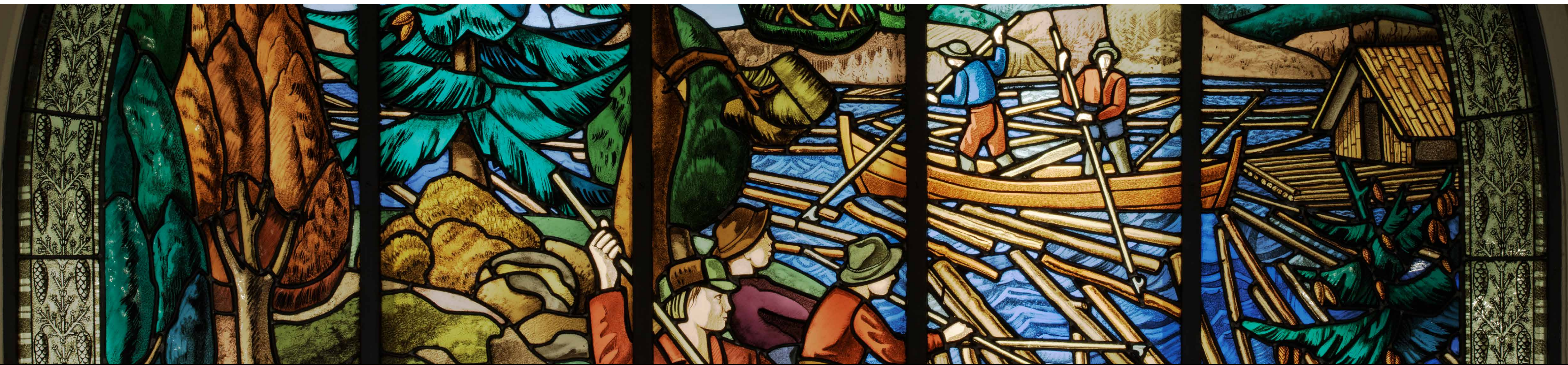


Bank of Finland Data Balance Sheet 2022



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Securing critical functions took centre stage in 2022

Tuomas Välimäki

Member of the Board

When 2022 began, I thought the year would be spent taking key steps towards the future of information management: defining the information strategy and the related architecture; improving the availability and usability of our information resources; and investing more in building joint data and analytics capabilities for the entire organisation. Little did I know what was in store.

Our work schedules were substantially revised in February 2022. Russia's attack on Ukraine turned issues of data protection and operational continuity into top priorities, also in matters related to data, information, knowledge and the management of these. We would have to ensure that the key functions of society continue operating under all circumstances in the event that our Russian neighbours were to attack Finland's critical civilian infrastructure.

Efficient financial intermediation is an essential ingredient for the economy to move forward favourably, especially in the longer run. However, if retail payments are disrupted, this could quickly lead to a collapse in the ability of many basic functions to operate. In Finland, digitalisation and technological developments have significantly transformed our payment habits. Instead of cash, we pay by card or smartphone. The pandemic years accelerated this transformation, and retail sales points have typically preferred electronic payment to cash. This has also come across strongly in the media. Electronic payment is, of course, generally convenient and reliable, but its growing dominance has increased our dependence on data connections. In addition, many of the information resources used by our payment systems and banks are located abroad, at least in part.

In spring 2022, the various authorities connected with the functioning of the financial markets, i.e. the Ministry of Finance, the Bank of Finland, the Financial Supervisory Authority and the Financial Stability Authority, took the decision to create backup systems for securing everyday payment under exceptional circumstances where households are not able to use the normal payment arrangements. A national emergency account system can now be deployed by the authorities if Finland's foreign data connections were to be cut or if a bank operating in Finland were to be affected by a severe and prolonged disruption. This backup system will enable credit transfers, debit card payments, cash withdrawals and, at least to a limited extent, mobile payments via Finnish applications. By securing everyday payments, the Bank and the other authorities are helping to strengthen Finland's crisis resilience and ability to cope in challenging circumstances.

