# Annual Report

## 2023

## To increase customer satisfaction, we must be attuned to the society, foster effective cooperation, and continue to improve our processes

Statistics Estonia serves as the reliable home of national data. We give meaning and value to data. We help people understand the world better through data. Our new combined mission and vision statement reflects Statistics Estonia's main responsibilities: ensure the quality of data on the national level and consistently provide relevant, reliable and meaningful information to enable data-based decision-making in both the private and the public sector and in the society as a whole. The accomplishment of our mission and the goals defined in the development plan is supported by Statistics Estonia's three core values: reliability, cooperation, and innovation.

2023 was the first year of Statistics Estonia's new strategy cycle: we focused on defining our customer-centric outlook and on decreasing the administrative burden for enterprises. We started to design a service-centric management model for a greater focus on customers and better role clarity. As we see ourselves as stewards of data availability and quality, we are paying more and more attention to data governance in Estonia and internationally. In 2023, the UNECE Task Force on data stewardship finalised its report under Estonia's leadership; we are among the countries leading the way in the field of data governance.

The bulk of official statistics are data collected across Europe by agreement of the European Union Member States – these statistics account for about 93% of our budget. European statistics are regularly revised and harmonised, to provide faster, more detailed statistics that better reflect social needs. This means that Statistics Estonia must also make efforts to improve its processes, methodologies and information systems. These innovations require human, time and financial resources, but our budget is limited and already optimised. While economic conditions are difficult, we want to create new value for the society and for policymakers – by increasing our offering of fast and flexible data services (based on official statistics but not only).

We want to offer innovative and flexible data services with minimum administrative burden, which means adhering to the once-only principle, reusing data created around us, and continuing to add new data sources (incl. privately held data). This requires a much better ability to listen to the public, and cooperation with relevant stakeholders. To support the adoption of new data sources, we focused on building good relationships with private-sector data holders (portals, service providers) in 2023. It is also important for us to participate in the drafting of the White Paper on data and AI and in the development of data-related legislation, because one of our strategic goals is the promotion of data governance and data sharing on the state level – this will ensure more efficient and faster provision of high-quality and reliable data to people who need them.

One of our **reliability** indicators is adherence to the release dates. In 2023, we published **99.6%** of the statistics on time (meaning not sooner, not later). Our reliability among journalists is indicated by the media coverage of the information that Statistics Estonia has released. Last year, there were **8,446** mentions of our statistics in the media. Data have also become more valuable for the public – our web pages were visited about **2 million** times, with increased traffic to the statistical database contributing the most. We have a wide range of statistics, but the most popular subjects among visitors are population and labour market statistics as well as the consumer price index and gross domestic product.

Overseeing data governance in Estonia is one of Statistics Estonia's responsibilities. We provide counselling and guidelines and run joint quality improvement projects to improve data governance. In 2023, we had data quality projects with 36 institutions, and projects related to data description with 24 institutions.

In 2024, we will continue to build the data ecosystem in Estonia and internationally. We will also focus on development internally, to improve data quality, reduce the administrative burden for all parties, and offer more to the public through clear and understandable data.

**Urmet Lee**
Director General of Statistics Estonia

## Development plan 2023–2030. Challenges and goals

In 2023, we finalised Statistics Estonia's development plan for the period 2023–2030. For this, we carefully identified our partners' and customers' needs, and also took into consideration ongoing developments in the data domain in Estonia and in the world. The development plan defines three strategic areas as our priorities, and organisational development is the fourth focus area to support the strategic objectives.

The three areas prioritised in Statistics Estonia's development are data services (incl. official statistics), data governance, and data literacy. Naturally, it is important to assess the competences and needs of the organisation and our staff, which will be the basis for any developments in the strategic areas.

**Figure 1. Statistics Estonia's objectives for 2023–2030**
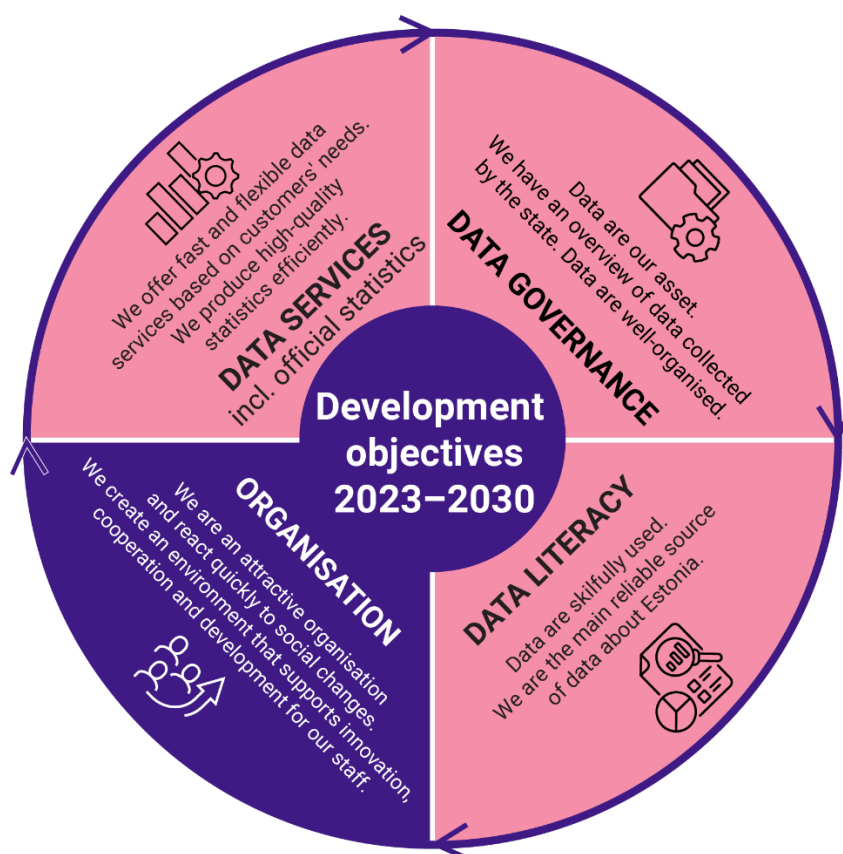


To achieve our objectives, we wanted to ensure synergy between the focal points of the previous and the current development plan in the first few years of the new strategy period. We must fulfil our responsibilities making the most of the limited state resources, while simultaneously ensuring development and effective problem-solving, and monitoring the operational environment and the expectations of our clients and partners. The following table outlines the strategic goals of the new development plan, specifying the focus within each area of responsibility.

**Table 1. Comparison of the goals defined in Statistics Estonia's development plan for 2018−2022 and for 2023−2030**

| Area of responsibility | Goal in previous development plan | Goal in current development plan |
|---|---|---|
| **Production of official and experimental statistics; performance of contract work** | Customer-friendly services; increasing efficiency, decreasing the administrative burden; earning income from contract work | Customer- and service-centric management and development; improving the quality and speed of response (incl. a more proactive approach); updating the legal framework; complete renewal of production technologies; decreasing the administrative burden |
| **Coordination of data governance** | Legislative framework for the new responsibility | Efficient data governance within the organisation; launching the national centre of excellence for data governance, combined with practical coordination and monitoring |
| **Management of classifications system** | Operating the system | Developing the system; state-wide counselling and monitoring |
| **Provision of data sharing service** | Legislative framework for the new responsibility | Creating a data directory and launching the information system and service for convenient reuse of data; updating the legal framework |
| **Promotion of data literacy** | Creating a new corporate image; new customer applications | Promoting data services, offering better data services; a systematic, consistent system of partnership; providing data assistance |

Our development plan has a very clear focus on increasing customer satisfaction – this involves a transition to service-centric management, meaning that customers are at the core of all our services and processes and that we aim for efficiency while offering the greatest value to our customers. Therefore, we chose the following motto for 2023 – "Save time for data providers", which seems simple but is quite a difficult task in reality. Giving advice about data organisation and data quality, offering a wider range of data services with better usability, improving the clarity and availability of data – all of this helps to ensure that our customers can easily use reliable data and make data-based decisions.

