Final report

Procurement reference no. 231015

Contents

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Introduction

This document provides an overview of the works completed by the Contractor in stages I and II of procurement no. 231015. The works were completed between entry into the procurement contract and completion of the project (October 2021). The work was commissioned by the Ministry of Economic Affairs and Communications. The project is co-funded from the European Regional Development Fund.

The work involved mapping the reporting obligation established by Estonian state agencies, describing a new XBRL GL-based reporting model, drawing up a roadmap for the transfer to the model, and analysing the reporting on the fuel and packaging used with the aim of transferring this reporting to the new reporting model. Reporting means the periodic reporting submitted by businesses to state agencies, i.e. the reporting which is submitted repeatedly in time with new data and is directly or indirectly based on the legislation of Estonia.

In order to achieve the result of the work, an online survey was conducted to map the reporting obligations of all state authorities. State agencies mean ministries and agencies. The results of the survey concerning the reporting obligation were also specified by a document analysis, which involved analysing more than 800 acts of law and regulations.

Based on the vision of real-time economy and the results of the mapping of the reporting obligation, a new reporting model was described. The model mainly differs from the current method of submitting reports by the data-based nature of the reporting, the standardised form of describing the reporting data, and the machine-readability of the taxonomies of the reports. The new model creates the prerequisites for preventing repeated collection of the same data. Based on the new model, the data compositions of all periodic reports must be described so that the descriptions are readable by people as well as machines and available to anyone interested, incl. the agencies requiring the reports as well as the data submitters.

The outcome of the work must help simplify and reduce the obligation to submit data so that anyone who needs the data would be able to obtain the information needed for their work, while the burden of the data submitter would be alleviated.

The roadmap created in the course of the work provides a general overview of which operations must be performed to introduce the new model.

In addition to creating the reporting model and roadmap, the work also involved describing the data compositions of the fuel consumption reporting and packaging reporting, as well as the current functioning of these types of reporting and the work model suggested for the future. The contracting authority chose the fuel consumption reporting for the issue to be covered in the course of the project because this dataset is used in compiling the energy balance of Estonia, which is used by various different Estonian ministries (the Ministry of Economic Affairs and Communications, the Ministry of the Environment, and their agencies (incl. the Estonian Environmental Research Centre)) in their accounting. The data are also used by the environmental statisticians at Statistics Estonia and by international organisations: the Organisation for Economic Co-operation and Development (OECD), the International Energy Agency (IEA), the United Nations (UN), and the statistical office of the European Union (Eurostat).

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The contracting authority chose to examine the reporting on packaging, as this reporting has a sufficient impact on a high number of parties required to submit packaging reports (approx. 4,000 packaging undertakings). Standardisation will reduce the amount of time needed for drawing up, processing, and sending packaging reports and will thereby alleviate the administrative burden of this target group. Different methods are used to collect data from businesses today, which results in the businesses spending excessive time and money. Implementation of the data composition of the reporting on packaging in the uniform standard XBRL GL format will improve the accessibility and reliability of the data on packaging waste, which will enable alleviating the obligation to audit the packaging reports. The number of reports audited per year amounts to approx. 1,200–1,400 and the average cost of one audit is 1,200 euros.

1. Works planned for stage I based on the technical specifications of the public procurement

The works planned for stage I included the following:

1) Steering group meetings.

2) Preliminary analysis:

   - Drawing up the work plan.

   - Document analysis.

   - Processing the outcomes of the 'Aruandlus 3.0' project.

   - Mapping the current situation and the reporting obligation at state agencies.

   - Preparation and coordination of online questionnaires.

   - Configuration of the environments and support.

3) Interviews (with contact persons of state agencies and private businesses):

   - Drawing up summaries of the responses to the online survey.

   - Specifying interviews with state agencies.

   - Interviews with private undertakings.

4) Workshops (with contact persons of state agencies and private businesses).

5) Business analysis, including developing the model and the roadmap.

6) Drawing up an interim report.

The requirements for the roadmap and model are specified in the technical specifications of the public procurement. The requirements are specified below.

Model

- The entire reporting obligation placed on the businesses has been mapped and respective documents have been drawn up, identifying the number of the respective state agencies, the number of reports requested by them, and the manner of data collection. A model has been developed which explains to the state agencies requiring reporting from businesses the analysis of data compositions (incl. the description of how to assess the timeliness and actual necessity of the data fields and suggestions for updating the legislation), standardisation, development of a uniform taxonomy, and the processes for the implementation of the XBRL GL standard (including taking into consideration an analysis of the perspective of businesses). In order words, the model determines the uniform rules for inter-agency progress towards data-based reporting. The model developed allows each state agency to perform detailed operations within the framework of a specific report, to use the common taxonomy elements which have already been created in the data compositions (information from Statistics Estonia) and to create any missing ones, to implement the XBRL GL standard, and to perform the development required for the receipt and processing of machine-readable data and for the data exchange between state agencies/databases.

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- The model developed will help to prevent situations in which a state agency only settles a problem from the perspective of their own agency, making the submission of data to the state more complicated and fractured for businesses. With model creates the prerequisites required for a situation in which the data submitted by businesses to the state is requested only once and can be reused by different databases and agencies.

- The model developed describes what, in which order, and how () to do to enable real-time automatic movement of data between different agencies and businesses. Thereby, thanks to the model created, it will be possible to draw up more cost-efficient and aligned development projects in the future to make the reporting obligation simpler and more automatic and to avoid the need for unnecessary business analyses.

- If state agencies will not be using the model developed for planning work and executing operations in the future, all agencies will be wasting too much time and money on doing the same work twice and the results of different state agencies and databases may not be interoperable, as there is no uniform approach to standardisation and creating/using a taxonomy.

Roadmap

The development and action plan required for the creation and standardisation of the uniform taxonomy of the data compositions which the reporting is based on (incl. for the implementation of XBRL GL) was drawn up. The roadmap is a planning tool which includes a list of actions with a schedule and the methodology for planning the volume of the works for the transfer to a uniform inter-agencies taxonomy. The roadmap provides to the state agencies a more efficient sequence of operations for performing the works and a methodology for the assessment of a potential need for resources. The roadmap includes development proposals for creating the capabilities for the reception and processing of machine-readable reporting data and for the reuse of the data. The roadmap also includes suggestions for methods for the management of an inter-agency taxonomy. The roadmap will also help state agencies to save on excessive repeating of operations and to maintain a uniform inter-agency focus in the developments.

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2. Works performed in stage I and the outcomes thereof

The following table presents the outcomes of the works performed:

Work	Outcome
Steering group meetings	Memos and recordings of meetings, the 'Meetings' directory enclosed to the document, Annex 1.

Preliminary analysis	Draft project. The 'Projektiplaan.png' file enclosed to the document, Annex 2.
	
	Outcome of the document analysis (the table of the documents examined), the 'Lisa 2 Läbi vaadatud õigusaktid.xlsx' file enclosed, Annex 3.
	
	Outcome of the mapping of the reporting, Annex 4.
	  1) The 'Aruandluse kaardistus' directory enclosed to the document;
	  2) The 'Lisa 1 Leitud aruanded.xlsx' file enclosed to the document.

Interviews (with contact persons of state agencies and private businesses)	Interview memos. The 'Intervjuud' directory enclosed to the document, Annex 5.
Workshops (with contact persons of state agencies and private businesses)	Memos, presentations, and recordings of the workshops. The 'Töötoad' directory enclosed to the document, Annex 6.
Business analysis, including developing the model and the roadmap	Model. The 'Aruandluse mudel.docx' document enclosed, Annex 7. Roadmap. The 'Andmepõhise aruandluse juurutamise teekaart.docx' document enclosed, Annex 8.
Drawing up an interim report	Interim report. The 'Vahearuanne.docx' document enclosed, Annex 9.

2.1 Explanations on compliance with clause 5.1.3.1 of the technical specifications of the public procurement

Below, it is explained where to find responses to the questions described in clause 5.1.3.1 of the technical specifications of the public procurement. Pursuant to the technical specifications, the contractor must describe **'how state agencies must'**:

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1)   Technical specifications, clause 5.1.3.1.1. **'based on the list of criteria provided in the model for the assessment of the priority level of the reports required by them, which reports will be included and in which order;'**:

Clause 2.1 of the document entitled 'Aruandluse mudel v1.3.docx' describes that impact assessment must be used to assess the priority level of a report. Based on the model, the impact assessment is calculated by using the same methodology which was used in the public procurement for the assessment of the economic impact of RTE (see https://www.mkm.ee/sites/default/files/reaalajamajanduse_majandusliku_moju_uuringu_lopparuanne.pdf). It is important to point out that the priority level of a report depends on the effects of the introduction of the report for the different parties in money compared to the investments and expenses made for the introduction. The bigger the positive effect, the higher the priority level of the report.

2)   Technical specifications, clause 5.1.3.1.2. **'analyse compliance with the principle of once-only submission of data in the data collection, incl. describe how to highlight the similarities and differences in the format of the data and in the level of detail, the submission interval and other parameters important for standardisation and how to identify the largest common part concerning the composition of the data, i.e. what kind of overlapping data as well as underlying data must be submitted by businesses to different state agencies in any case;'**:

Compliance with the once-only principle can be checked by using the data composition register or the data directory referred to clause 2.1.1 of the document entitled 'Aruandluse mudel v1.3.docx'. Clause 2.2.2 of the same document describes which data should be described for the data composition (data objects, data elements, classifications and lists, and other parameters). Comparison of the descriptions brings out the similarities and differences in the formats, level of detail, and submission intervals of the data, as well as the common part of the data. Clause 3.2 of the document entitled 'Andmepõhise aruandluse juurutamise teekaart v1.3.docx' advises to create a data directory in which the need for data could be compared to the descriptions of the datasets collected by other agencies. Drawing up and publishing of the descriptions of the data compositions for all reports enables assessing which data are actually collected and whether there are any overlaps, i.e. whether the once-only principle is not being observed.

3)   Technical specifications, clause 5.1.3.1.3. **'cooperate with other agencies collecting the same data; the contractor must, among other things, suggest the communications activities and forms of cooperation between the agencies collecting the same data that would promote nationwide standardisation of data collection and reuse of the data;'**:

Clause 3.2 of the document entitled 'Andmepõhise aruandluse juurutamise teekaart v1.3.docx' explains that for the standardisation of the data and enabling reuse, the data must be described and the descriptions must be made accessible for all state agencies in a place agreed with the state agencies by the Ministry of Economic Affairs and Communications. Properly described data compositions and a register thereof form the basis for organising reuse and standardisation. The form of cooperation and the

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communication channel is the use of the register by all parties. Further explanations about communication activities are provided in clause 6 of the document 'Andmepõhise aruandluse juurutamise teekaart v1.3.docx'. It should be stressed that the volume of information contained in data descriptions cannot realistically be conveyed by verbal communication, for example, in the form of a meeting. A data directory must be established and aligned with the actual situation and it must be constantly accessible for all agencies.