The transformation in payment methods and especially the decline in cash use have prompted the question of whether there is a need in the future to make central bank money available to the public in electronic form as well. Should central banks ensure the continued existence of a payment instrument that is extremely robust in terms of its privacy protection? Should citizens be provided with legal tender in a situation where there is no longer sufficient demand for physical cash? Should the Eurosystem ensure a diversity of payment options by offering across the entire euro area a payment instrument that is managed in Europe?

In 2022, we conducted within the Eurosystem a broad examination of a range of issues, including those mentioned above, concerning the possible issuance of a central bank digital currency. The aim of the 2-year research project begun in October 2021 is to lay the groundwork for any possible



future issuance of a digital euro. A digital euro would support the role of central bank money as a monetary anchor, strengthen Europe's strategic autonomy and promote competition and payment efficiency within the euro area. In the autumn this year, the ECB's Governing Council will take a decision on whether the digital euro project will move from the planning and design stage to the implementation stage.

Although, in regard to information management, 2022 did not turn out the way I had anticipated, there is no doubt we have improved the reliability of our operations significantly following the shocks of the past few years. We now have a much better picture of what to do and how to function in such circumstances, even when we cannot work on the premises. Our data connections and information resources are now also on a stronger foundation. We will, of course, need to continue investing considerably in data protection and data security issues, but I'm optimistic that during 2023 we will be able to take key steps closer to the information management of the future – steps that were not taken in 2022 because of the need to focus on securing critical functions.

ICT and Information Management in 2022

Q&A with Petteri Vuolasto, Head of ICT and Information Management

The pandemic and the war in Ukraine figured prominently in 2022. How was 2022 for the Bank of Finland's ICT and Information Management Department?

Compared with the previous year in relation to the pandemic, our work went really well in 2022, both on the premises and remotely. In August, the staff began returning to the office (as remote working is limited to 60%), and that went nicely. Of course, combining work on the premises and remotely is a learning curve. The changes made include adapting the meeting room facilities to make it easier to hold hybrid meetings.

The war in Ukraine has not directly affected our work in the Department. Operational tasks have been performed normally and development projects have proceeded on time. Our Department is responsible for the Bank's own cybersecurity and information security, so the staff that deal with these matters had a busier year in 2022. A considerable amount of information has come from various sources about the war, especially regarding cybersecurity and information security. Managing and analysing this information in combination with our own sources has been time-consuming and challenging, but interesting as well.

What is the best of the changes brought to the Department by the long pandemic?

I would give a broader answer to this, in that the best thing for the entire Bank of Finland has been the success of working remotely. In March 2020, we switched practically overnight to working from home in all the tasks

where this was possible. The technical readiness for this was already in place in that several years earlier we had made a conscious transfer to laptops, and the technology for remote working, plus sufficient data connection capacity, was also there. The changeover from traditional PCs to laptops in fact began gradually after the 2009 swine flu.

What were the Department's success stories in 2022?

Well, here I must rightfully start by thanking all the Department's staff for their great efforts during the year. The systems have functioned well and development projects have moved forward.

I should give specific mention to the progress made with the information management development project and the completion of the content management renewal project. In the first of these we introduced a process for evaluating the impact of change, and in the second the final element (case management renewal) was brought to a successful completion during the spring.

How do you see the role of the Department in an ever more digital environment?

Digitalisation rose to the fore at the Bank for the first time in 2015, when we had three working groups examining digitalisation from different angles. I chaired the group that was looking at the impact of digitalisation on the Bank's own activities. The summary in the final report included the following:



- The biggest benefits of digitalisation will be gained via changes in operating methods, work processes and organisational aspects.
- Approaches that are technology and device centric can bring various benefits over the short term, but even then, the decisive factor will be people's commitment to using the new equipment.

Those statements still stand up quite well, and in fact the pandemic took digitalisation forward in just that way. We already had the technical possibilities, which we then used in part, but the pandemic triggered a real digital leap in line with the first of the statements. I still see the role of information management in a digitalising environment as being important and central, though technology is not the driver but merely the facilitator. By working together with the Bank's different functions, we are able to benefit from the technologies in the best possible way. The use of artificial intelligence (AI), is still in its infancy at the Bank, but its role will expand significantly in the years ahead as data volumes continue to grow.