# 1. Data services

## 1.1 Official statistics

### Fulfilment of the 2023 statistical programme

Each year, the Government of the Republic approves a list of demographic, social, economic and environmental statistics activities for the following five years. The statistical programme for 2023–2027 included 61 statistical activities with a total cost of nearly 14.2 million euros. In 2023, there were 61 statistical activities classified under main statistics, including 6 cyclical statistical activities. Starting from 2023, the statistical programme no longer includes experimental statistics and activities related to registers and data governance. The reason is that experimental statistics and data governance are currently funded as non-programme activities, and the costs associated with registers are subsumed under main statistics. Experimental statistics, which are inseparable from the process of statistical development, are discussed in subsection 1.2.

In 2023, the biggest share of statistical activities – both in terms of number and cost – were carried out in the domain of economy, followed by the social life domain. Table 2 gives an overview of the distribution of statistical activities by domain.

**Table 2. Statistical activities by domain, 2023**

| Domain | Number | | Cost | |
|---|---|---|---|---|
| | number | % | thousand euros | % |
| Environment | 6 | 10% | 790 | 6% |
| Economy | 38 | 62% | 9,737 | 69% |
| Population | 4 | 7% | 493 | 3% |
| Social life | 10 | 16% | 2,838 | 20% |
| Multi-domain statistics | 2 | 5% | 299 | 2% |
| Main statistics, total | 61 | 100% | 14,157 | 100% |

Statistical activities are carried out on the basis of European Union (EU) legislation or commissioned nationally (primarily for strategic planning, international statistical requirements). Table 3 shows that, in 2023, the estimated cost of statistical activities arising from EU legislation represented 93% of the total cost of statistical activities.

**Table 3. Statistical activities by type of demand, 2023**

| | Estimated cost | | Number | |
|---|---|---|---|---|
| | thousand euros | % | number | % |
| Statistics required for assessing the policies of the European Union (incl. Estonia)* | 13,154 | 93 | 48 | 79 |
| Statistics only required nationally (in addition to European statistics) | 1,003 | 7 | 13 | 21 |
| **Total** | **14,157** | **100** | **61** | **100** |

*The European statistics must refer to Estonia as a whole (NUTS 1 level); where possible, Statistics Estonia produces mandatory statistics also in more detail by county/region, to meet national needs and to better describe social phenomena.

The statistical programme for 2023 was successfully fulfilled: all the planned activities were performed. There were a total of 908 planned releases in the release calendar: 790 statistical database items and 118 news releases. The produced statistics are made available to users first in the statistical database and then through other channels, such as on the stat.ee website, on the dashboards, in the earnings application, and so on. Users are informed about planned statistics releases via the release calendar on the stat.ee website, which serves as our commitment to publish the data on the date specified in the calendar. The target for share of deviations from the release calendar is <3%. In 2023, there were only 4 deviations from the release calendar, which represents 0.44% of the total number of releases (see Table 4). The main reasons for the deviations were changes in the questionnaire used to collect data, and the publication of data before the originally planned release date.

**Table 4. Deviations from release calendar, 2019−2023**

| Year | Statistical database | News releases | Statistical publications[1] | Total | Share in total number of releases, % |
|---|---|---|---|---|---|
| 2019 | 9 | 1 | 1 | 11 | 0.2 |
| 2020 | 21 | 0 | 0 | 21 | 2.4 |
| 2021 | 9 | 0 | − | 9 | 1.03 |
| 2022 | 15 | 2 | − | 17 | 1.8 |
| 2023 | 2 | 2 | − | 4 | 0.44 |

## Changes in statistical activities in 2023−2027

Additional funding from the state budget meant that several activities could be added to the list of official statistics in 2023. There were also methodological changes and some adjustments arising from redesigned statistical processes.

Water and forestry statistics, which were previously produced as contract work, were added to official statistics under the environment domain. In the economy domain, the number of statistical activities decreased for the following reasons: the statistics on exports and import price indices were merged; the regular and cyclical statistics on earnings and labour costs were merged; the statistics on information technology in enterprises were merged. The population projection was moved from social statistics to population statistics. The Cultural Participation Survey was added under cultural statistics after receiving state funding. Under well-being statistics, we added the EUROMOD survey which helps to assess the effects of policy measures (e.g. taxes and benefits) on the income and work incentives of individuals and households. Regional statistics are distributed between the domains of main statistics because regional indicators are produced according to the methodology of the specific domain. Starting from 2023, Statistics Estonia no longer publishes crime statistics. To limit duplication in statistical production, these statistics are published by the Ministry of Justice.

Similarly to previous years, the composition of the harmonised mandatory statistics of the European Union was amended and updated in 2023, to better align it with the recent changes in the social and economic environment, to assess the success of the green transition measures, and to reflect labour market and demographic shifts in Europe. In 2023, the EU Member States were reviewing the proposed amendment to the Regulation on environmental economic accounts. The proposal introduces three new modules starting from 2025: forest accounts, ecosystem accounts, and environmental subsidies and similar transfers accounts. The EU Member States and institutions were also negotiating proposed legislation on demographic and labour market statistics, which is discussed further in subsections 3.3. and 4.3.

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[1] Since 2020, Statistics Estonia does not release any statistical publications.

The main changes in statistical activities in 2023 were related to methodological changes arising from legislation and efforts to reduce the administrative burden of data providers.

The biggest development project in official statistics in 2023 was the continued reorganisation of government finance statistics and national accounts statistics, which entails methodological revisions (incl. addition of data sources) as well as technological redesign. This project requires 6.2 million euros of funding over the period 2023–2027. Within the state budget strategy for 2023–2026, Statistics Estonia was allocated 4.1 million euros for development.

The biggest methodological changes and developments result from the requirements of various sectoral policies agreed in the European Union.

For the statistical activity on earnings, Statistics Estonia started using register data to calculate average wages – this is done based on data from the consolidated database of the Tax and Customs Board combining the employment register and tax declaration data (form TSD: declaration of income and social tax, unemployment insurance premiums and contributions to mandatory funded pension). The data were previously published according to the Estonian Classification of Economic Activities (EMTAK), by county. The data are now published in more detail using two-digit EMTAK codes, by occupation and by county.

In connection with the framework regulation (EU) No 2019/2152 on European business statistics, we have reviewed the methodology and output indicators of at least 8 statistical activities. The changes are applied in accordance with the implementing provisions of the said framework regulation, following the specified deadlines for implementation. The additional costs related to the implementation of the regulation are around 1.9 million euros in the years 2023–2027. Statistics Estonia continued to improve and update energy statistics in cooperation with the representatives of public interest. The revised EU regulation on energy statistics entered into force in 2023. This area still needs to be developed in Estonia, which requires 2.6 million euros of additional funding.