4)   Technical specifications, clause 5.1.3.1.4. **'analyse and assess the timeliness of and actual need for the data fields included in the data compositions (to whom and why certain data are collected – in cooperation with other agencies; is the legal requirement in question domestic or international; etc.), as well as the possibility of / need for updating the legislation with the aim of reducing collecting excessive, double, or unnecessary data,'**:

These operations are described in clause 2.1 of the document entitled 'Aruandluse mudel v1.3.docx' and in the subclauses thereof. In order to give the assessments described in clause 5.1.3.1.4 of the technical specifications, the state agency must perform a **system analysis and a legal analysis**. The system analysis is described in clauses 2.1.1 and 2.2 of 'Aruandluse mudel v1.3.docx'. The system analysis always involves assessing whether or not the needs are justified and relevant in cooperation with all parties concerned.

5)   Technical specifications, clause 5.1.3.1.5. **'analyse (i.e. ask from the business) from the perspective of the business which agency does the business repeatedly submit data in the respective field to (incl. non-financial data), in what manner, and why; is the submission hindered in any way in the case of the current format;'**:

If the register of data compositions shows that the same data is being collected repeatedly, the business should not be bothered again or placed under an additional administrative burden, i.e. all operations must be performed with state agencies as is described in clause 2.1 of the model.

6)   Technical specifications, clause 5.1.3.1.6. **'receive/collect data from the businesses by using a machine interface (over X-tee, by using a machine interface, directly from the accounting software and in the XBRL GL format) and draw up instructions for businesses for submitting data to the state by using the machine interface.'**:

Clauses 3.3 and 3.4 of the document entitled 'Andmepõhise aruandluse juurutamise teekaart v1.3.docx' describe the services required which the state must create to enable receipt of data in the XBRL GL format by the state and submission of the data in this format by businesses. Through those services created, the businesses involved in software development will also receive the instructions (machine-readable taxonomies, see clause 2.2.2.8 of 'Aruandluse mudel v1.3.docx') for the submission of data. Each taxonomy includes detailed description of the data and the rules which the data must comply with. See also the taxonomies developed within the framework of 'Aruandlus 3.0' at https://www.stat.ee/et/aruandlus-30 ('Seadistuste tegemiseks vajalikud failid' (The files required for configuration).

3. Works planned for stage II based on the technical specifications of the public procurement

The works planned for the stage included the following:

1) Steering group meetings.
2) Analysis of the reporting on packaging and fuel:

   - Preliminary analysis of the reporting on packaging and fuel.
   - Development of the packaging and fuel reporting taxonomy.
   - Standardisation and transfer to the XBRL GL standard.
   - Feedback mechanism (incl. with external parties) and improvements/changes of the business analysis, if necessary, based on preliminary analyses.

3) Drawing up the final report.
4) Coordinating the final report with the contracting authority pursuant to the terms and conditions of the contract.
5) Brief overviews and slides in Estonian and English.
6) Presentation of the outcomes in at least two public events with the slides created and the delivery of the outcomes.

4.   Works performed in stage II and the outcomes thereof

The following table presents the outcomes of the works performed:

Work	Outcome
Steering group meetings	Memos and recordings of meetings and presentations; the 'Meetings' directory enclosed to the document, Annex 1.
Analysis of the reporting on packaging and fuel	The 'Pakendi- ja kütusearuandluse analüüs' directory enclosed to the document, Annex 10. 1) 'Pakendi ja kütuse tarbimise aruandlus.docx' 2) 'klassifikaator_pakendimaterjal_v1_1.csv' 3) 'Pakendi_klassifikaatori_naidis_v1_0.xlsx' 4) 'AA30_taksonoomia_20210820.xlsx' 5) 'Andmekoosseis_20210820.xlsx' XML templates, the 'XML' directory enclosed to the document
Drawing up the final report.	This document.
Coordinating the final report with the contracting authority pursuant to the	Opinions of the agencies involved in the project about the outcomes of the project. Annex

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terms and conditions of the contract.	
Brief overviews and slides in Estonian and English.	The files of public presentations enclosed to the document: Annex 11. 1) 'Aruandluse kaardistus ja reaalajamajanduse uus aruandlusmudel.pptx'. 2) 'Estonian reporting mapping and a new model.pptx'. 3) 'XBRL GL infoleht.docx'. 4) 'XBRL GL factsheet.docx'
Presentation of the outcomes in at least two public events with the slides created and the delivery of the outcomes.	Recordings of the presentations enclosed to the document in the 'Avalikud üritused' directory (to be added).

5. Overview of the analysis of the data collected in the course of the work

The technical specifications of the public procurement require the collection and analysis of the following data for the mapping of the reporting obligation:

1) Clause 5.1.2.1.1: 'which (how many) state agencies (i.e. government agencies and the state agencies governed by those agencies) have established reporting obligations for businesses;'

2) Clause 5.1.2.1.2: 'which is the level (number of reports/data fields and the field in which the information is collected) of those obligations in the country;'

3) Clause 5.1.2.1.3: 'which method is used by the agencies to collect data from the businesses (manual entry of information online, uploading of a file online, on paper, in the PDF format, submission of data directly from the software by using a machine interface, etc.) to enable assessment of the estimated need for resources required for the development of different information systems later;'

Below, we highlight what was identified by online surveying of state agencies, document analysis and workshops, exchange of e-mails, and interviews. The information below only describes the **periodic reporting obligation placed on the businesses by Estonian state agencies by legislation**. The reporting obligations established by contracts, the once-only reporting obligations arising as a result of certain events, the reporting obligations established by the European Commission or other countries, and

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any other types of reporting which are not referred to in this document are not described. The details of the analysis results and the visualisations can be found in the online application: https://tietoanalytics.ee/MKM_aruanded.

5.1 Agencies which have established reporting obligations for businesses

The table below specifies how many different reports are submitted by businesses and to which state agencies. This part included the mapping of all periodic reporting obligations[1] established by state agencies. The Financial Supervision Authority, which is not a state agency but has established a considerable reporting obligation for businesses, was also included in the mapping. The Financial Supervision Authority is an independent agency and it is mainly tasked with monitoring the work of financial institutions.

Table 1. The state agencies which have established reporting obligations for businesses and the number of different reports

Number	Agency / *translation to Estonian (explanatory for the diagrams below)*	Number of reports
1.	Statistics Estonia / *Statistikaamet*	111
2.	Financial Supervision Authority / *Finantsinspektsioon*	79
3.	Bank of Estonia / *Eesti Pank*	38
4.	Tax and Customs Board / *Maksu- ja Tolliamet*	35
5.	Consumer Protection and Technical Regulatory Authority / *Tarbijakaitse ja Tehnilise Järelevalve Amet*	28
6.	Ministry of the Environment / *Keskkonnaministeerium*	22
7.	National Institute for Health Development / *Tervise Arengu Instituut*	13
8.	Health Board / *Terviseamet*	13
9.	State Agency of Medicines / *Ravimiamet*	11
10.	Ministry of Justice / *Justiitsministeerium*	9
11.	Ministry of Social Affairs / *Sotsiaalministeerium*	8
12.	The Agriculture and Food Board / *Põllumajandus- ja Toiduamet*	7
13.	Environmental Board / *Keskkonnaamet*	6
14.	Centre of Registers and Information Systems / *Registrite ja Infosüsteemide Keskus*	6
15.	Ministry of Education and Research / *Haridus- ja Teadusministeerium*	4
16.	Transport Administration / *Transpordiamet*	4

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[1] Periodic reporting means the reporting which are submitted to the agency based on new data repeatedly at a certain interval and are established by legislation.

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17.	Association of Auditors / *Audiitorkogu*	3
18.	Competition Authority / *Konkurentsiamet*	3
19.	Ministry of Economic Affairs and Communications / *Majandus- ja Kommunikatsiooniministeerium*	3
20.	Ministry of Finance / *Rahandusministeerium*	3
21.	Health Insurance Fund / *Eesti Haigekassa*	2
22.	Ministry of Culture / *Kultuuriministeerium*	2
23.	Rescue Board / *Päästeamet*	2
24.	Transplantation Centre (Tartu University Hospital Foundation) / *Siirdamiskeskus (Tartu Ülikooli Kliinikum)*	2
25.	Estonian courts / *Eesti kohtud*	1
26.	Land Board / *Maa-amet*	1
27.	Ministry of Rural Affairs / *Maaeluministeerium*	1
28.	Estonian Private Forest Centre / *SA Erametsakeskus*	1
29.	Ministry of the Interior / *Siseministeerium*	1
30.	Social Insurance Board / *Sotsiaalkindlustusamet*	1
31.	Ministry of Foreign Affairs / *Välisministeerium*	1

In total, thirty-one agencies have established reporting obligations for businesses, with 421 reports requested.

5.2 Levels of the reporting obligation
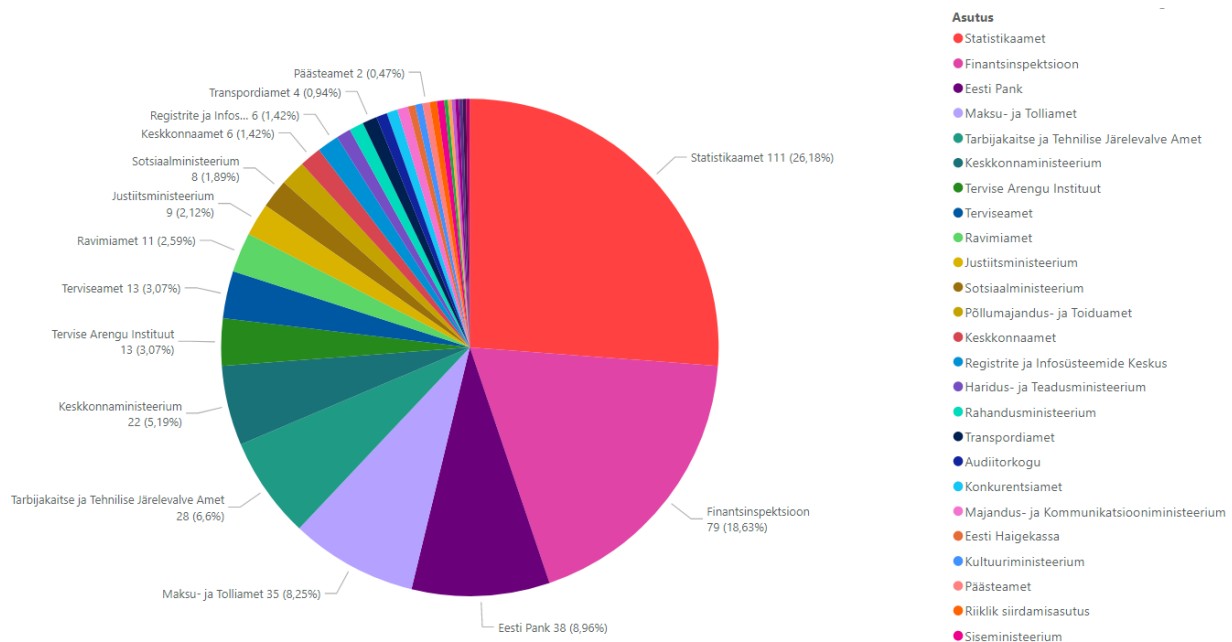
Figure 1. The reporting obligations established by state agencies based on the number of different reports