Production and utilisation of data



Use of statistical data in support of monetary policy decision-making

Lauri Vilmi
Senior Adviser



The Governing Council of the European Central Bank (ECB) convenes eight times a year to take decisions on monetary policy. The Governor of the Bank of Finland is one of the Governing Council's members. To take monetary policy decisions, the Governing Council needs to gain a comprehensive picture of the outlook for the euro area economy. This, in turn, requires large amounts of various statistical data about the state of the economy.

Statistical data are interpreted by making use of a wide range of statistical and theoretical models. By utilising the most recent statistical data in the models, further information can be obtained on the inflation outlook or on other key macroeconomic variables, and with nowcasting models this information can be processed into economic growth forecasts in near real time. Various model simulations can also be used to analyse the impacts of different occurrences in the economy. Combining this data and information with the interpretation and insight of experts forms the basis for understanding trends in the euro area economy.

Financial markets also provide a great deal of data on changes in euro area financing conditions. As monetary policy decisions have a direct impact on financing conditions, analysis of data obtained from the financial markets is important both for assessing the stance of monetary policy and for understanding the impacts of previous decisions. The model for interest rate expectations and their probability distributions, derived from interest rate futures and options, is one of the key models utilising financial market data.

Understanding market expectations about interest rates helps assess monetary policy stance

Market expectations about a central bank's future interest rate policy are typically analysed on the basis of the future path of the short-term interest rate implied by risk-free market

rates – the path of the short-term forward rate. This path roughly indicates the average expected level of short-term interest rates. This average expectation is surrounded by a probability distribution of expectations, which illustrates uncertainty over the path of the interest rate.

The probability distribution of the interest rate path is calculated on the basis of options on Euribor futures contracts. Options on futures are, in a way, an insurance against the risk that interest rates either rise above or fall below a pre-determined threshold. The market prices of options can be used to estimate a probability distribution for the expected interest rate path, assuming risk-neutral option pricing.

The probability distribution of expectations provides a broader picture of monetary policy expectations and financing conditions than the expected interest rate path alone. For example, the distribution of expectations around the average interest rate path may widen even if the interest rate path itself would remain unchanged. This would suggest increased uncertainty over future monetary policy – even without changes in the average expected interest rate level. The distribution of expectations may also be skewed, in which case it shows the probable direction of changes in the expected interest rate level.

Changes in monetary policy communication can also lead to changes in the distribution of interest rate expectations. For example, forward guidance about interest rate policy may reduce uncertainty over the future path of interest rates and thereby strengthen the effectiveness of monetary policy accommodation even if there were no changes in the average interest rate expectations. Hence, distributions help gauge the effects of monetary policy even if the average interest rate path would remain greatly unaffected.