## 1.2 Statistical activities outside the programme

In addition to the statistical activities in the statistical programme, Statistics Estonia performs activities that are not included in the programme but are ordered by customers. If the required statistics are not available in the public database, customers can place an order for a specific dataset. Orders can be placed for statistics in any statistical domain.

Statistical activities may be funded from the state budget (e.g. the real-time economic statistics project), by the customer (e.g. the Survey of Adults Skills), or by a grant (e.g. the youth monitoring project).

In 2023, Statistics Estonia earned 2.32 million euros of revenue for data mining, surveys, methodological developments and individual indicators provided outside the programme (see Table 5). Compared with 2022 (2.02 million euros), the total value of contract work increased by roughly 15%. The largest projects outside the statistical programme were the business viability index, which continues in 2024, and the international Survey of Adult Skills. Most of the non-programme activities were smaller orders requesting more detailed statistical information than publicly available.

Starting from 2023, the production of the indicators of "Estonia 2035" is part of official statistics and funded from the state budget.

**Table 5. Non-programme statistical activities and revenue earned, 2023**

| Non-programme activity | Revenue (thousand euros) |
|---|---|
| Business viability index | 645 |
| Survey of Adult Skills (PIAAC) | 637 |
| Real-time economy project | 538 |
| Household Finance and Consumption Survey | 103 |
| Contract work with hourly pricing | 73 |
| Collection of fleet-based economic and social indicators | 47 |
| Data collection for the ESF | 47 |
| Indicators of the Welfare Development Plan 2023–2030 | 40 |
| Use of confidential data | 36 |
| Youth monitoring project | 31 |
| Other contract work | 119 |
| **Total** | 2,316 |

## 1.3 Administrative burden and satisfaction

### Administrative burden of data providers

Two indicators are used at Statistics Estonia to assess the reporting burden: the number of questionnaires per enterprise and the time spent on completing and submitting questionnaires. These indicators are calculated for enterprises.

In the production of statistics, we mostly use data available in registers and databases and reuse data we have already collected. Data are collected from enterprises only if they cannot be obtained from other sources. If possible, we use sample surveys for small enterprises and do not collect data from the whole target group.

Two thirds of statistical activities in 2023 were either entirely or partially based on the data of state databases. In order to reduce the administrative burden of enterprises, Statistics Estonia actively looks for alternative data sources and possibilities for reducing sample sizes.

### Statistical activities affecting the administrative burden of enterprises in 2023

In 2023, Statistics Estonia used 105 questionnaires to collect data from enterprises.

Each year, there are some statistical activities for which we can stop using questionnaires and switch to register data. In 2023, we stopped using the Aircraft Register questionnaire for data collection.

We updated the "Wages and salaries and labour force" questionnaire in 2023. The changes resulted from the increased reliance on register data in the production of wages and salaries statistics. The biggest change in the questionnaire concerns information on part-time and full-time employees, which is no longer asked for.

The data collected with this questionnaire are used for labour cost indices and statistics on job vacancies. Previously (until the end of 2022), the questionnaire was also used to collect data for average wages and salaries statistics.

Data were collected for two cyclical activities: the Structure of Earnings Survey (conducted every 4 years) and the Community Innovation Survey (conducted every 2 years).

**Figure 2. Number of business entities subject to reporting requirements and their proportion among business entities registered in the Business Register**
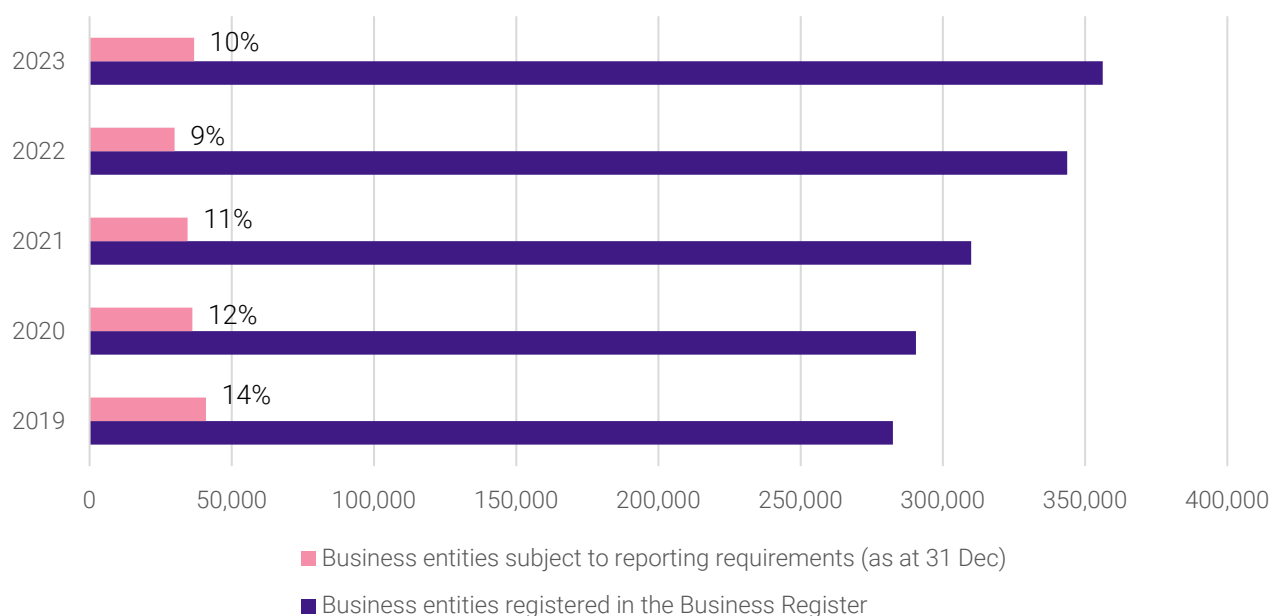


Over the last five years, the number of entities included in surveys (i.e. surveyed by Statistics Estonia) has fallen by about 11%. This has been managed despite the fact that the number of entities registered in the Business Register has risen by about 24%. One in seven registered enterprises had reporting obligations in 2019, compared to just one in ten in 2023.

The number of enterprises in questionnaire samples in 2023 was slightly bigger than in 2022, but the number of questionnaires per enterprise was the same. In 2023, we collected data with the "Structure of earnings" questionnaire (the survey is conducted every four years) which involved 8,996 enterprises. The sample size decreased for the "Wages and salaries and labour force" questionnaire (there were 35% fewer entities in the sample). The sample size for the "Production and trade of energy, consumption of fuels" questionnaire decreased by 70% compared with 2022. In 2023, we received data on renewable energy production from AS Elering, eliminating the need to survey enterprises. In the case of the "Accommodation activity (monthly)" questionnaire, the administrative burden decreased by more than 1,000 hours in 2023, because we added seasonality characteristics to enterprises not required to report each month. The biennial Community Innovation Survey took place in 2023 and the sample included 2,100 enterprises.

**Number of questionnaires per enterprise**

In 2023, the average reporting burden of enterprises was 7.7 questionnaires per year, which is nearly the same as the year before (7.8 in 2022).

