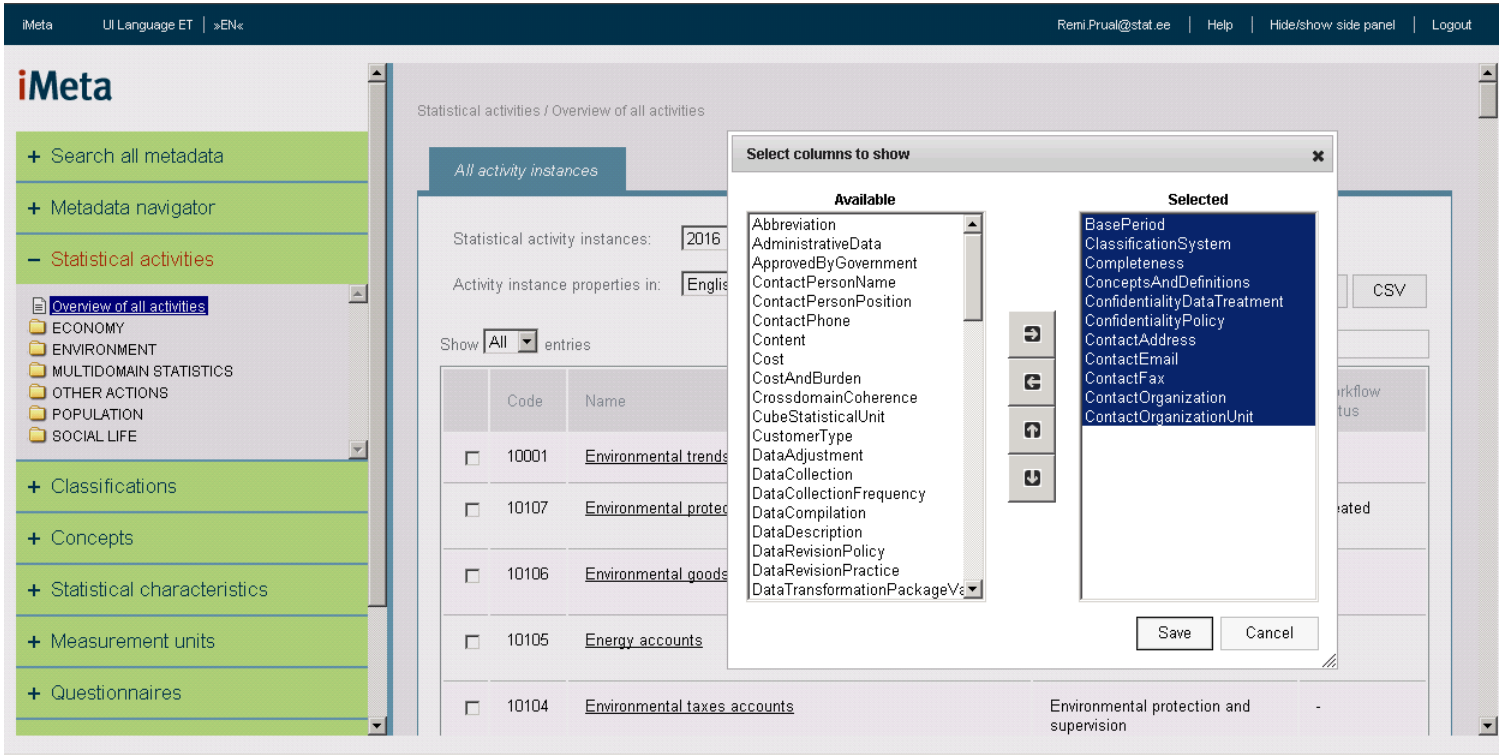
GSBPM based structure



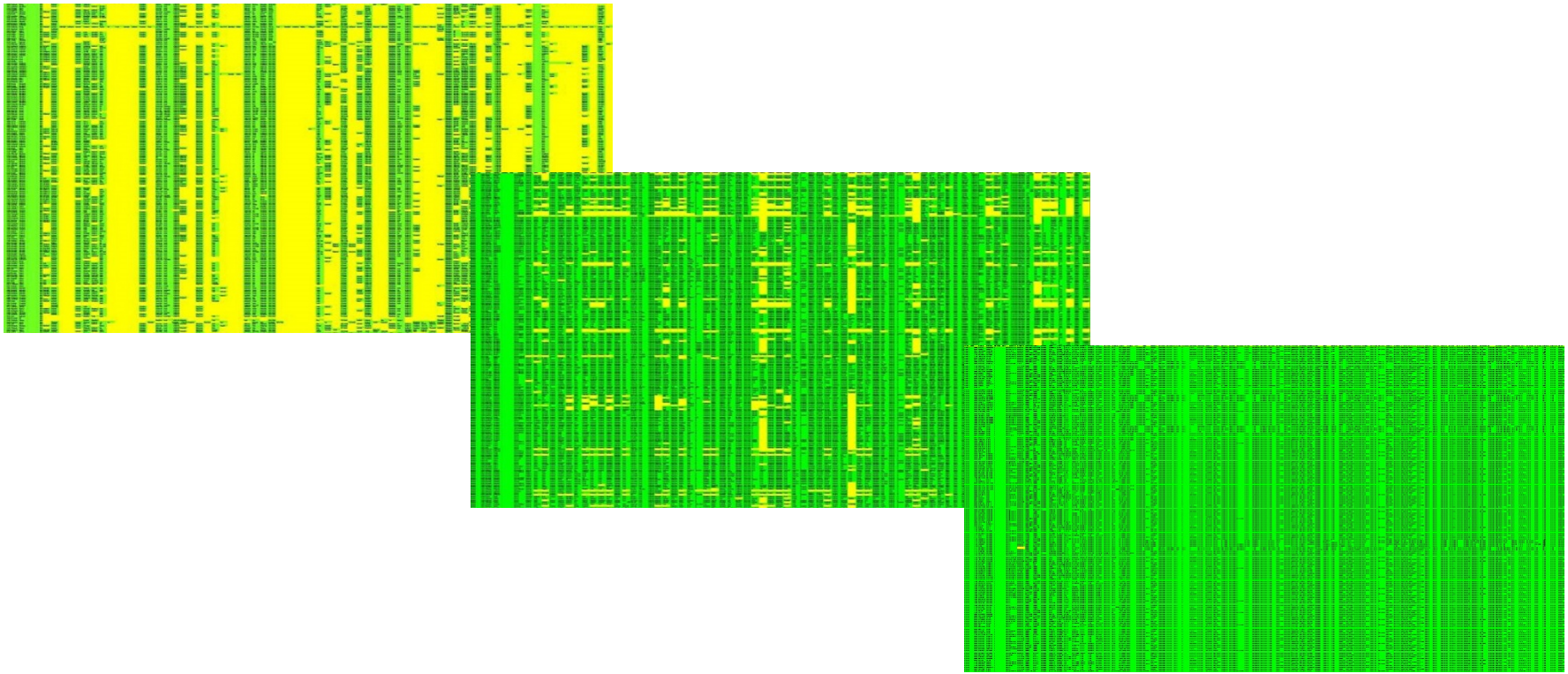
Use of GSBPM in Intranet structure



ESMS in metadata management system iMeta



Progress in time 2012-2015



Dissemination on SE website

- ESMS metadata are disseminated (automatically and directly from the metadata management system iMeta) to the SE website with the use of new systems since the beginning of July 2013 (in English from July 2014).
- See the following addresses for more:
  - http://www.stat.ee/esms-metaandmed
  - http://www.stat.ee/esms-metadata
- The Official Statistical Programme is available (in Estonian) at
  - http://www.stat.ee/statistikatood
- ESMS metadata are also used in the Statistical Database, sent to Eurostat via ESS Metadata Handler and so on.

ESMS metadata

ESMS (Euro-SDMX Metadata Structure) metadata are based on the SDMX Cross-Domain Concepts. These concepts describe statistical processing, the presentation and quality of statistical information, and so on. The ESMS reference metadata are aimed at describing the statistics released by the European Statistical System.

Statistical activities

ENVIRONMENT	
10001	Environmental trends
Environmental protection and supervision	
10101	Environmental protection expenditure accounts
State of environment	
10201	Monitoring of air and water quality
Natural resources and their use	
10302	Water use
10303	Replenishment of bodies of water
10304	Forest resources
Environmental pressure	
10401	Waste management
10403	Emission and capture of gases causing climate change
10405	Air pollution
10406	Air emissions accounts
Environmental-agricultural indicators	
10501	Agri-environmental commitments
10502	Use of pesticides
10503	Pesticides sales statistics
Material flow accounts	
10601	Material flow accounts

From top level to detailed descriptions

1. Contact	
1.1. Contact organisation	Statistics Estonia
1.2. Contact organisation unit	Enterprise and Agricultural Statistics Department
1.3. Contact name	Reet Nestor
1.4. Contact person function	Leading Statistician-Methodologist
1.5. Contact mail address	51 Tatari Str, 10134 Tallinn, Estonia
1.6. Contact email address	reet.nestor@stat.ee
1.7. Contact phone number	+372 625 9131