In total, 421 reports were identified in the course of the analysis which must be submitted by businesses to state agencies. This number may not be conclusive, as some agencies did not have a comprehensive overview of which data and reports they were requesting from businesses. The highest number of reports (datasets) are requested from businesses by Statistics Estonia.
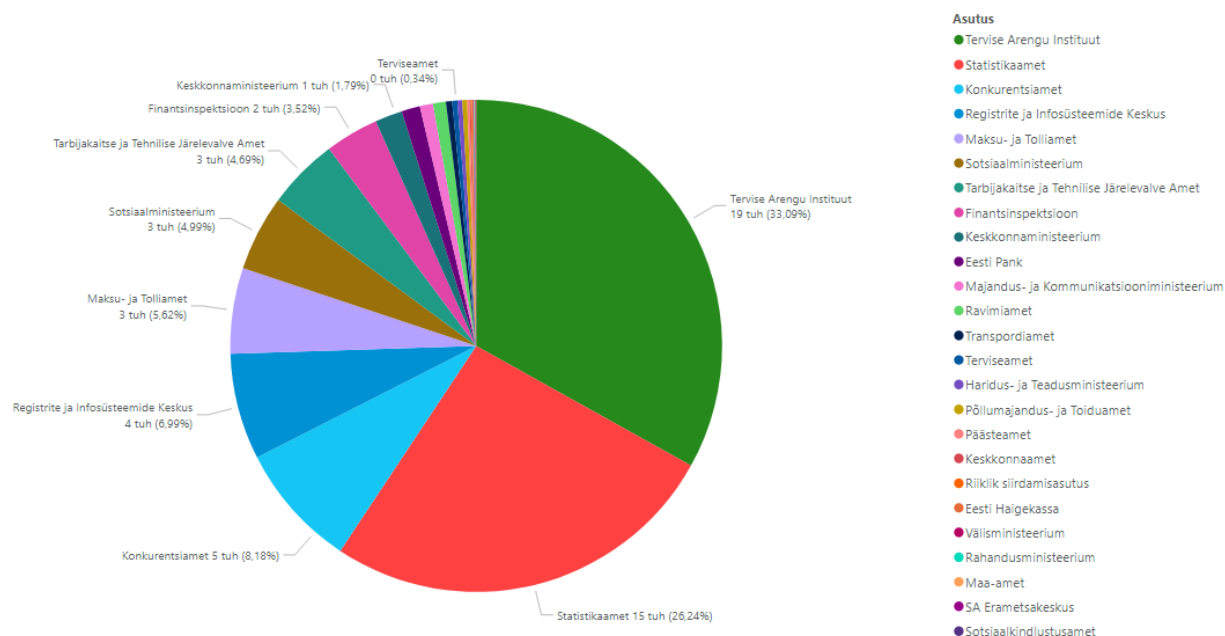
Figure 2. The reporting obligations established by state agencies based on the number of data fields

The reports requested are divided to approx. 60,000 data fields. The concept of a data field has been approached differently in different reports. In some reports, each element of a classification in which case the reporting party must provide a numerical value is described as a field. Other reports do not use this logic and the reporting party must decide which classification element it will include in the report with the value. If all reports were developed by using the latter logic, the number of data fields would be lower.
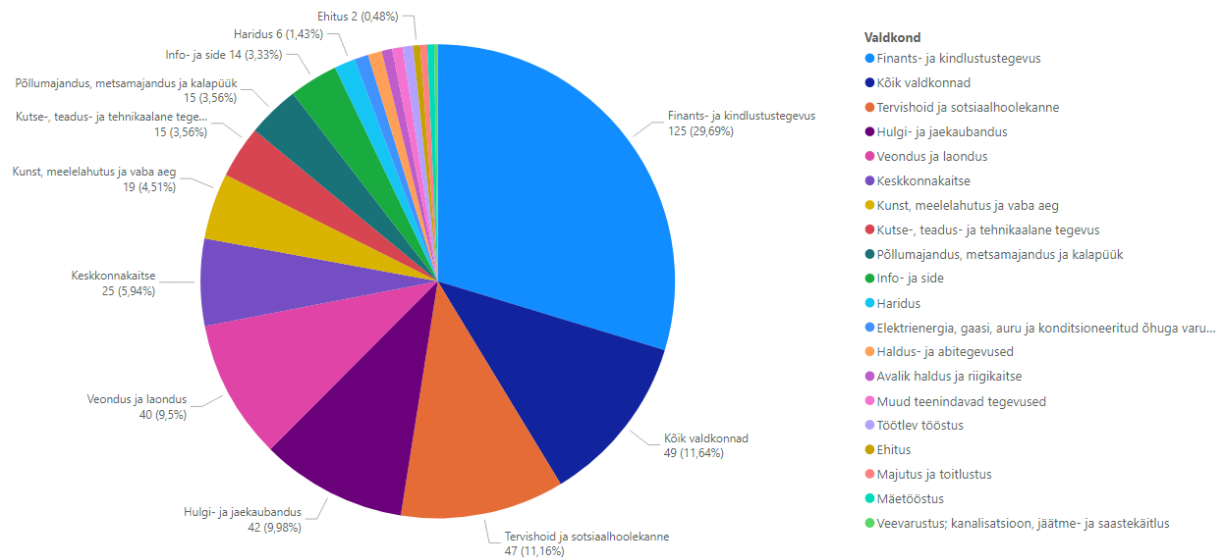
Figure 3. The number of different reports by sectors

Figure 3 shows that the number of different reports requested is the highest in the financial and insurance sectors. This does not mean that the number of reports actually submitted is the highest in these sectors. The number of reports actually submitted is probably the highest in the case of such reports which concern all sectors. These include the reports submitted to the Tax and Customs Board, for example. Those reports are submitted by businesses from all sectors. In figure 3, the sector 'All sectors 49 (11.64%)' specifies the number of reports which concern all businesses (49 reports), i.e. there are forty-nine reports, in total, which must be submitted by all businesses.
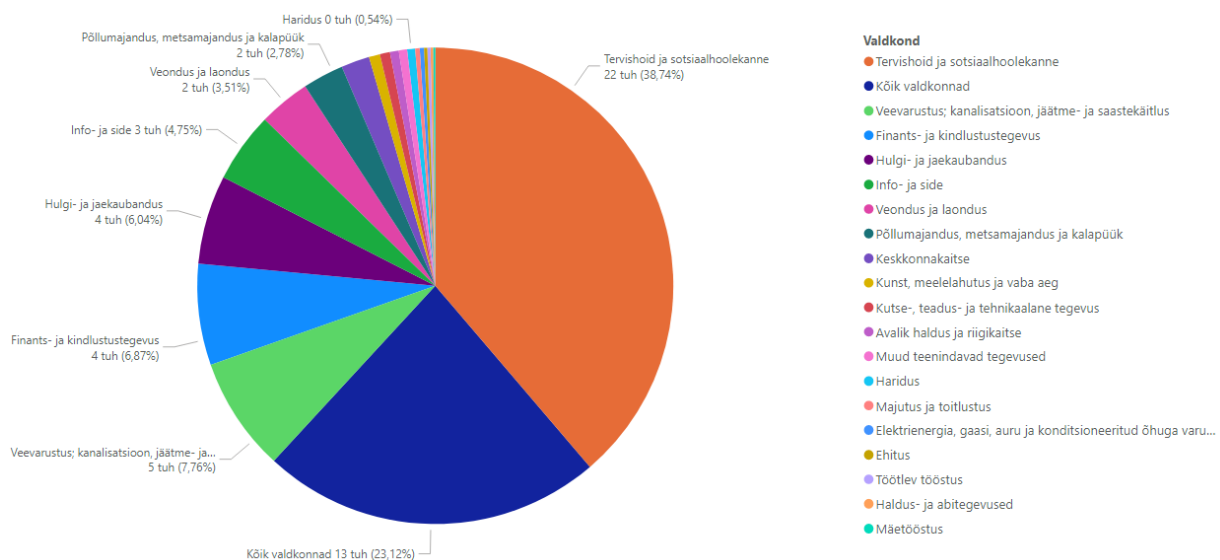
Figure 4. The number of the data fields of the reports by sectors

Figure 4 illustrates how many data fields must be filled in in the reports by different sectors. The reporting on healthcare and social welfare lead in this respect. The number of data fields which concern all businesses amount to 13,000 ('All sectors').
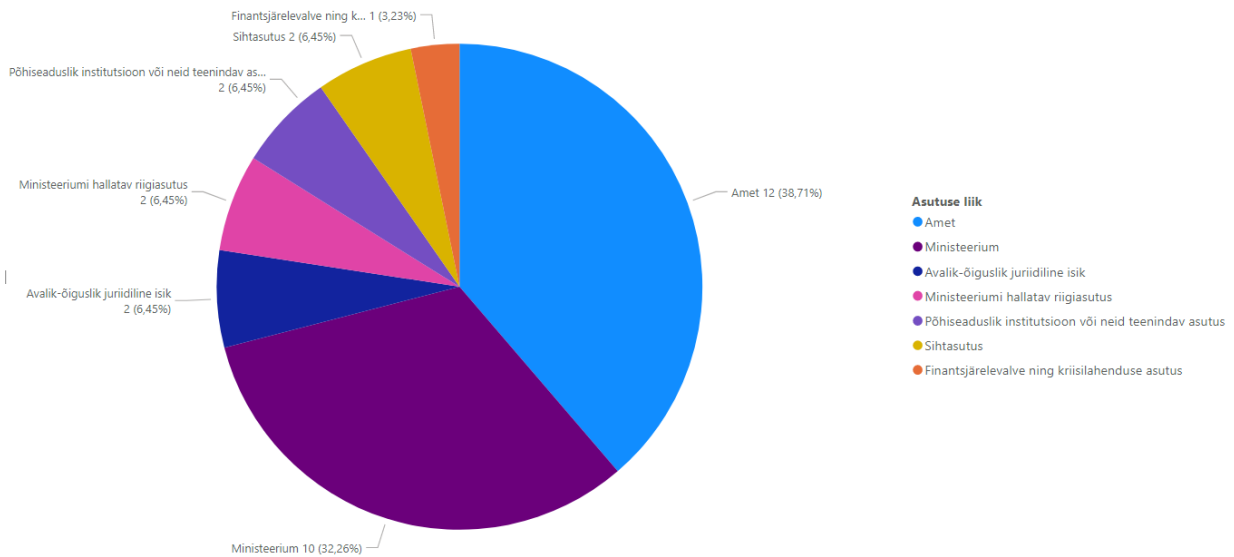
Figure 5. The recipients of the reports by type of the agency

The largest group among the recipients of reports is formed by state agencies and ministries. They are followed by other agencies.
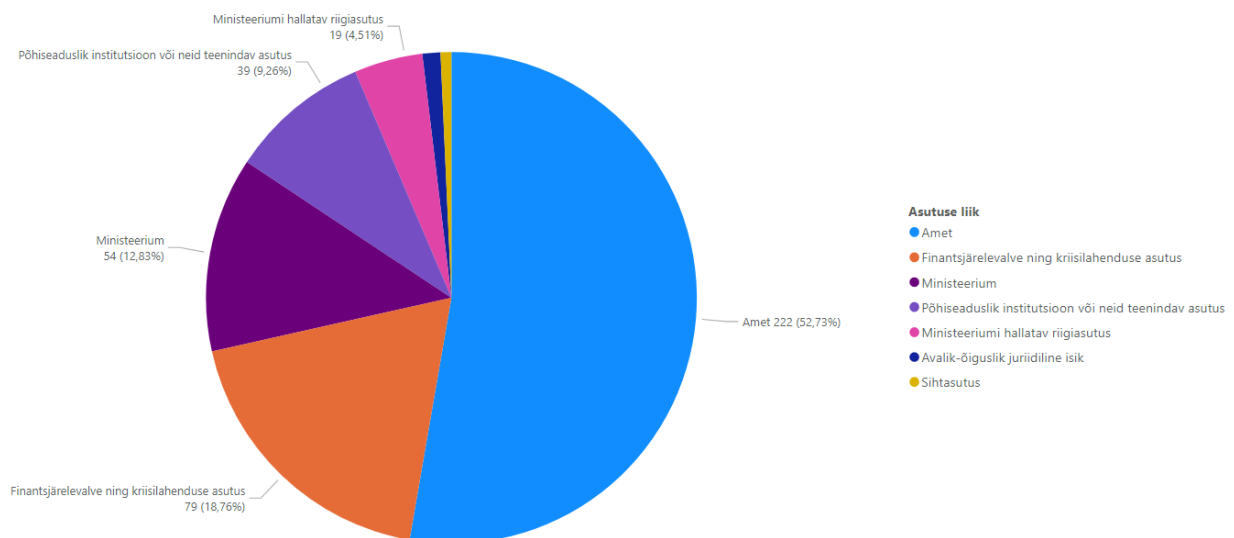
Figure 6. The number of different reports by the types of the recipients of the reports

The group of agencies has established the reporting obligation most intensively. This group is followed by autonomous financial supervision and the Financial Supervision Authority, which is a resolution authority. A bit over a quarter of all reports is submitted to other authorities.