**Figure 3. Number of mandatory questionnaires per enterprise by number of employees, 2019−2023**
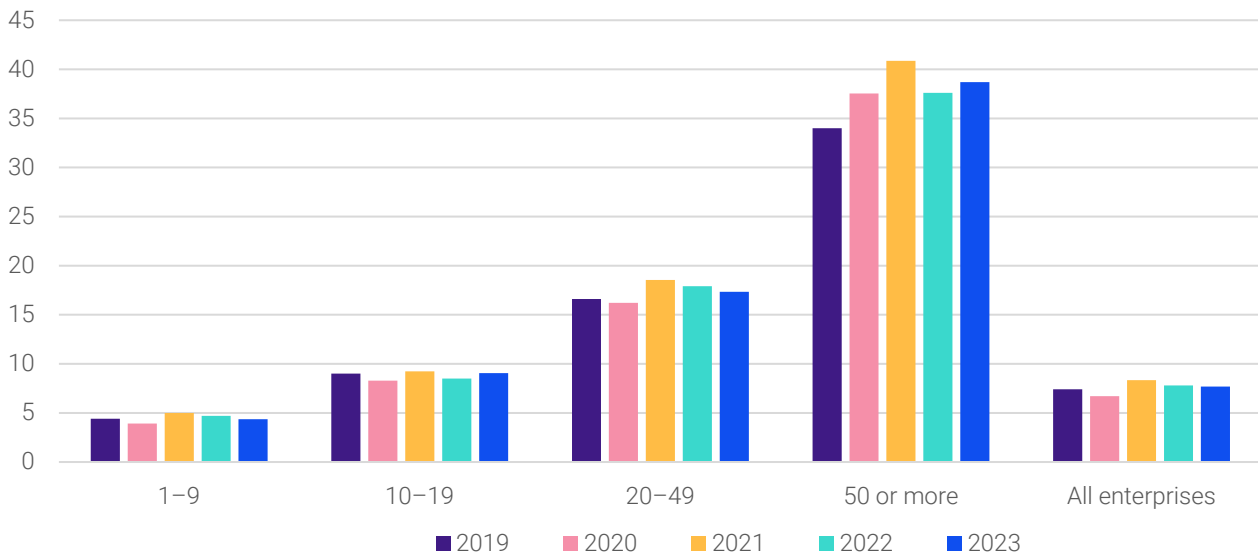


**Time spent on questionnaire completion and submission**

The time spent on questionnaire completion and submission is assessed based on the information collected from enterprises. Each questionnaire ends with the section "Time spent on filling out the questionnaire" with a table where the respondent can indicate the time (hours and minutes) spent on the questionnaire. This information is asked once a year.

Compared with 2022, the time spent on completion decreased, for example, for the "Wages and salaries and labour force" questionnaire. We were able to reduce the administrative burden of this questionnaire by reducing the sample size, supported by the wages and salaries project. It was not possible to drop this questionnaire completely, as it is used to collect data for various different indicators: average gross hourly earnings, labour cost indices, job vacancies.

The administrative burden of the "Production and trade of energy, consumption of fuels" questionnaire decreased – we were able to reduce the sample size, as data on renewable energy production are now received directly from AS Elering.

The administrative burden of the "Accommodation activity" questionnaire also decreased, as we added seasonality characteristics to enterprises not required to report each month.

The total administrative burden for enterprises was 295,000 hours in 2023, which is 6% more than in 2022. The increase in burden was due to the non-regular surveys carried out in 2023: the Community Innovation Survey and the Structure of Earnings Survey.

**Reducing the administrative burden of enterprises**

To reduce the administrative burden, we continue to do the following:

- develop the possibilities for automatic reporting using machine-to-machine communication (the Reporting 3.0 project, which is part of the Real-time Economy initiative of the Ministry of Economic Affairs and Communication). Wages and salaries and labour force data can be submitted in 2024. The goal is to adopt machine-to-machine interaction for most business questionnaires over the next few years;

- upgrade our data collection service, incl. the electronic data submission environment;

- look for information in databases, in public and private sector information systems, and on websites, with the aim of reusing existing data and reducing data collection with questionnaires;

- apply the once-only principle in data collection;

- make maximum use of data collected from enterprises with questionnaires when performing other statistical activities;

- use model-based estimation to obtain missing information and thereby decrease sample sizes and/or frequency of data collection;

- make questionnaires easier to understand and to complete for data providers.

We collect feedback to assess customer satisfaction, and customers have made a number of recommendations concerning the administrative burden. Where possible, we have implemented these to reduce the burden.

**Changes made based on customer feedback that help to reduce the administrative burden**

- We developed the eStat data submission environment (indicating required fields; text box size; thousands separator; possibility to delete answers and restore pre-filled values, etc.).

- Two questionnaires ("Information technology in enterprises 2023" and "Science centres and expositions 2023") were collected in the LimeSurvey environment to improve the customer experience (LimeSurvey allows respondents to answer only questions concerning them, and to complete questionnaires on a mobile device).

- We considered questionnaires about energy as a whole, to ensure better pre-filling possibilities.

- We revised submission due dates:

1) We changed submission deadlines based on, among other things, when the VAT returns (form KMD) are submitted. This ensures a smoother flow for respondents submitting the questionnaires "Industry" and "Financial statistics of financial service activities and activities auxiliary to financial services".

2) We are trying to find a solution for taking into consideration the submission of forms TSD (declaration of income and social tax, unemployment insurance premiums and contributions to mandatory funded pension) and KMD (VAT return), which affects the submission of the following questionnaires: "Accommodation activity (monthly)", "Foreign trade in services", "Road transport", "Structure of earnings", "Intrastat. Dispatches", "Intrastat. Arrivals", and EKOMAR annual structural business survey (10 questionnaires);

- We increased the use of VAT return data in the pre-filling of questionnaires.

- We specified the units of measurement. We indicated where a sum should include or exclude VAT.

- We made a proposal for using administrative data in transport statistics (data from AS Ridango).

- We reworded various questions, help texts, error messages etc. We made sure that information about the purpose and instructions is clear and easy to notice at the beginning of the questionnaire.

## Satisfaction

Two customer segments – data providers and users of statistics – are asked for feedback to assess satisfaction. The group of data providers comprises enterprises, public sector institutions and private individuals who submit data to Statistics Estonia by answering questionnaires. Users of statistics refer to all enterprises, institutions and individuals who have submitted a request for information to Statistics Estonia or have requested a dataset as contract work.

To determine the level of satisfaction, we use the promoter index methodology (NPS – Net Promoter Score) and the Likert scale. In addition to that, we saw the need to update the way we request feedback from data providers – we now ask them to rate the questionnaire on a five-point scale at the end of the questionnaire. After testing the new methodology, it was decided to implement the new system of feedback collection fully in 2023. Respondents are more motivated to give feedback immediately after submitting data, as evidenced by the better feedback response rate with the new approach. We combined the two methodologies, making sure that a respondent is only asked for feedback on one occasion.

### Individuals

Individuals' satisfaction was measured with the promoter index methodology (NPS), which we also use for measuring satisfaction among enterprises and satisfaction with customer service. We collected feedback from the respondents of 9 different surveys, including the Farm Structure Survey. We asked nearly 46,600 respondents for feedback and received 8,500 responses. This means that feedback was provided by about 19% of the respondents that were asked for feedback. For the first time, we collected feedback from the respondents of the European Social Fund (ESF) Participants Survey. This was done in the last three months of 2023, whereas the questionnaire is different because it is very short and can be accessed without user identification, just by clicking the link in the email.