Kristian Tötterman
Market Analyst



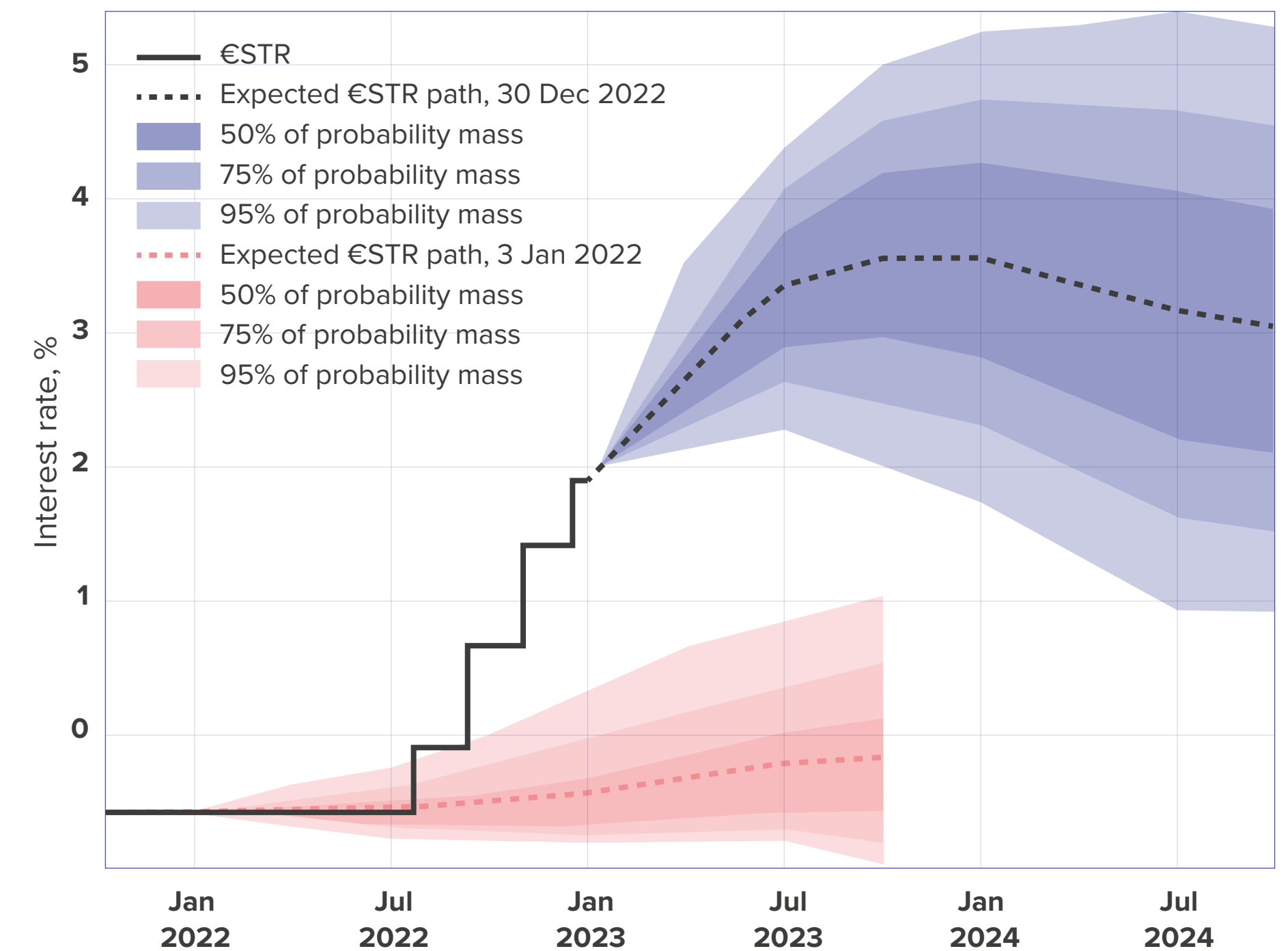
The Bank of Finland makes a detailed assessment of the euro area economic outlook for each monetary policy meeting. The meetings are held every six weeks.

Monetary policy normalisation has impacted uncertainty about interest rate expectations

Monetary policy was tightened in 2022, mainly by raising interest rates. The purpose was to bring inflation back to the level consistent with the ECB's price stability objective. At the same time, issuance of forward guidance on future interest rates was discontinued. The rapidly changed macroeconomic environment has been evident in a significantly higher uncertainty about the outlook for growth and inflation. Higher uncertainty, in turn, has been reflected in the expected path of interest rates. In January 2022, the markets still expected short-term rates to rise very moderately, and these expectations were subject to a very low level of uncertainty (red distribution in the chart). More recently, the distribution of interest rate expectations has significantly shifted upwards and widened markedly (blue distribution in the chart). The wider distribution specifically indicates higher uncertainty related to short-term interest rates. The changed width of the distribution is a natural result of the transition to a regime of data-dependent and meeting-by-meeting meeting approach in taking monetary policy decisions, and of the significant uncertainty surrounding the inflation outlook.