5.3 Methods of collecting data from businesses

The methods of collecting data are viewed from two perspectives:

1) What is the channel through which the report can be submitted?

2) What is the format of submitting data?
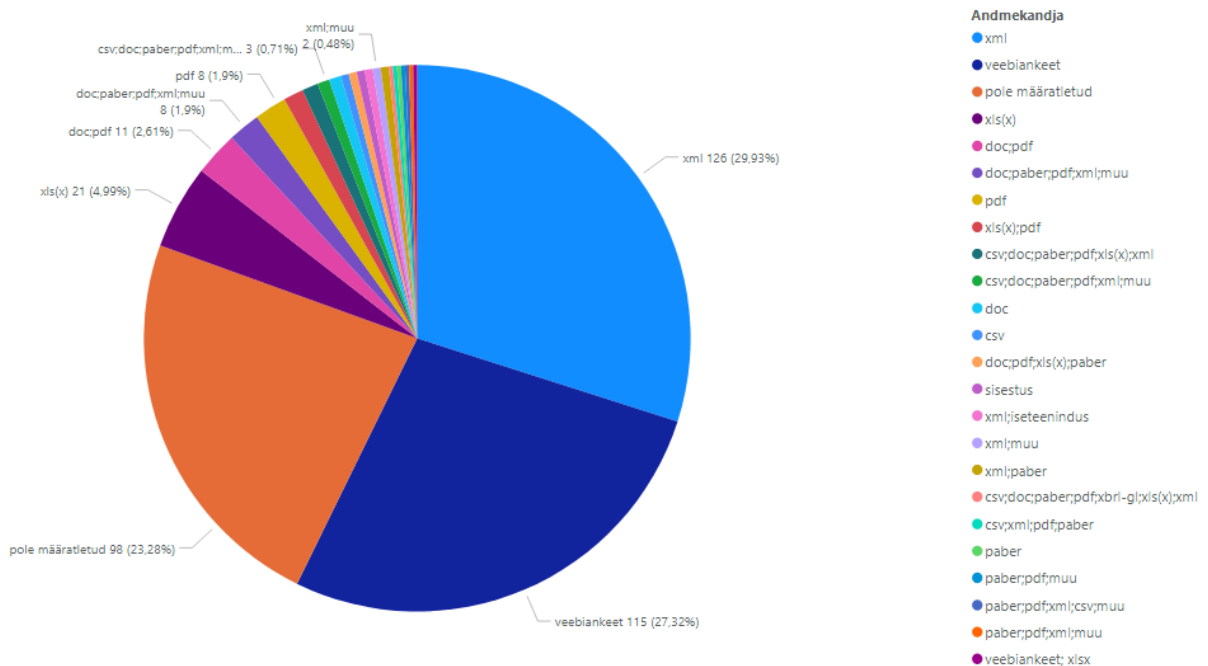
Figure 7. The formats supported in reports

One of the diagrams shows which formats **can be used** to submit data. If a report can be submitted in several different formats, all of those formats may not be in use. This analysis did not involve analysing the real-time data of all reports and the volumes and formats in which the reports have been submitted so far were not determined. Only the possible formats of the reports were analysed.

The most common data format which those establishing reporting obligations allow using is XML. This format is supported by 126 different reports. The option to enter the data manually in self-service environments (online questionnaires) is in the second place. In the case of many reports, it has not been specified which format they must be submitted in.

Kanal
- iseteeninduskeskkond
- pole määratletud
- e-post
- faili üleslaadimine;iseteeninduskeskkond;e-post;tavapost;k...
- X-tee;iseteeninduskeskkond;e-post;tavapost;kohapeal
- iseteeninduskeskkond;e-post;tavapost;kohapeal;muu
- faili üleslaadimine
- iseteeninduskeskkond;e-post
- iseteeninduskeskkond;e-post;tavapost;kohapeal
- X-tee;faili üleslaadimine;iseteeninduskeskkond
- e-post;tavapost
- faili üleslaadimine;iseteeninduskeskkond;tavapost
- iseteeninduskeskkond;faili üleslaadimine
- X-tee
- X-tee;faili üleslaadimine;iseteeninduskeskkond;e-post;tava...
- X-tee;faili üleslaadimine;iseteeninduskeskkond;tavapost;m...

Figure 8. The channels for submitting the reports

Figure 8 shows how many reports **can be** submitted and through which channels. The figure represents the possibilities, not the actual submission of reports. In general, it can be said that reports are mainly submitted via the self-service environments of the agencies, which enable manual submission of the data or uploading of files.

Larger data collectors have self-service environments where the data can be entered manually. This is also the main method used for submitting data today. This assessment is not based on the number of reports submitted, but the number of different reports. E-mail, the uploading of files, and regular mail follow among the methods used to submit reports. **Taking into consideration the total number of different reports, X-Road is almost not used at all for submitting reports.**

Värvide tähendus
- Kasutab X-teed
- Ei kasuta X-teed
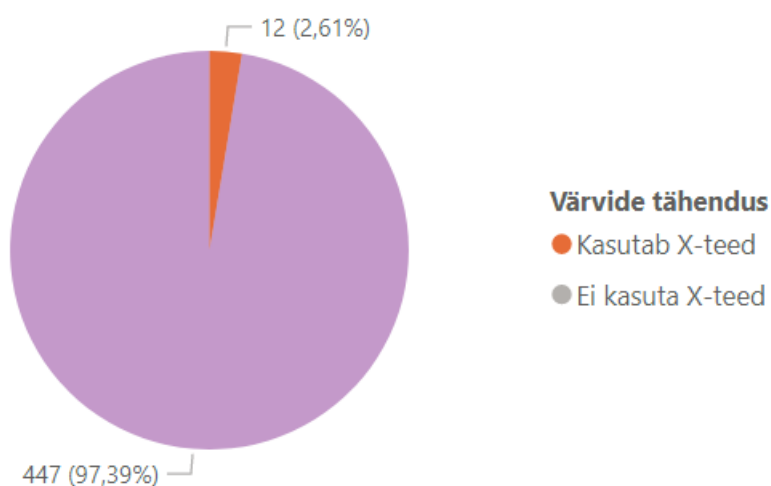
Figure 9. The number of reports which can be submitted through X-tee

The X-tee can currently be used by the businesses to submit the data specified in Table 2.

Table 2. The data transmission capacity created for the X-tee

Agency	Report name	The channel/data exchange platform used for submitting reports
Tax and Customs Board	Gambling tax declaration for organising a game of change as a ring game	X-tee, self-service environment, e-mail, regular mail, on-site
Tax and Customs Board	Gambling tax declaration for organising a toto	X-tee, self-service environment, e-mail, regular mail, on-site
Tax and Customs Board	Gambling tax declaration for organising a game of chance or a game of skill in the form of remote gambling	X-tee, self-service environment, e-mail, regular mail, on-site
Tax and Customs Board	Gambling tax declaration for organising a game of chance on a gaming machine	X-tee, self-service environment, e-mail, regular mail, on-site
Tax and Customs Board	Gambling tax declaration for organising a game of chance on a gaming table	X-tee, self-service environment, e-mail, regular mail, on-site
Tax and Customs Board	Gambling tax declaration for organising a tournament of game of change	X-tee, self-service environment, e-mail, regular mail, on-site
Tax and Customs Board	IOSS – the declaration for E-commerce and services (the import procedure)	X-tee, uploading a file, self-service environment
Tax and Customs Board	Value added tax return	X-tee, uploading a file, self-service environment, e-mail, regular mail, on-site
Tax and Customs Board	Warehouse entries of temporary storage premises for storing fuel, a customs warehouse, free zone, inward processing, excise warehouse, tax warehouse, provider of storage services	X-tee
Tax and Customs Board	OSS – the declaration for E-commerce and services	X-tee, uploading a file, self-service environment
Ministry of Education and Research	Various data in the Estonian Education Information System	X-tee, uploading a file, self-service environment

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Tax and Customs Board	Tax returns for the income and social tax, contributions to mandatory funded pension, and unemployment insurance premiums	X-tee, uploading a file, self-service environment, regular mail, other (from an online bank over X-tee upon payment of wages)

5.4 Intervals of submitting reports

The intervals of submitting reports are illustrated by the following figure.
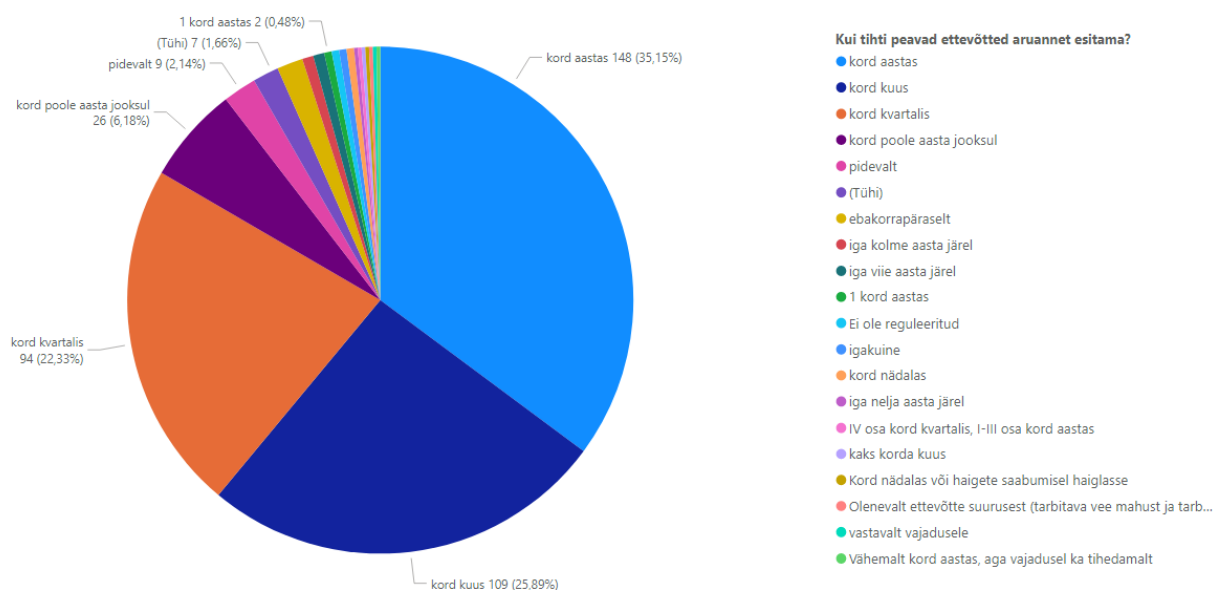
Figure 10. The intervals of submitting reports

The figure shows that 35% of different reports must be submitted once a year, 26% once a month, and 22% once per quarter. Less than a quarter of all different reports must be submitted at some other interval or the interval is unknown.