Respondents' **satisfaction with interviewers** was measured based on their answer to the question "How would you rate your satisfaction with the interviewer's work, including communication skills, behaviour and quality of explanations?". The overall satisfaction with interviewers among all respondents was 78, which is a very good result. The interviewers were praised for their professionalism, ability to explain and convince and to maintain their composure. The satisfaction with interviewers' work differed significantly among Farm Structure Survey respondents (60) and respondents of other surveys (79).

### Collection of feedback about questionnaires

In 2022, we updated the way we collect feedback from data providers. The questions about various aspects of the questionnaire are now displayed at the end of the questionnaire. By now, we have collected feedback this way for all our questionnaires, and we can draw some conclusions. In 2023, we collected feedback about 6 personal surveys and 57 business surveys. On a five-point scale (1– very difficult … 5 – very easy), the overall rating given to the easiness of filling in the questionnaire was **3.3 for enterprise surveys** (i.e. average difficulty) and **4.2 for personal surveys** (i.e. easy).

**Table 6. General assessment of questionnaires in 2023**

| Type of survey | Completed questionnaires | Questionnaires with feedback | Share of questionnaires with feedback | General assessment (strategic indicator) | Number of surveys assessed |
|---|---|---|---|---|---|
| Personal surveys | 22,009 | 6,960 | 31.6% | 4.24 | 6 |
| Enterprise surveys | 39,511 | 12,647 | 32.0% | 3.28 | 57 |
| TOTAL | 61,520 | 19,607 | 31.9% | 3.69 | 63 |

**Table 7. Feedback on enterprise surveys: rating of individual components in 2023**

| Wording of questions | Wording of checks | Manual | Tooltips (hints) | Pre-filling | Usability of eStat |
|---:|---:|---:|---:|---:|---:|
| 3.900 | 3.740 | 3.790 | 3.880 | 4.080 | 3.790 |

**Table 8. Feedback on personal surveys: rating of individual components in 2023**

| Wording of questions | Wording of answer options | Help texts | Error messages, warnings | Website usability |
|---:|---:|---:|---:|---:|
| 4.640 | 4.670 | 4.580 | 4.640 | 4.460 |

Importantly, we have been able to act on the feedback more than in the past. We analyse the feedback and send it immediately to relevant team leads. This allowed us to make various changes, as described above (**Changes made based on customer feedback that help to reduce the administrative burden**).

In 2023, we collected feedback about 63 questionnaires (personal and enterprise surveys combined). There were 61,520 questionnaires completed last year, and we received feedback on 32% of these (19,607). There were three surveys about which no feedback was received.

## Satisfaction with Statistics Estonia's customer support

### Satisfaction with customer support among statistics users

In 2023, Statistics Estonia asked 1,010 users of statistics for feedback and suggestions concerning requests for information, completed contract work and customer service. To determine the level of satisfaction, we use the promoter index methodology (NPS – Net Promoter Score)[2], where customers are asked to rate their satisfaction with Statistics Estonia's customer service and the response received on a 10-point scale. We received 261 responses (response rate 26%). The satisfaction with Statistics Estonia's customer support and the response received was 81.6, which means 'very good' in the NPS methodology. Statistics users were happy with the fast and professional customer service, and they appreciated the consideration and care shown for their needs. Users were satisfied with the thoroughness of the response. They like that the customer support recommends other sources where the required data could be found in cases where Statistics Estonia is not the holder of the relevant data.

### Satisfaction with customer support among data providers

In 2023, Statistics Estonia asked 6,348 data providers for feedback about customer support and the response received. Customers who had contacted our customer support by email were asked to rate their satisfaction ("How satisfied are you with the response and with our customer support?").

We received 882 answers (response rate 14%). Satisfaction with customer support is measured with the Net Promoter Score (NPS) methodology. The satisfaction score for Statistics Estonia's customer support and response received was 80.

Data providers found our customer support to be fast, professional and friendly. The personal approach and customer focus were highly appreciated. Lower scores were given for reasons such as dissatisfaction with the

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[2] Assessments on a scale from 1 to 10 are given to three questions. The promoter index score may range from −100 to 100. "Excellent" ranges from 100 to 60, "very good" from 59 to 20, "good" from 19 to 0, "satisfactory" from −1 to −40, "poor" from −41 to −70 and "very poor" from −71 to −100.

response received or with the proposed solution (e.g. when customer support was unable to extend a deadline or release a respondent from reporting duties).

**Public trust**

Statistics Estonia participates in the survey on the reliability of public institutions conducted by the market research enterprise Turu-uuringute AS. Once a quarter, about 1,000 randomly sampled persons in Estonia are asked the question "In your opinion, how reliable are the following institutions?". In 2023, Statistics Estonia's highest ranking among 28 institutions was 15th (we ranked 15th in three quarters). Our highest ranking in this survey in 2022 was 12th. The Rescue Board, the Emergency Response Centre, and the Police and Border Guard Board are considered the most reliable institutions. The same institutions have ranked at the top for years, with occasional changes in their order.

# 2. Data governance

## 2.1 Coordination of data governance on the state level

Statistics Estonia coordinates state data governance in cooperation with partners, notably the Ministry of Economic Affairs and Communications and the Information System Authority.

Ministries and state institutions see data governance as a key element of the digital society reform as it ensures better public digital services. Institutions are increasingly realising that the data in their possession are a tremendous asset enabling them to make changes, but only if the data domain is also reformed. Data play a vital role in the national long-term development strategy "Estonia 2035" in terms of better state governance – through increased data exchange, i.e. data reuse, and through the use of survey and statistical data in policy-making. Data governance holds an important position in the "Estonian Digital Society Development Plan 2030". Statistics Estonia plays a central role in the achievement of two goals defined in the plan, concerning data-based governance and data reuse:

- decision-making based on first-rate data, which relies on data discoverability, data quality and speed of access, to offer analytical support to decision-makers and to strengthen processes;

- an up-to-date and comprehensive overview of data on the level of registers and available datasets. Data can be semantically linked; the once-only principle is applied in data collection, and the collected data are reused.

The importance of data was demonstrated daily during the COVID-19 pandemic. The European Union set up the Recovery and Resilience Facility (RRF) to mitigate the negative impact of the coronavirus crisis and to prepare for future challenges. At the end of 2021, the European Commission approved the decisions of the Estonian government for use of the Recovery and Resilience Facility funding. The digital society component involves the establishment and development of a centre of excellence for data governance and open data, to achieve the following targets:

- raise the quality of the data managed and collected by the state;

- improve the availability of data for decision-making;

- improve the quality and availability of open data, and support their reuse.


The biggest challenges:

- The state has no comprehensive overview of the data actually available in databases.

- The organisations also do not have a full grasp of the parts that make the whole, or of the necessary steps to organise the data they have.

- Institutions require guidance as well as tools.

At the same time, the institutions, including the top management in many cases, are aware of the importance of this domain and are looking for solutions. Basically, they expect coordination. In the area of data governance, the public sector faces several challenges and goals, defined in the RRF plan as follows:

- Using (reusing) the data stored and collected within the public sector, in order to make better decisions in policy formation and to offer better services, incl. the provision of integrated and predictable services. For the introduction of applications based on artificial intelligence, the underlying data must be of a high quality.