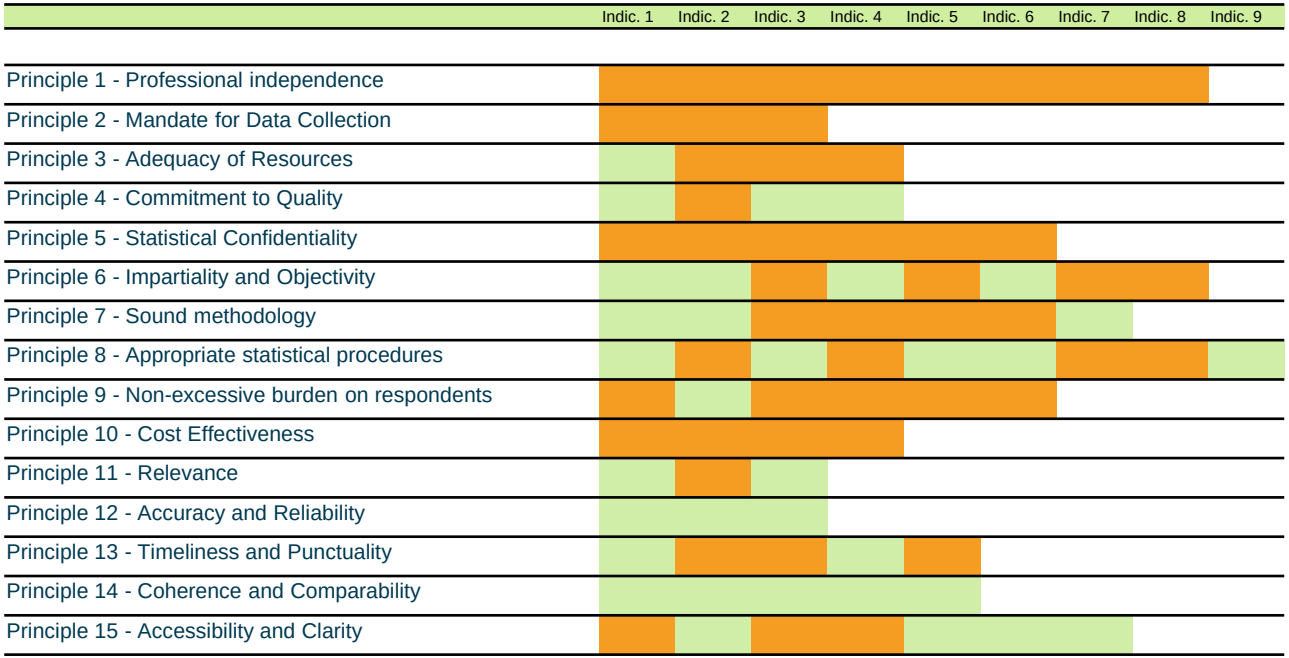
2. Metadata update	
2.1. Metadata last certified	09/01/2015
2.2. Metadata last update	09/01/2015

3. Statistical presentation
3.1. Data description
Enterprises' assets, liabilities and equity; investments in fixed assets; income statement, employment and hours worked; value added and productivity measures; financial key ratios by economic activity (EMTAK 2008) and number of persons employed
3.2. Classification system
Estonian Classifcation of Economic Activities (EMTAK 2008) based on NACE Rev. 2 Classification of Estonian administrative units and settlements (EHAK)
3.3. Sector coverage