5.5 Reporting submitted 'on paper'

The reports submitted 'on paper' are the reports which can only be submitted on paper, in the PDF or DOC formats, i.e. the reports which are not machine-readable from the perspective of the data. There is twenty-three such reports, in total. In the case of some reports (ninety-eight, in total), the format in which they can be submitted has not been specified. Those reports may also include non-machine-readable reports.

The twenty-four reports include reports of the following agencies:

1) Environmental Board;
2) Ministry of the Environment;

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3) Ministry of Social Affairs;

4) Consumer Protection and Technical Regulatory Authority;

5) Ministry of Foreign Affairs.

The table below shows in detail which data media combinations can be used in reporting.

Table 3. The details of the data media

Data medium	Number of reports
Xml	126
Online questionnaire	115
not specified	98
xls(x)	21
doc; pdf	11
doc; paper; pdf; xml; other	8
Pdf	8
xls(x);pdf	5
csv;doc;paber;pdf;xls(x);xml	4
csv;doc;paber;pdf;xml;muu	3
Doc	3
Csv	2
doc;pdf;xls(x);paper	2
Entry	2
xml;self-service	2
xml;other	2
xml;paper	2
csv;doc;paper;pdf;xbrl-gl;xls(x);xml	1
csv;xml;pdf;paper	1
Paper	1
paper;pdf;other	1
paper;pdf;xml;csv;other	1
paper;pdf;xml;other	1
online questionnaire; xlsx	1

5.6 Agencies without a self-service environment or an online service which have established reporting obligations (e-mail, mail, submission of reports on-site)

The table below includes the addresses of the self-service environments of the state agencies analysed in the public procurement. Information on independent agencies, foundations, and other establishments which have established an obligation to submit periodic reports but are not state agencies has not been provided, except in the case of the Financial Supervision Authority which is second among all agencies based on the number of reports requested. The '–' sign in the table indicates that the agency does not have a self-service environment. Self-service environments are not merely used for exchanging reports. Individual records are also registered through those environments.

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Table 4. The address of the self-service environments of agencies

Agency	Address of the self-service environment	Has established a periodic reporting obligation
Centre of Registers and Information Systems	https://www.rik.ee/et/ettevotjaportaal	Yes
Financial Supervision Authority	https://www.fi.ee/et/user/login	Yes
Ministry of the Environment	Fuel monitoring database (Environmental Agency): https://kytus.envir.ee/ Environmental monitoring dataset (Environmental Agency); https://kese.envir.ee/kese/welcome.action National dose register of exposed workers (Environmental Board): https://doosiregister.envir.ee/ Environmental decisions information system (Environmental Board): https://kotkas.envir.ee/ Packaging register (Ministry of the Environment): https://pakis.envir.ee/pakis/main/welcome Register of Products of Concern (Ministry of the Environment): https://proto.envir.ee/proto/main/welcome FOKA registry on fluorinated greenhouse gases and substances that deplete ozone layer (Ministry of the Environment): https://foka.envir.ee/ Hazardous Waste Consignment Note Information System (Ministry of the Environment): https://ojs.envir.ee/ojsweb/auth/login State register for accounting of forest resource (Ministry of the Environment): https://register.metsad.ee/#/ Information system on restrictions (Land Board): https://kitsendused.maaamet.ee/#/avalik	Yes
Rescue Board	https://tuleohutusaruanne.ee/	Yes
Ministry of Rural Affairs	https://portaal.agri.ee/	Yes
The Agriculture and Food Board	https://portaal.agri.ee/	Yes
Tax and Customs Board	https://maasikas.emta.ee/	Yes
Environmental Board	Several different portals. See the last row of the table.	Yes
State Agency of Medicines	https://kliendiportaal.ravimiamet.ee/	Yes
Consumer Protection and Technical Regulatory Authority	https://jvis.ttja.ee/	Yes
Social Insurance Board	https://iseteenindus.sotsiaalkindlustusamet.ee/	Yes
Ministry of Finance	https://fin.ee/	Yes
Transport Administration	https://eteenindus.mnt.ee	Yes
Statistics Estonia	https://estat.stat.ee/	Yes
Ministry of Education and Research	–	Yes

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Agency	Address of the self-service environment	Has established a periodic reporting obligation
Ministry of Justice	–	Yes
Competition Authority	–	Yes
Ministry of Culture	–	Yes
Land Board	–	Yes
Ministry of Economic Affairs and Communications	–	Yes
Ministry of Social Affairs	–	Yes
Ministry of Foreign Affairs	–	Yes
Police and Border Guard Board	https://www.politsei.ee/et/iseteenindus	No
Information System Authority	https://www.eesti.ee/et/	No
Estonian Patent Office	https://online.epa.ee/	No
Labour Inspectorate	https://iseteenindus.ti.ee/login	No
Health Board	https://iseteenindus.terviseamet.ee/	No
Agricultural Registers and Information Board	https://epria.pria.ee/	No
Data Protection Inspectorate	–	No
Education and Youth Board	–	No
Emergency Response Centre	–	No
Ministry of Defence	–	No
Estonian Internal Security Service	–	No
Defence Resources Board	–	No
Defence Forces	–	No
Language Inspectorate	–	No
National Heritage Board	–	No
Prosecutor's Office	–	No
National Archives	–	No
Government Office - Government of the Republic	–	No
Ministry of the Interior	–	No
Estonian Foreign Intelligence Service	–	No

None of the agencies which do not have a self-service environment have the X-tee services for sending data.

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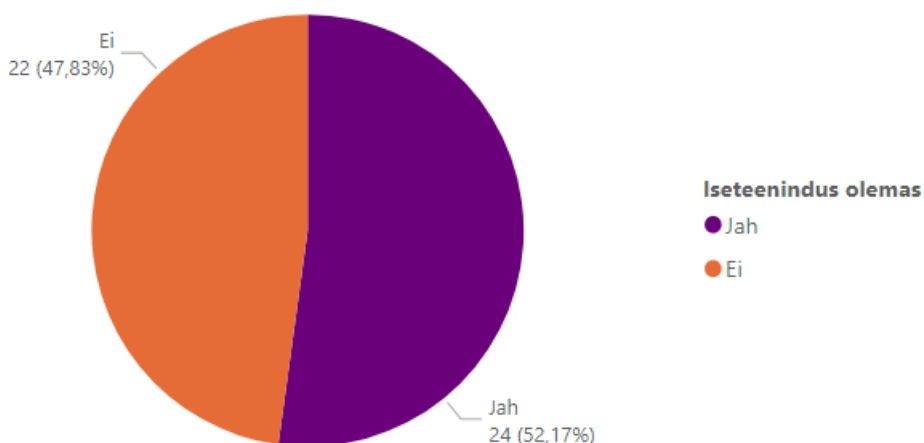
Figure 11. The agencies of those included in table 4 which have self-service environments

5.7 Current use of XBRL GL in reporting

None of the agencies which took part in the online survey on reporting has used XBRL GL. The only agency which accepts reports in XBRL GL is Statistics Estonia, which has a general X-tee service for data submission (estat.submitdata) and it has been used to complete one pilot project for submitting wage and labour data. This X-tee service enables businesses to submit wage and labour data in the XBRL GL format.

The Financial Supervision Authority, the Bank of Estonia, and the Centre of Registers and Information Systems, however, use XBRL for receiving different data. Unlike XBRL GL, XBRL is not designed for the submission of individual records. XBRL GL is an extension of XBRL which enables submitting individual records in the XBRL-based XML.

5.8 Classifications and lists used in reporting

The table below includes the list of classifications and lists which were described by the respondents to the reporting survey. This information does not include the classifications used by Statistics Estonia. The information is certainly not comprehensive, as the classifications are not described in the legislation from which some of the descriptions of the reports originate.

Table 5. The use of classifiers in reports.

Classifier	Number of reports
Country code	18
Estonian Administrative and Settlement Classification 2020v3_471 5L	14
Customer identifiers	13
List of countries and territories 3N 2021_254	13
Report currency code	9
ISIN code	9
Customer identifier	9

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Classifier	Number of reports
Identifier of the entity examined	9
Maturity identifiers	8
Identifiers of the customer's additional specifications	7
Type of agency	6
Special condition identifiers	6
Interest rate type identifiers	6
Entry type identifiers	6
Credit contract type	5
Contractual maturity identifiers	5
Quotation	5
Instrument type identifier	4
Customer country code	4
Sector identifiers	4
Currency code	4
Security issuer identifiers	4
Institutional sector of issuer	3
Residual maturity indicators	3
Entry type	3
Credit contract expiry	3
List of fuels 2020	3
Loan purpose identifiers	3
Loan type identifiers	3
Loan group identifiers	3
Contractual maturity identifiers	3
Classifier of countries and territories 2T 2021	3
Service type identifiers	3
Counterpart's institutional sector	3
Counterpart's economic sector	3
Legal proceeding status identifiers	3
Purpose identifiers	2
None	2
power plant_4L	2
Energy generation equipment	2
funding sources	2
GEONOM2021_ilmaXU	2
Identifiers for the term of advance notice of closing a deposit	2
Instrument payment delay identifiers	2
Instrument country code	2
Instrument accounting classification identifiers	2
Additional Intrastat measurements	2
Identifiers of the period until the next interest rate review	2
Investment type identifier	2
Legal person code (LEI code)	2
Remaining maturity identifier	2
Environmental investment type 2009	2
Environmental protection area of activity classification 2000	2

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Classifier	Number of reports
Insurer code	2
Insurance cover identifier	2
Encumbrance source identifiers	2
Loan security identifiers	2
Loan maturity identifier	2
Creditor's sector identifier	2
Payment direction	2
Restructuring due to payment problems and contract amendment agreement identifiers	2
Payment service type identifier	2
Payment service type	2
Payment transaction type_1 identifier	2
Payment transaction type_2 identifier	2
Payment transaction method identifier	2
Claim type identifiers	2
Claim security identifiers	2
Shareholder type	2
Covered bond type identifiers	2
Resource type identifiers	2
Resource group identifiers	2
Classification of countries and territories 2013v2 2T with euro area withoutEE	2
broadcasting_authority_5L	2
RTK_EL_2021_GB	2
transmission_language_3L	2
transmission_target groups	2
explanation_5L	2
Journey direction 2009v2	2
Transaction type classification 2010v0.1	2
Transport types	2
TSK road	2
Prudential norm portfolio indicators	2
selection_yes_no_1v*	2
Foreign currency and foundation classification, Intrastat 2017	2
Asset location identifier	2
Security code	2
Security coupon type identifier	2
Security type identifiers	2
Security group identifiers	2
Security obligation type identifiers	2
Security obligation group identifiers	2
Impairment assessment method identifiers	2
Impairment type identifiers	2
XTK 2020	2
Vessel size categories (GT) 2009	1
2318L	1
Subordinated debt identifiers	1