- However, the data quality is often inadequate, due to the poor and inconsistent standard of the organisation, competences and practices of data governance across institutions. Also, often, there is not a good enough overview for data (re-)use;

- There is a great amount of inefficiency in data governance. For example, the public sector includes over 1,200 databases and there is often data duplication and duplicate submission of the same data (from the user's point of view).

- Another challenge is the limited, unsystematic availability of open data, which should be a functional, permanent part of good data governance. The situation has improved but there is a long way to go to making the most of open data as a digital economy/society. Here, again, the main reason is lack of competence. With already existing open data, the challenge is expanding their (re-)use for new services and measures.

The data governance reform will be carried out over four years. In 2022, a competence centre for data governance was launched at Statistics Estonia. The centre is tasked with the following: developing the requirements of data governance and the system of classifications; providing guidance and counselling about data governance (incl. implementation of data governance principles in other institutions; training); maintaining an overview of data collected by the state; initiating and supporting the improvement of data quality and open data (incl. helping other institutions to carry out auditing and training in the area of data quality); establishing data repositories. Both in 2022 and 2023, the main focus was on data description and data quality.

Another priority in the coordination of data governance is the provision of the necessary ICT tools in cooperation with the Ministry of Economic Affairs and Communications and the Information System Authority. The current state data directory (RIHA[3]) has not offered much additional value to institutions. The RIHAKE application was developed to provide organisations with a data governance tool interfaced with RIHA. RIHAKE is a tool where an institution can describe its databases in the data dictionary, improve data clarity by creating a business glossary of relevant terms, keep the data overview and descriptions up to date, and submit descriptions to RIHAKE. This will lead to an up-to-date and clear overview of the data available in state registers and databases. The first version of the application was made available in April 2022 and has been developed further based on feedback from institutions.

In summer 2022, the Ministry of Economic Affairs and Communications presented its vision for developing a single data portal based on RIHA and the Estonian open data portal. Agreement to apply a common standard is the key to this development. This standard was prepared in cooperation with the ministry.[4] Applications and interfaces (incl. the official portal for European data) follow a compatible standard that makes data easier to find.

The definition of legal requirements for data governance continued. The Government regulation "Principles for Managing Services and Governing Information"[5] prescribes detailed requirements for data governance and stipulates that authorities must implement a process for monitoring and managing data quality. The regulation applies to databases only, but the data quality process will make institutions pay attention to other datasets as well, in addition to databases. In 2023, we published data quality guidelines as well as another set of guidelines describing the data quality duties for institutions. The EU Data Governance Act, which entered into force in 2022, is applicable since autumn 2023: it establishes data re-use and data intermediation services (data sharing services in Estonia) across Europe. The European Council also adopted the Data Act which regulates data sharing and availability, including private sector data and exceptional data needs. The Data Act entered into force in January 2024.

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[3] RIHA, administration system of the state information system; https://www.riha.ee/
[4] Data description standard (in Estonian), May 2022; https://www.stat.ee/sites/default/files/2022-06/AH_juhis_andmekirjeldus_standard_2.0.pdf
[5] Regulation of the Government of the Republic of 25 May 2017; https://www.riigiteataja.ee/en/eli/ee/513042023001/consolide/current

## 2.2 Cooperation with other institutions to improve their data governance

The priority in 2023 was continuing to provide support to other institutions as they describe their databases. A total of 133 data description projects were carried out – each database or dataset was described by creating its data dictionary or business glossary. Statistics Estonia cooperated with 24 organisations (19 organisations in 2022), which means we had projects with most government agencies. Descriptions of Statistics Estonia's data were also added.

Compilation of data dictionaries and business glossaries.

Different data governance functions within an institution are interconnected: data description with data quality, data quality with business rules, business rules with services. And a comprehensive overview is essential. Here, the focus of cooperation was on detailed data description. Estonia is otherwise a strong digital society, but data description has been inconsistent and has often been a supplementary task in IT developments. While semantic web technologies are well-developed, their use has been limited in business and IT applications. In our search for an effective solution, we prioritised getting a semantic overview of data. This is achieved by creating data dictionaries and business glossaries and by helping other institutions do the same. RIHAKE includes the functionality for creating and managing dictionaries, which ensures standardised description.

Improvement of data quality.

By the end of 2023, Statistics Estonia had helped and advised 36 institutions. We have explained what the data governance requirements mean and how the quality model should be implemented. Institutions are aware that data quality is related to data description. But, while a data description tool is available (RIHAKE), the need for a data quality tool remains. We have an overview of institutions' needs and have prepared a document[6] with functionality requirements based on use cases. It has also been necessary to focus on the quality of data description (metadata) – better metadata in an open data portal or an in-house portal will increase the reliability and use of the institution's datasets. It is necessary to regularly assess the data quality requirements and recommendations arising from the Government regulation[7] as well as from other guidelines, in order to ensure their practicality.

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[6] https://www.kratid.ee/_files/ugd/980182_6f260e68d00742ffbc660e9e661ededf.pdf
[7] Regulation of the Government of the Republic of 25 May 2017; https://www.riigiteataja.ee/en/eli/ee/513042023001/consolide/current

# 3. Data literacy

Our goal is to promote the ability to use data, while being the main reliable source for data about Estonia.

## 3.1 Development of digital services

In 2023, we continued to upgrade our applications and focused on improvements in usability. We continued to develop Statistics Estonia's main website and applied our visual identity across all applications.

At the beginning of last year, we started using the Bürokratt virtual assistant. The assistant is available on the main website and on the database pages to help answer users' questions. By the end of 2023, Bürokratt was able to answer questions about 71 different topics related to Statistics Estonia, from population figure to foreign trade.

In 2022, we made preparations to continue with a single public database on our website. We have now completed this project – since June 2023, all official statistics are available in a single database, which means that we closed the other database for public use. This change has led to a substantial increase in the number of visitors to the public statistical database.

In the second half of 2023, we developed the new earnings application. It allows Statistics Estonia to continue to provide information about average and median earnings and about differences in the earnings of women and men in Estonia. The work done in 2023 allows us to launch the new application in the first half of 2024.

## Environment for re-use of data for research

In 2022, Statistics Estonia began to develop a new information system in order to offer data sharing services, as it is required to do by law.

The new information system is an environment for the re-use of datasets for research. It will integrate data sharing for analysis and services for researchers.

In August 2022, we put the project out to tender, and analysis with the developer began in November. Stage 1 developments will be finished in early 2024, and they include:

- user interface with data directory. The search module is based on Statistics Estonia's data directory which consists of metadata mirrored from the meta-information system (Colectica) through automatic data exchange. This data directory is indexed and allows full text search, it can be browsed and filtered by agreed criteria;

- access module which distinguishes authorised users and public view, based on user role. The search view is public. Users must log in and sign a contract to order datasets or use micro-data for analysis;

- process for ordering datasets and for delivering requested data (excl. preparation of datasets);

- process for managing institutions and users connected with an order or a contract;

- description of dataset preparation, research execution, and the secure environment for accessing and analysing microdata and the research outcomes;

- storage of input data and results: where and how are the data stored, who has access after the end of the project, what is the data destruction and preservation policy.

At the moment, the focus is on preparing the data directory. It will be completed by the end of 2024 and then regularly updated.