Examples of usage of ESMS in Estonia

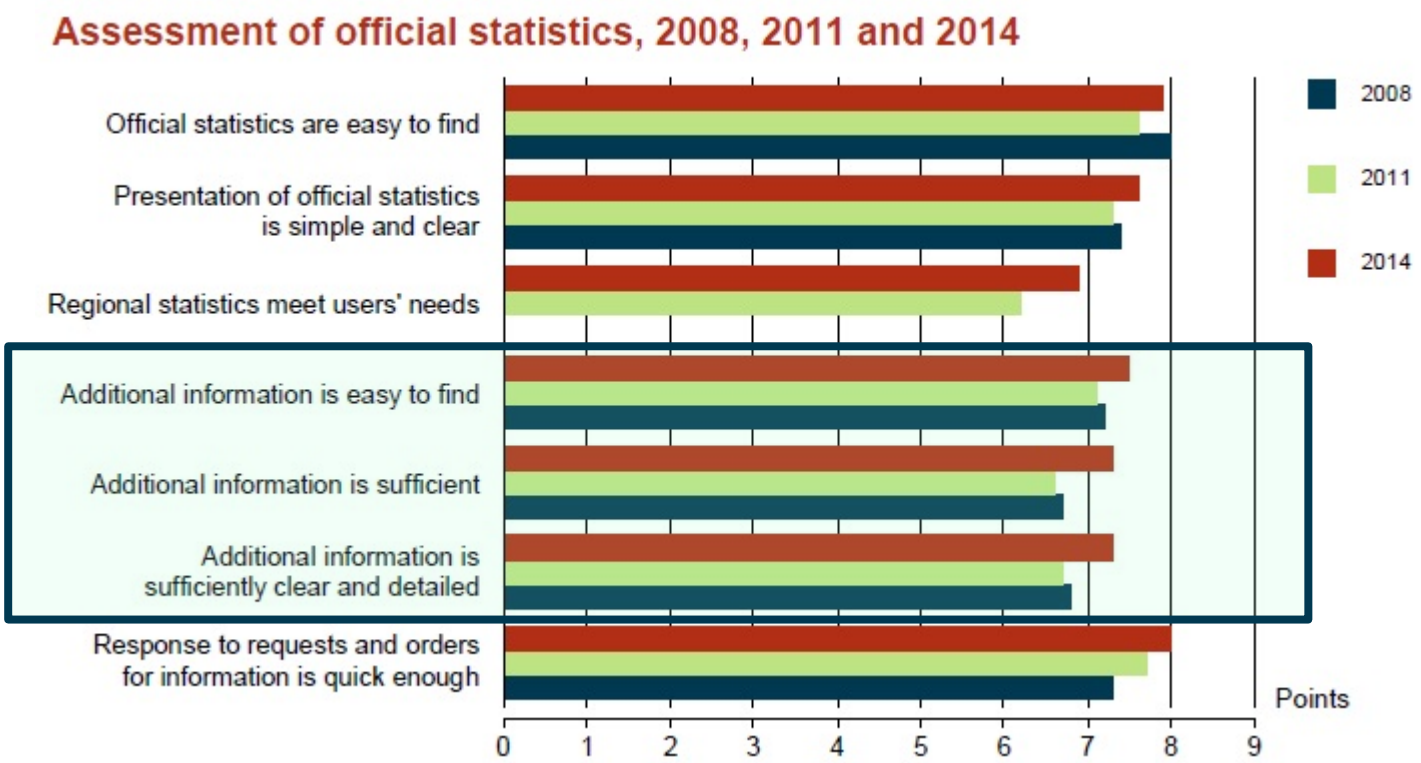
- Descriptions of administrative data sources (registers).
- Efficiency analysis
  - Between statistical activities, that have similar nature
  - Over sub-processes of GSBPM
  - Different detailed views based on ESMS concepts
- Know-how about statistical activities
  - Zero-bureaucracy
  - Descriptions of public sector (e-)services
    - → CAAS - country as a service
  - ESS Code of Practice
  - etc etc etc

ESMS @ ESS Code of Practice



Coordination? What do users need? What kind of users?

Results of the user satisfaction survey



Conclusions

- Use of ESMS has raised the awareness about statistical production and processes in Statistics Estonia.
- Survey managers and other specialist understand more easily, that processes are similar or even the same for other statistical activities.
- ESMS metadata are used for analyzing the efficiency and similarities / differences between statistical activities and for making other analysis about the statistical programme.
- Customers are more satisfied with reference metadata.
- Better horizontal integration across statistical domains in SE.
- Better vertical integration between SE, Eurostat and other organizations.
- ESMS based metadata are part of quality management framework in SE.

Next steps

- Use of ESS Standard Quality Report Structure (ESQRS).
- ESS Metadata and Quality Reporting Handbook will follow Single Integrated Metadata Structure (SIMS) in the future. That clarifies requirements for descriptions.
- Harmonization and standardization of ESMS metadata (and maybe even processes?) in ESS.
- Update of ESS Code of Practice (including Coordination)

Advanced ESTP training course on Quality Reporting

24-25 November 2016, Luxembourg

Frameworks, standards, contents, case studies, tools etc.

Thank you for your attention!

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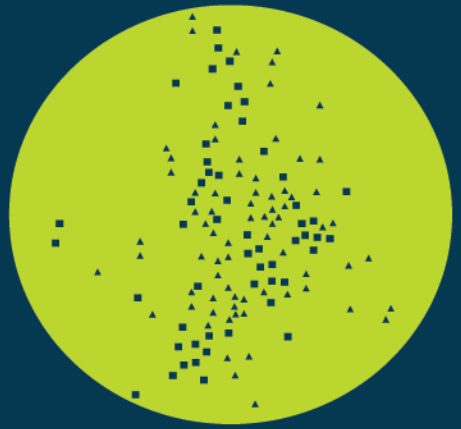

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kolmnurki n 74
nelinurki n 54
ring n 1

eesti statistika