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Classifier	Number of reports
Pharmacy name	1
Pharmacy place of business code	1
Report line identifiers	1
Report currency	1
ATC code	1
av_service	1
Base interest identifier	1
Base interest rate maturity identifiers	1
Base interest rate value identifiers	1
Reporting in balance sheet identifiers	1
ECDC and WHO definitions	1
Reinsurance undertaking identifiers	1
Reinsurance type identifiers	1
Expected outcome for subject of supervision	1
Purpose identifier	1
Estonian Administrative and Settlement klassifikaator2020v3_lkpn_4702L	1
Estonian ports	1
Goods_unloaded_in_Estonia_2L*	1
Estonian Administrative and Settlement Classification, plus list of codes in the KOTKAS system	1
did not_attempt_yes_succeeded_3L*	1
Electronic payment channel / payment method identifiers	1
Issuer's legal person code (LEI code)	1
Issuer's economic sector	1
Issuer's payment delay identifiers	1
Issuer country code	1
Issuer's domestic identifier	1
Issuer's domestic identifier type	1
Issuer status identifiers	1
Issuer/counterpart identifier	1
energy2014v1	1
energykWh	1
energyMWh	1
energyMWh_7L	1
E-money identifier	1
E-money storage method	1
E-money storage method identifier	1
E-money transaction type identifier	1
film_type	1
types of funding	1
Financial asset type identifier	1
Financial asset group identifier	1
Foundation type identifier	1
fproduction	1
Self-employed person identifier	1
GEONOM 2013_withoutEU	1

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Classifier	Number of reports
type of education_7L*	1
Term of advance notice of closing a deposit identifier	1
Classifications and pre-filled forms used in the KOTKAS information system	1
Instrument type identifiers	1
Instrument location identifiers	1
Instrument repayment schedule type identifiers	1
Instrument service identifiers	1
Instrument service status identifiers	1
Interest warranty validity identifiers	1
Fixed interest rate period identifiers	1
Interest rate changing frequency identifiers	1
Investment service type identifier	1
Investment undertaking identifier	1
yes_important_until_no_3L*	1
Case sub-type	1
Event identifier	1
Event type	1
Connection of event with other risks	1
Card transaction and mobile payment type identifiers	1
Co-applicant identifier	1
Loss event status	1
Fish age group 2017	1
fish_14L	1
fish_1v_13L	1
fish19L	1
Use frequency identifiers	1
place of business_3L	1
valid_no_invalid_4L	1
Environment protection expenditure and payments	1
Entry type	1
Entry group	1
Entry type identifiers	1
Client type identifier	1
Client type identifiers	1
Existence of client's payment account	1
Client residency	1
KN (self-explanatory) export (sale of fish and Crustacea in foreign waters and ports of foreign countries) 2020	1
place5	1
Number of patients receiving antiretroviral therapy in a medical institution in the specific reporting month	1
Account manager identifier	1
Account holder identifier	1
cooperation_type_from others_3L	1
high_not_an_issue_4L	1
high_low_no_effect_4L	1
KredEx guarantee	1

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Classifier	Number of reports
Credit receipt method	1
Credit amount and credit collateral difference	1
square metres_26_over_105300_6L	1
square metres_525_over_5265_3L	1
kvr_6L	1
Eligible deposit size range identifiers	1
Handling stage	1
Loan to value ratio	1
Loan to value ratio identifiers	1
Restructuring of loan due to payment difficulties identifier	1
Loan amount	1
Loan repayment overdue period identifiers	1
Loan schedule	1
Loan class	1
Loan class identifiers	1
Vessel nationality 2015v1	1
Vessel type 2011	1
Cargo type classification 2012	1
flight type_2L	1
Contract characteristic	1
Liquidity buffer inclusion identifiers	1
M_S	1
natural gas3L	1
County or city code (by place of registration or residence of the client)	1
County or city code (by credit institution branch location)	1
Regulation no. 17 of the Minister of Economic Affairs and Infrastructure 'Procedure for supporting public transport from state budget, reporting of the use of support payments, and repayment of support payments'	1
economic activity_identifier_6L	1
Economic transaction	1
economic activity_identifier_8L	1
Payment type_1 identifiers	1
Payment type_2 identifiers	1
Payment type_3 identifiers	1
Payment frequency identifiers	1
Payment method identifiers	1
Further classification of payment type	1
Payment/recipient identifiers	1
List of soil amendments	1
Non-transaction financial flow type identifiers	1
Other financial institution identifier	1
museum_type_6L	1
internet speeds_v3_5L	1
Quotation identifiers	1
Residual maturity of claim indicators	1
Transfer of claim due to payment difficulties	1

Classifier	Number of reports
Claim counterpart identifiers	1
Hazardous_load_list_	1
Hazardous_load_list_2318L	1
level of_importance_4L	1
organisatsion_level_3L	1
Share ISIN code	1
Shareholder residency	1
Covered bond security type identifiers	1
Automatic teller machine/point of sale/sales terminal identifiers	1
Bank card type identifiers	1
Bank card type_1 identifiers	1
Bank card type_2 identifiers	1
superstructureY_7L	1
Pension contract type identifiers	1
Pension contract type identifier	1
reason1v_5L"	1
crops_62L	1
Project funding loan identifiers	1
Percentage_6L	1
radio_content15	1
radio_income	1
Coastal areas 2018	1
Journey type 2009	1
Rating agency	1
Residency	1
Residency identifiers	1
Restructured or refinanced load identifier	1
RHK	1
National identifier type	1
Classification of countries and territories 2021 2T with euro area	1
National and internal	1
National and internal classifications. We need to ask the IT authority if it is possible to export.	1
Risk indicator identifiers	1
Risk position class identifiers	1
Cross-use identifiers	1
origin of_transmissions_2L	1
origin of_transmissions_5L	1
Recipient's/payer's payment institution code	1
Recipient's/payer's payment institution country	1
explanation_4L	1
SEPA payment identifiers	1
Collection right identifiers	1
Cash payment function identifiers	1
Repayment right identifiers	1
Domestic guarantor indicator	1

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Classifier	Number of reports
Domestic guarantor indicator type	1
Guarantee identifier	1
Guarantee type identifiers	1
Guarantee appraisal method identifiers	1
Guarantee value type identifiers	1
Plant protection products 2020	1
Identifier of the service in connection with which the client's asset is deposited	1
Service provision country identifier	1
Service provision type_3L	1
Foreign trade of services 2020 (insurance)	1
Foreign trade of services 2020 (regular undertakings)	1
Transaction with service_2L	1
commissioned film_type	1
Testing reason	1
Activity codes of activities supported	1
TTL2020(industry)	1
Derivative instrument underlying asset type identifiers	1
Derivative instrument type identifiers	1
Derivative instrument type identifiers	1
income	1
List of TV and other audio-visual content 2014	1
tv_content15	1
We use the international classification of education (ISCED) for refresher training performance indicators.	1
industrial product list 2019	1
Industrial product list 2020var1	1
Identifiers of the capital calculation method for prudential oversight	1
Prudential instrument identifiers	1
Exchange rate type identifiers	1
age group_7L	1
Counterpart payment delay indicators	1
Counterpart role indicators	1
Compliance with thresholds	1
number of_websites_3L	1
types_of goods_transported_9L	1
haulage_type_2L	1
Blood component type	1
Security issuer identifier	1
Additional classification of security issuer identifiers	1
Security tradability	1
Security class identifiers	1
Security code type identifier	1
Security code type identifiers	1
Security coupon type identifiers	1
Security type identifier	1
Security group identifier	1

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Classifier	Number of reports
Security status identifier	1
Security guarantee identifier	1
Security return	1
Security type identifier	1
Security type identifiers	1
Securitisation type identifiers	1
Legal form	1
Business line identifier	1
Country nomenclature for the external trade statistics of the Community and statistics of trade between Member States 2013	1

5.9 Development needs and future channels of the agencies establishing reporting obligations

Thirteen agencies among the respondents to the online questionnaire assessed the reporting channels to be used in the future. The figure below illustrates the channel preferences of the recipient to the online survey. In the online survey, it was possible to specify the preferred transmission channel of the report in the future next to each report. Recipients of reports prevailingly prefer self-service environments. These are followed by X-tee and the e-mailing of reports. The important fact is that machine-readable reports can also be sent by e-mail. For example, the Financial Supervision Authority already has a solution which involves automatic transfer of the reports received by e-mail to the information system.
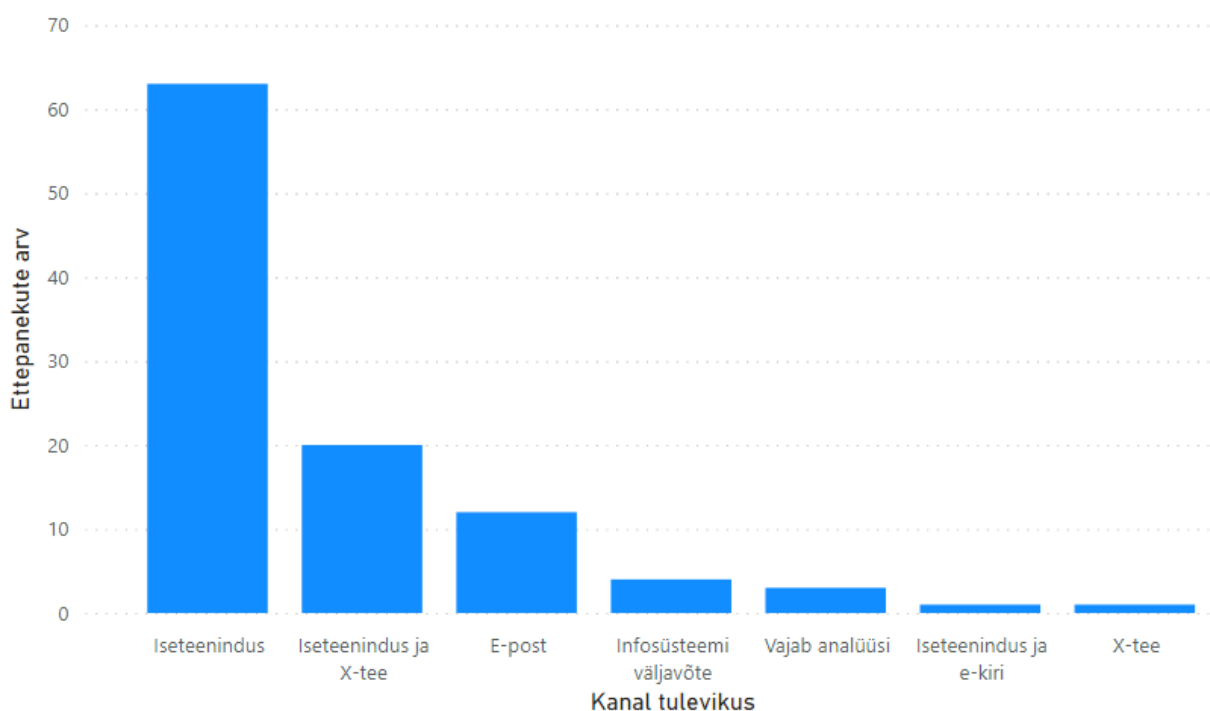
Figure 12. The preferred future data transmission channels from the perspective of state agencies

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The respondents were also asked about the developments planned by them in the online survey. The majority of the respondents described that they were not planning developments or were working on improving the existing system. The Rescue Board described the need for developing the X-tee interfaces. The Health Board described the plans of interfacing MSA and EUDAMED. The Ministry of the Environment mentioned submission of data to Elering as a development for trading statistical data on renewable energy. No other large-scale substantial developments were described in the perspective of 1–2 years. Technological developments, incl. switching to using X-tee or XML reporting were also not described.