## 3.2 Helping people understand the world better through data

Statistics Estonia's main responsibility is to release the official statistics we produce via digital services. But, to ensure the biggest possible benefit, the published data need analysis or further processing. By promoting data literacy, we can increase the value gained from data. Data and statistics help to make good, informed decisions. In section 1.1 of this report, we mentioned data items published in accordance with the release calendar, including 118 mandatory news releases. From the perspective of data literacy, in 2023, we published **233** data stories, including **118** news releases, **55** news articles and **59** blog posts. We also gave **152** interviews. The growing public need for data is evidenced by the number of media inquiries that we answered – 498 in 2023 (295 in 2021, 448 in 2022). By the end of the year, our social media channels had over 60,000 followers.

Based on users' requests, we organise **training and briefing sessions** to show which data and which applications (for external users) are available. In 2023, we conducted 6 user seminars for schools, universities and public institutions. One of the user seminars was held live on our Facebook and YouTube channels ("Andmed on varandus – kust neid leida?"). It was organised in cooperation with the Education and Youth Board, the Teeviit youth information portal, and the Safer Internet Centre in Estonia ("Targalt internetis").

The last week of March was traditionally the data literacy week, organised to support the ability to find, read and understand data, especially among young people. The highlight of the data literacy week was the 24-hour question marathon Küsimus24 that invited everyone to submit a question to Statistics Estonia. The answers to the submitted questions (almost 1,400) were prepared by many Statistics Estonia's employees: our analysts, methodologists, customer support specialists, and so on. We also had the help of a few experts from the University of Tartu: Andero Uusberg from the Institute of Psychology, Liina-Mai Tooding from the Institute of Social Sciences, and Mare Vähi from the Institute of Mathematics and Statistics. During the entire week, we shared visual data titbits on our social media to show what to pay attention to when looking at statistical data. The data titbits encouraged everyone to learn how to use data, that is, how to find, read, process, analyse or interpret data.

The European Statistics Day is celebrated on 20 October, with national statistical institutes organising various activities to promote data literacy. On the European Statistics Day in 2023, we invited **data-savvy** schools across Estonia to take part in a lesson where we shared information about data in general, gave tips for finding and using data for schoolwork, and held a quiz and a small competition. The second event of the day was organised together with the Institute of Mathematics and Statistics of the University of Tartu. Ants Kaasik (Institute of Ecology and Earth Sciences, University of Tartu) made a presentation about forest statistics. The title of our data scientist Hans Hõrak's presentation was "Blind observation – analysing visual information without seeing it". Then there was a panel discussion on statistics and ethics. The panellists were Ene-Margit Tiit (Professor Emerita, representing Statistics Estonia and the University of Tartu), Mari-Liisa Parder (Centre for Ethics, University of Tartu), Hans Hõrak (Statistics Estonia), Lili Milani (Institute of Genomics, University of Tartu), with Krista Fischer (Institute of Mathematics and Statistics, University of Tartu) serving as the moderator. The same day we also awarded the young statistician's prize.

Statistics Estonia has awarded the **young statistician's prize named after Albert Pullerits** since 2011. The prize is given to a student whose Bachelor's or Master's thesis in the area of demography, social life, economy or the environment applies or develops a statistical method. In 2023, the young statistician's prize was awarded to Artur Tuttar for his Master's thesis "Development of generalised linear models based on insurance data using machine learning" defended at the University of Tartu.

Photo: Artur Tuttar

**The competition "Andmepärl" has been introduced to recognise outstanding presentations of data**, as a way to promote informed use of data. As before, "Andmepärl 2023" had two competition categories: best data story and best infographics. The **best data story in 2023** was the book of playful maps of Estonia ("Viguriga kaardid – Eesti kujutatuna kaartidel") created by Taavi Pae from the Department of Geography at the University of Tartu. It is a great illustration of the variety of data sources available, and the book uses them to paint a very unique and interesting picture of Estonia, from the location of old stone walls to the regional blooming of bird cherry trees. The **best infographic in 2023** was the interactive story on residents of Tallinn published in the Eesti Ekspress media outlet and created by Riin Aljas, Toom Tragel, Mart Nigola and Delfi Meedia.



## 3.3 Cooperation in Estonia

One way to develop data literacy is to tell our partners – such as public-sector institutions, business associations, and research organisations – about the services and possibilities that Statistics Estonia can offer. Having a better idea of our activities, capabilities and services will enable our partners to identify opportunities for cooperation and to make better use of the value we offer for their own and for public benefit. There is a working group for official statistics (with experts from ministries and the Government Office) where Statistics Estonia can explain what we do and also get feedback from our partners. In addition to that, we met with individual ministries and their agencies to discuss domain-specific statistics and our services (we had such meetings, for

example, at the Ministry of Economic Affairs and Communications, the Ministry of Regional Affairs and Agriculture, the Ministry of Climate, the Ministry of Culture, the Ministry of Education and Research, the Ministry of Justice, the Government Office). In 2023, we also had good cooperation with the Estonian Banking Association, the Estonian Association of SMEs, the Estonian Defence and Aerospace Industry Association, and the Estonian Association of Information Technology and Telecommunications.

One of the priorities in our national and international cooperation is to be involved in any matters concerning data and statistics as early as possible in the policy shaping stages (including the drafting of legislation). In 2023, in cooperation with policymakers and the private sector, we formulated Estonia's response to three proposed EU regulations: proposal for amending the Regulation on European statistics, proposal for a regulation on European statistics on population and housing, and proposal for a regulation on labour market statistics on businesses.

The Regulation on European statistics provides the underlying legal framework for the European Statistical System (ESS), and the proposed amendment makes European statistics and the ESS fit for the future. The aim of the amendment, agreed between the European Parliament and the Council and the European Commission at the beginning of 2024, is to revise the role and duties of national statistical institutes in the data ecosystem, to facilitate the use of new data sources (incl. private data sources), and to improve data exchange between countries. As a new element, the proposed amendment tries to regulate access to privately held data (e.g. customer data from mobile network operators or chain stores). Therefore, we involved key partners in the negotiation process, notably the Ministry of Economic Affairs and Communications, the Ministry of Justice, and the relevant business associations.

# 4. Organisational development

The purpose of our organisation is to ensure data quality nationally and to consistently provide relevant, reliable and meaningful information. The achievement of these goals is supported by Statistics Estonia's three core values, which have been defined and updated considering the entire organisation, with input from all employees.

**Reliability**         **Cooperation**         **Innovation**

Due to the adoption of the new development plan, 2023 was a year of planning for changes. In terms of organisational development, the key areas were (and will be in 2024) the implementation of service-centric management and the development of a customer-centric mindset.

## 4.1 Employee retention and training

The majority (85%) of Statistics Estonia's budget is used for personnel costs, which means that people are, quite literally, our core asset and what our success relies on. In 2023, we had an average of 3,560 employees, with the average age of 49 years. 80% of the staff were women. Most of our employees are based in the Tallinn office, but we also have smaller offices in Tartu and Viljandi.