In addition to asking about specific plans, general development needs were also inquired about. Many agencies referred to the need for the constant development of reporting due to amendments to legislation. Feedback is also constantly received from data submitters and consumers and it should be used as the basis for development. The needs for development also arise from the EU and OECD, which use Estonian data.

Those agencies where the reporting is 'manual' without using automatic interfaces would like the data submitter to be able to enter the data directly in the system or the recipient of the report or to have an interface between the systems consuming and submitting the data. This is a general development need and concerns general automation of processes. In such cases, the definition of a report should be left aside completely and data submission should be treated as one part of the work processes in the information system of the agency receiving the reports.

6. Conclusions and suggestions

The main conclusions and suggestions made in the course of the analyses conducted.

1) The volume of periodic reporting amounts to 421 reports in the Republic of Estonia. This figure does not include the EU reports which were not analysed in detail within the framework of this project. There is also other, short-term event-based reporting, the volume of which is estimated to be a few times higher. Both types of reported are regulated by legislation.

2) The most commonly used methods for submitting reports are self-service environments (268 reports) and e-mail (43 reports).

3) Over a half of all reports are submitted on an annual or monthly basis (257 reports).

4) According to agencies, businesses are mainly accustomed to using the self-service environments of state agencies and e-mail for submitting reports.[2] The agencies surveyed (incl. the Financial Supervision Inspectorate, which has online services) claim that online services, incl. X-tee, are used relatively little for submitting reports, but the detailed volumes were not specified. Self-service environments have become and interim step in the automation of reporting, in which it is possible to submit data electronically, but the data must be generally re-entered in the self-service environment. In data-based reporting, X-tee is the data exchange channel and the data are transferred automatically with the help of a machine-to-machine interface with no need of re-entry for reporting. In order to switch to X-tee based reporting, businesses must, in principle, develop new knowledge or buy the knowledge (e.g. from an ERP service provider). The latter would be more cost-efficient, as specific data processing and X-tee data exchange are not the principal activity for the majority of businesses and it would be more feasible from the economic perspective to purchase these operations as services. It is advisable for businesses to start using software services which simplify their communication with state agencies.

5) The interest of businesses / data submitters in the development of reporting proved modest in the course of the project. Only a few data submitters responded to the online survey and invitation to participate in the workshop. It could be concluded that businesses were not interested in providing information about how exactly they work and compile the data required for reporting. Businesses may have feared that their anonymity would not be ensured, which is why the participation in the workshops remained modest. Those ERP and reporting service providers whose business would become more efficient if it was possible to automate the movement of data from their systems to state agencies by using machine to machine interfacing were more active. This means that future cooperation on the topics which are related to the development of reporting services should be focussed on the businesses specialised on accounting and drawing up and submitting reports. Those businesses are interested in the state making faster process in the development of data reception services and data-based reporting services. This would enable

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[2] The number reports submitted was not analysed by channels.

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the new reporting model to reach the majority of Estonian businesses, as many Estonian businesses use an ERP or reporting service provider in a bigger or smaller extent.

6) Analysing the outcomes of 'Aruandlus 3.0', a number of topic was found (such as creating the legal basis for data-based reporting, developing the taxonomy catalogue, implementation of the software developed within the framework of 'Aruandlus 3.0' at other agencies, developing a module for verifying the data submitted, developing an X-tee service for reflecting the data quality, developing an x-Road service for reflecting changes in the content of data, implementation of a uniform ETL tool, see the sub-clauses of clause 3 of the roadmap for further details) which should be developed further by the state for data-based reporting to be acceptable for the private sector. The solution developed within the framework of 'Aruandlus 3.0' is still primitive and requires relatively extensive prior knowledge on XBRL GL which are not available for free. By saying that the solution is primitive, we mean that no feedback is given to businesses about the quality of the data submitted via the current solution. This means that the information on whether or not a data file sent is complaint by the format and content is not provided automatically. Therefore, it is basically not possible to test the system of the data submitter any other way than by contacting the state agency (e.g. Statistics Estonia) and manually requesting feedback about each data file sent. This makes testing considerably more time-consuming. The specifications (i.e. taxonomies) developed are substantive, but consist of text data (XLSX) from the perspective of the format, which means that they are not machine-readable and cannot be used for automatically generating services for the system of a business. Description of data structures has today reached the level of the description being automatically readable. This must be ensured also in the case of the taxonomies. Otherwise, private businesses will not undertake the process of introducing data-based reporting in their systems due to the extensive workload. The roadmap (clause 3) and model (clause 2.2.2.8) developed within the framework of this public procurement, which were both work objects included in the public procurement) describe what exactly should be improved.

7) It was identified in the course of the work that the optimising of reporting would call for a detailed description of the datasets or data compositions used as the basis of the reporting. National datasets are equipped with data descriptions, but those descriptions are too general for understanding which variables or data elements could be involved from the dataset. One of the critical issues which requires solving by the state is the system for managing the data descriptions of reports and sharing the description information. This data directory consists of the taxonomies of reports, i.e. the data descriptions or data compositions of reports. The RIHA is one of the places where the data directory could be established. It would be possible to develop the respective functionality of describing and issuing data to the RIHA. There is no such functionality today. In the case of this solution, the data descriptions of datasets and the data descriptions of the reports submitted to the datasets would be available from the same place. Without a solution for managing and sharing descriptions, it is very difficult to reduce the administrative burden. Without this, it is not possible for state agencies to determine by making a reasonable effort whether or not certain data are already being collected. An alternative solution would be using

the iMeta metadata description system of Statistics Estonia for describing data, which has so far only been used for describing the data processed at Statistics Estonia. A third alternative would be to create a completely independent solution for the data descriptions of reporting. Financial resources are required for the execution of any of the three alternatives. Based on the results of the analysis conducted within the framework of this work, the most reasonable option would be describing the data descriptions of reports in the RIHA under the supervision of Statistics Estonia, as the descriptions of the dataset data are also located in the RIHA. This would create a centralised system for managing the data descriptions of reports which would cover all agencies and datasets. The data descriptions of datasets, as well as the data descriptions of the reports which are the input for the datasets, could be found from the same place then. Thus, the data submitter as well as the data consumer would be able to obtain information from the same place.

8) The process of standardising data and the related developments should be continued. Standardisation of data is very important for reducing the expenditure of agencies, as it would reduce the double-processing of data. Data standardisation should be continued irrespective of the use of XBRL GL. Data standardisation alleviates the administrative burden and enables the reuse of data. XBRL GL is only one of the many possible data formats which could be used in reporting. XBRL GL is a special reporting standard. XBRL is currently used for submitting many reports and XBRL GL also provides additional possibilities for submitting data.

9) Agencies are not yet prepared to accept XBRL GL datasets today. On the side of state agencies, it is necessary to ensure the technical capability of using XBRL GL. The capability means introduction of a data reception module and interfacing the module with the information system of the agency. The solution must cover the following topics:
   - reception of data from a data submitter (a uniform data reception module for all agencies);
   - verification of the data;
   - providing feedback to the data submitter;
   - interfaces with the information systems consuming the data;
   - **in addition**, a solution must be found for a system for managing and using data descriptions.

10) All agencies must develop and introduce **similar online services** for receiving and processing data.

11) Providing feedback about the data submitted is also inevitable in the case of automatic submission, not merely if the data are submitted manually in a self-service environment.

12) Notifying of businesses of new options, incl. of X-tee services and the XBRL GL data compositions which are the input of those services, should be organised. All agencies must notify the reporting parties of new possibilities for submitting reports. The notification channels may include e-mails or articles on the website and in the self-service environment of the agency,

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among other options. Without notifying, the new options for submitting data may not be found. This is especially the case if the data submitter is not under any legal obligation to use X-tee services.

13) The XBRL GL standard and the data compositions based on it must be explained to businesses, incl. introducing the principles and benefits of the standard. The XBRL GL is relatively little known for now. This means extensive awareness raising activities designed for businesses by the state. All businesses developing automatic reporting data transmission systems should receive the information. However, those businesses which do not have automatic transmission solutions and may not even be using software for reporting do not require such notification. As for the notification, there are clearly two target groups: software developer / service provider and the end user of software / data submitter. The end user / data submitter is not required to be familiar with the XBRL GL reporting standard if they use a respective software application which generates the XBRL GL reports for them. End users should be steered towards using the software applications which support XBRL GL.

14) The circle of X-tee users must be expanded. The capability of businesses to use X-tee must expand from the current roughly 1,000 businesses to a wider circle of businesses. In order to introduce data-based reporting, development of software solutions should be supported with the help of consortium projects. The majority of businesses are not capable of making the planned switch to XBRL GL and X-tee based reporting. It would be reasonable for data submitters to use the services of businesses which are interfaced with X-tee and provide the X-tee connection service and the required data exchange services for businesses for automation of their reporting.

15) ERP service providers must switch to the XBRL GL data format when such preparedness is achieved on the side of the state. **It is especially important for the solution of the state used by agencies for receiving data and providing feedback to the data being operable in the production or live environment in the extent of the entire functionality described in this project.** Some business software applications have already been preparing for reporting data being submitted in the XBRL GL format for years, but the technical solution of the state for receiving the data has not matured, which has made the business critical or disappointed in the situation. The state should certainly keep this in mind in taking the next steps.

16) The current legislation must be amended appropriately for the new data compositions to be developed in the course of introducing data-based reporting. Reporting obligations may not be established without legal grounds and it must be needs-based. First, the use of data compositions with new descriptions, i.e. the data compositions of packaging and fuel reporting, labour and wage reporting, and foreign trade and industry reporting must be legalised by the required pieces of legislation. **Without the legal grounds, the new solution will not be supported by businesses, as the reporting creates or may create additional obligations for them.** Any additional obligation must have a clear and reliable basis.

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17) The analysis of the reporting on packaging and fuel again revealed the need to introduce e-invoicing in businesses. As submitting packaging information will increase the data volume, more extensive use of e-invoices would help mediate this information. Without using e-invoices in businesses, the reporting party must create the information which the reporting is based on manually. This may not be easy, especially in the case of packaging. **An optimum path for creating the data on which packaging and fuel reports are based is describing the information on the sales invoice by the manufacturer or the marketer (wholesaler) who produces, packs, or markets the goods specified in the invoice.** This way, each buyer will not be required to describe this information again. This issue requires in-depth analysis. In addition to using e-invoices, the use of uniform product and packaging classifications must also be introduced. This forms the basis for automatic packaging and fuel consumption reporting.

18) The administrative burden and costs will be reduced in the packaging reporting if (1) Estonia has implemented the XBRL GL data exchange based on the 'Aruandlus 3.0' project in packaging reporting; (2) it has been taken into use as a common part of accounting software applications; and (3) the recycling organisations accredited in Estonia make the developments and changes required in the structure of packaging reporting. The Ministry of the Environment must develop the required data exchange capability in the national packaging register. Fulfilling those prerequisites would enable alleviating the packaging audit obligations to a certain extent. This would result in savings for the businesses accredited.

19) A working group should be formed for the management of the introduction of data-based reporting and for consultation, which should find solutions to the issues described in clause 3 of the roadmap of introducing data-based reporting:

- Which agency will manage and develop the intra-agency taxonomy?

- Which agency will manage the nationwide set of descriptions of the reports?

- Where (in which system) will the taxonomies of the data be stored?

- Who will be responsible and how will the taxonomies be updated to burden the businesses as little as possible?

- Where will the guidelines of data-based reporting be published and kept?

- How will the classification be managed and the data made available? Centrally (and at which agency) or separately at each agency?

- Which agency will procure and provide to other agencies the software components listed in the roadmap?

- How will the legal framework for the data-based reporting be created?

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- What kind of a legal framework (and legal basis) is required for the creation and management of the data descriptions of the reports?

20) The model developed in the course of the project allows each state agency to perform detailed operations within the framework of a specific report, to use the common taxonomy elements created within the framework of the 'Aruandlus 3.0' project and to create any missing ones, to implement the XBRL GL standard, and to perform the development required for the receipt and processing of machine-readable data and for the data exchange between the databases of state agencies.

21) The roadmap compiled in the course of the project provides to state agencies a more efficient sequence of operations for performing the works and a methodology for the assessment of a potential need for resources. The roadmap includes development proposals for creating the capabilities for the reception and processing of readable reporting data and for the reuse of the data. The roadmap also includes suggestions for methods for the management of an inter-agency taxonomy. The roadmap prescribes a wider implementation of the software system already developed at state agencies, as well as development of new components. **It is important for the data reception solutions of the state to process data automatically and provide quick and automatic feedback to the data submitter about the appropriateness and quality of the data submitted.**

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Summary

The works of the first and second stages of the project were successful. In the field of mapping the reporting, a thorough work was done, especially concerning document analysis. Data was collected from agencies and information received was validated by processing the legislation on which the reporting is based. The second stage involved successfully analysing the reporting on packaging and fuel and supplementing the business analysis.

The most difficult part of the work was involving private businesses. Many businesses were not interested in participating in the project or could not be contacted. One of the potential reasons is that businesses are reluctant to provide the details of their activities concerning processing data and submitting them to state agencies which are entitled to subject the businesses to sanctions. The development and simplifying of reporting are certainly activities with good perspectives, but the state is the main party which can implement changes and developments here.

The most important outcome of stage II are the conclusions and suggestions drawn up and the taxonomy of the packaging and fuel consumption reporting. The positions of the state as well as businesses identified in the course of the project are summarised. In order to implement the ideas of 'Aruandlus 3.0', it is important for the state to provide a significantly more comprehensive data reception service compared to the one developed so far. This means that an infrastructure supporting the use of data compositions must also be developed in addition to the data compositions.

Based on the information collected within the framework of the project, it may be stated that the most critical activity for the data-based XBRL GL reporting to function are the development of the data reception and feedback solution of the state (see 'Andmepõhise aruandluse juurutamise teekaart v1.3.docx', sub-chapter. 3.4.) and ensuring the capability of agencies to accept and process XBRL GL data. This must be followed by notifying businesses of the new possibilities and the benefits arising from using them. The state will only be able to obtain actual feedback about the functioning of the model when dozens of businesses have subscribed to the new model. There is currently no such feedback from a wider circle of businesses. First, the process should continue with those businesses which have already made investments on data-based and XBRL GL-based reporting. If possible, developing a suitable technical solution should not be postponed any longer, as businesses are becoming sceptical about the perspectives of the efforts made. 'Aruandluse 3.0'-based projects have already been ongoing for years, but their outcomes have not yet gained ground among a wider circle of users.

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Annex 1. Memos and recordings of meetings

The 'Koosolekud' directory enclosed to the document.

- 20210805 Juhtrühma koosoleku protokoll.asice

- 20210819 Juhtrühma koosoleku protokoll.asice

- 20210902 Juhtrühma koosoleku protokoll.asice

- 20210916 Juhtrühma koosoleku protokoll.asice

- 20210927 II etapi tööde arutelu_koosoleku protokoll.asice

- 20210928 RIHA_RIHAKESE_koosoleku protokoll.asice

- 20211001 Juhtrühma koosoleku protokoll.asice

The documents listed above will be sent as a separate .zip file 'Koosolekute protokollid'.

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Annex 2. Draft project

The file 'Projektiplaan.png' enclosed to the document.

Task Mode	Task Name	Duration	Start	Finish
	▲ XBRL GL ja tehingupõhise aruandluse analüüs	130 days?	Mon 05.04.21	Fri 01.10.21
	▲ Projekti haldus ja järelvalve	122 days	Thu 15.04.21	Fri 01.10.21
	Avakoosolek	1 day	Thu 15.04.21	Thu 15.04.21
	Juhtrühma koosolek	1 day	Thu 29.04.21	Thu 29.04.21
	Juhtrühma koosolek, laiendatud	1 day	Thu 13.05.21	Thu 13.05.21
	Juhtrühma koosolek	1 day	Thu 27.05.21	Thu 27.05.21
	Juhtrühma koosolek, laiendatud	1 day	Thu 10.06.21	Thu 10.06.21
	Juhtrühma koosolek	1 day	Tue 22.06.21	Tue 22.06.21
	Juhtrühma koosolek, laiendatud	1 day	Thu 08.07.21	Thu 08.07.21
	Juhtrühma koosolek	1 day	Thu 22.07.21	Thu 22.07.21
	Juhtrühma koosolek, laiendatud	1 day	Thu 05.08.21	Thu 05.08.21
	Juhtrühma koosolek	1 day	Thu 19.08.21	Thu 19.08.21
	Juhtrühma koosolek, laiendatud	1 day	Thu 02.09.21	Thu 02.09.21
	Juhtrühma koosolek	1 day	Thu 16.09.21	Thu 16.09.21
	Juhtrühma koosolek, laiendatud	1 day	Fri 01.10.21	Fri 01.10.21
	▲ Juhtrühma koosolek	78,5 days?	Mon 05.04.21	Thu 22.07.21
	▲ Eelanalüüs	51 days	Mon 05.04.21	Mon 14.06.21
	Tööplaani koostamine	5 days	Mon 05.04.21	Fri 09.04.21
	Dokumendianalüüs	20 days	Mon 12.04.21	Fri 07.05.21
	Aruandlus 3.0 projekti tulemuste läbitöötamine	5 days	Mon 10.05.21	Fri 14.05.21
	Hetkeolukorra ja aruandluskohustuse kaardistuse koostamine riigiasutustes	15 days	Tue 25.05.21	Mon 14.06.21
	Veebiküsimustike ettevalmistamine ja kooskõlastamine	4 days	Mon 12.04.21	Thu 15.04.21
	Keskondade häälestamine ja tugi	40 days?	Mon 05.04.21	Fri 28.05.21
	▲ Intervjuud (riigiasutuste kontaktisikute ja ettevõtjatega)	12 days	Fri 28.05.21	Mon 14.06.21
	Veebiankeedi vastustest kokkuvõtte tegemine	2 days	Fri 28.05.21	Mon 31.05.21
	Vastuseid täpsustavad intervjuud riigiasutustega (5tk)	5 days	Tue 01.06.21	Mon 07.06.21
	Intervjuud eraettevõtetega	5 days	Tue 08.06.21	Mon 14.06.21
	Töötoad (riigiasutuste kontaktisikute ja ettevõtjatega)	5 days	Tue 15.06.21	Mon 21.06.21
	Ärianalüüs koos mudeli ja teekaardi väljatöötamisega	22,5 days	Tue 15.06.21	Thu 15.07.21
	Vahearuande koostamine	5 days	Thu 15.07.21	Thu 22.07.21
	▲ Etapp II	52 days	Thu 15.07.21	Mon 27.09.21
	▲ Pakendi- ja kütusearuandluse analüüs	30 days	Thu 15.07.21	Thu 26.08.21
	Pakendi- ja kütusearuandluse eelanalüüs	10 days	Thu 15.07.21	Thu 29.07.21
	Pakendi- ja kütusearuandluse taksonoomia loomine	8 days	Thu 29.07.21	Tue 10.08.21
	Standardiseerimine ja XBRL GL standardisse viimine	7 days	Tue 10.08.21	Thu 19.08.21
	Tagasisidestamine (sh välisosapooltega) ja eelanalüüsidest tulenevalt vajadusel täiendused/muudatused ärianalüüsis	5 days	Thu 19.08.21	Thu 26.08.21
	Keskondade häälestamine ja tugi	40 days?	Thu 15.07.21	Thu 09.09.21
	Lõpparuande koostamine	10 days	Thu 26.08.21	Thu 09.09.21
	Lõpparuande kooskõlastamine Tellijaga vastavalt lepingu tingimustele	5 days	Thu 09.09.21	Thu 16.09.21
	Lühikokkuvõtted ja slaidid eesti ja inglise keeles	5 days	Thu 16.09.21	Thu 23.09.21
	Tulemuste esitlus vähemalt kahel avalikul üritusel koos loodud slaididega ja üleandmine	2 days	Thu 23.09.21	Mon 27.09.21

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Annex 3. Outcome of document analysis (the table of the documents examined)

The 'Lisa 2 Läbi vaadatud õigusaktid.xlsx' file enclosed. This document will be sent separately, if necessary.

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Annex 4. Outcome of the mapping of the reporting

1) The 'Aruandluse kaardistus' directory enclosed to the document:

This directory will be sent separately, if necessary.

2) The 'Lisa 1 Leitud aruanded.xlsx' file enclosed to the document:

This document will be sent separately, if necessary.

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Annex 5. Interview memos

The 'Intervjuud' directory enclosed to the document. This directory will be sent separately, if necessary.

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Annex 6. Memos, presentations, and recordings of the workshops

The 'Töötoad' directory enclosed to the document. This directory will be sent separately, if necessary.

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Annex 7. Model

The 'Aruandluse mudel.docx' will be sent separately.

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Annex 8. Roadmap

The 'Andmepõhise aruandluse juurutamise teekaart 2021-2024.docx' document will be sent separately.

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Annex 9. Interim report

Possible to send separately.

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Annex 10. The 'Pakendi- ja kütusearuandluse analüüs'

'Pakendi ja kütuse tarbimise aruandlus.docx' document can be sent separately.

Annexes to the document:

- EPP handling fees

- EPR report form.

- ETO report form.

- TVO consolidated packaging report form.

- 'AA30_taksonoomia_20210820.xlsx':

- 'Pakendi_klassifikaatori_naidis_v1_0.xlsx':

- 'Andmekoosseis_20210820.xlsx':

- XML template.

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Annex 11. Presentations at public events enclosed to the document:

1) 'Aruandluse kaardistus ja reaalajamajanduse uus aruandlusmudel.pptx'

   This document will be sent separately, if necessary.

2) 'Estonian reporting mapping and a new model.pptx'

   This document will be sent separately, if necessary.

3) 'Infoleht.docx'

   This document will be sent separately, if necessary.

4) 'Inglise keelne infoleht.docx'

   This document will be sent separately, if necessary.

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