83% of Statistics Estonia's employees have higher education: 53% have a Master's degree, 13% have a Bachelor's degree, 3% have a doctorate degree, and 14% have professional higher education.

| 53% | 13% | 3% | 14% |
|-----|-----|-----|-----|
| Employees with a Master's degree | Employees with a Bachelor's degree | Employees with a doctorate degree | Employees with professional higher education |

The 2023 report on wages and salaries in the areas of government of ministries, in constitutional institutions and in the Government Office indicates that the level of wages at Statistics Estonia has improved by 4.1% year on year, but the wages at Statistics Estonia are still over 5.9% lower than for comparable positions in other institutions and agencies. There was a significant decrease in voluntary labour turnover at Statistics Estonia – it fell from 11% in 2022 to 4% in 2023. The overall labour turnover was 10%, decreasing by 9 percentage points. 93% of Statistics Estonia's employees participated in training courses last year. The main focus was on in-house training and briefings organised by Statistics Estonia's employees. Training related to Statistics Estonia's main activities accounted for 36% of all training activities. The other top areas were management training (13% of all training activities), and training related to digital competencies, computer skills and IT (10%). In addition to local training options, employees also attended training provided through the European Statistical Training Program

(ESTP). Statistics Estonia's employees participated in 22 ESTP training courses. The average volume of training per employee was 27 class hours in 2023. Training costs represented 1.1% of total labour costs.

## 4.2 Technological challenges

Today, national statistical institutes are, in essence, information technology "companies", since virtually all of their work processes are based on information technology in one way or another. The management of information technology at Statistics Estonia is complicated by the fact that our IT systems, developments and budget are managed in cooperation with the Information Technology Centre (RMIT) of the Ministry of Finance. Computer workstation services are provided to us by the Estonian Information and Communication Technology Centre (RIT) who will, in the future, also provide platform services (for hosting applications) and other infrastructure support services. Statistics Estonia oversees the IT budget for its activities, but day-to-day operation is also the responsibility of RMIT. Our annual IT budget is about 2 million euros. Statistics Estonia's work processes are supported by 60 different applications. As of early 2023, 19 of these were outdated software applications (legacy software) that use obsolete technologies (see Figure 4). By the end of 2023, we had carried out developments to replace 4 of these (or to offer these functionalities elsewhere).

**Figure 4. Overview of Statistics Estonia's applications**
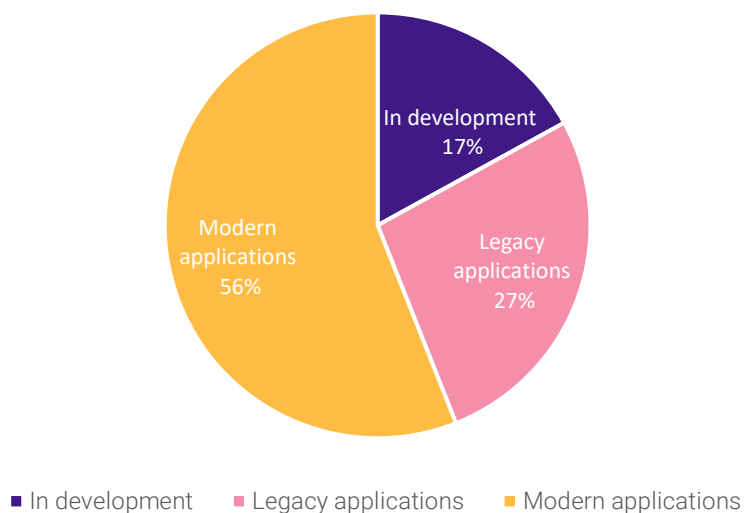


Legacy applications are spread across the production system at Statistics Estonia, with some outdated technology used in every part of the process. In the annual IT budget, we plan funds for ensuring security patching and maintenance of the legacy software, until the applications can be replaced. At the same time, we have several major development projects in the final stages, meaning that in the next few years we will be able to fully replace the old applications used for data collection, for example.

## 4.3 International cooperation

Statistics Estonia has defined the following aims for international cooperation: develop comparable statistics based on a range of sources; develop data governance and data science; explore and adopt innovative methods. A separate strategic area of international cooperation involves sharing Estonia's experience with data governance and register-based statistics production with the international community.

In 2023, we represented Estonia's interests within the **European Statistical System** by attending about 80 meetings of different European Commission (Eurostat) working groups for heads of statistical domains, various experts, or technical developers. These working groups develop statistics and prepare proposals for EU legislation; they are hubs of domain-specific knowledge. The Director General of Statistics Estonia represents Estonia in the European Statistical System Committee (ESSC) which met in Luxembourg in February and May 2023 and in Cork, Ireland, in October. In Cork, we also attended the annual DGINS conference where the theme was the challenges of measuring climate change. The 2024 DGINS conference will take place in Tallinn and will focus on data and statistics services that national statistical institutes can provide beyond official statistics. In 2023, Statistics Estonia's Director General Mr Urmet Lee was elected a member of the ESS Partnership Group (until the end of 2024).

Our employees participated in the Working Party on Statistics of the **Council of the European Union** to represent Estonia in the discussion of proposed regulations on European statistics, population statistics, and labour market statistics on businesses. The European statistics regulation is discussed in more detail in section 3.3. The proposed regulation on European statistics on population and housing and the regulation on labour market statistics on businesses both consolidate several existing regulations, providing a more comprehensive framework in either area, and both prioritise register-based production of statistics (over survey-based statistics that are much more time-consuming and labour-intensive). Both proposals introduce new, more innovative statistics that better reflect social changes (e.g. migration, gender pay gap etc.).

We also attended high-level statistics meetings during Sweden's and Spain's presidency of the Council of the EU. During Sweden's presidency, we discussed possibilities for involving statistics users more in the development of data services, for increasing the reliability of statistics through the use of new data sources and methodologies, and for supporting statistical leadership through training. The meeting during Spain's presidency was dedicated to interoperability strategies for modernising official statistics and in the context of the wider data eco-system.

**UN and OECD statistics system.** The 54th session of the UN Statistical Commission in New York approved the reports completed by various statistics working groups over the year. In June, the plenary session of the Conference of European Statisticians (CES) organised by the UN Economic Committee for Europe (UNECE) was held in Geneva. In June, we also attended the meeting of the OECD Committee on Statistics and Statistical Policy (CSSP) to discuss ways to better describe new social phenomena. Together with Canada, we headed the UNECE Task Force on data stewardship up until 2023. It was decided to continue with the Task Force in 2023 under Estonia's leadership. The Task Force defines the roles for data stewardship at national statistical institutes. The OECD working groups are an important source of information for us, regarding the changes in the statistical system amid the fast-developing data economy. In 2023, Statistics Estonia's employees participated in the OECD working groups for national accounts, financial statistics, foreign trade in goods and services statistics, and research and technology.

The **Baltic and Nordic cooperation** plan is approved by the steering group consisting of the Directors General of the Baltic national statistical authorities and their deputies. In 2023, the steering group met in Vilnius and approved the planned activities for 2023–2024 by domain. There are frequent meetings with colleagues from the Baltic countries and from Finland, both between experts and at management level.

**In 2023, we again had visitors who came to learn from our experience and share their own.** We provided training about statistics production, register-based statistics and data governance to statisticians and digital government officials from Albania, Kyrgyzstan, Eastern partnership countries (Ukraine, Moldova, Armenia, Georgia, Azerbaijan), Mongolia and Benin. In the field of data governance, we continued deeper cooperation with the Swiss Federal Statistical Office, culminating in a visit to Switzerland in December 2023.