Modelling of uncertainty associated with interest rate expectations provides decision-makers with useful information about the uncertainty surrounding the current interest rate outlook. Understanding this uncertainty helps analyse the impacts of monetary policy decisions and related communication on financing conditions. However, the model does not account for how uncertainty over short-term interest rates affects the economy or how high uncertainty priced by the market should be. This assessment must be made by combining the results of the model with other statistical data and experts' views and insight.

€STR, expected paths and their distributions



The expected path of the €STR (euro short-term rate) has been derived from euro area overnight indexed swaps (OISs).

Probability distributions are based on options on Euribor futures contracts.

Sources: Bloomberg and calculations by the Bank of Finland.

Bank of Finland provides information to the public on various interest rates



Nea Karenius
Financial Economist

The prolonged period of very low interest rates is over and interest rates are rising, affecting daily lives of a growing number of Finns. In summer 2022, the European Central Bank (ECB) raised its key interest rates for the first time in many years, and the changed interest rate environment has increased public interest in interest rates. On its [website](#), the Bank of Finland publishes the following interest rates: the key ECB interest rates, the €STR, the Euribor rates of the different maturities, the base rate, the reference rate and the penalty payment rate.

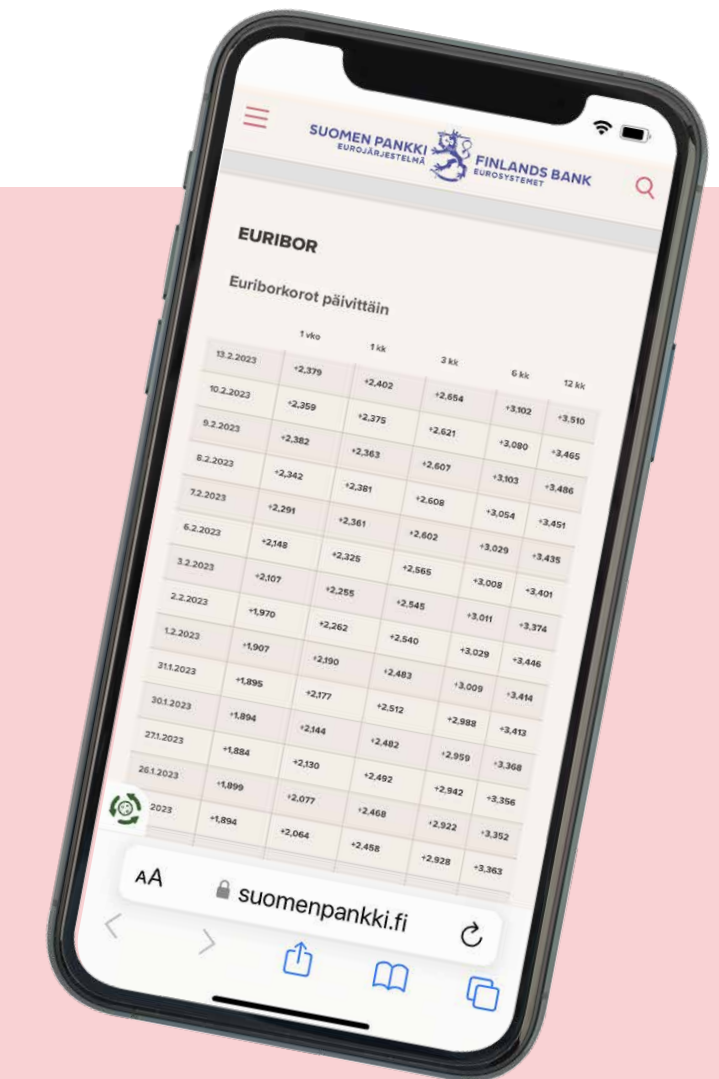
In addition to having direct effects on borrowing costs, interest rates also provide information on the state of the economy. Movements in money market rates, for example, signal how effectively monetary policy is transmitted to the economy. In respect of central banking activities, the ECB's policy rates – key ECB interest rates – are the most relevant of all the various rates. The ECB sets three key interest rates: the interest rate on the main refinancing operations, the rate on the marginal lending facility and the rate on the deposit facility.

There are several units at the Bank of Finland that participate in the preparation and implementation of decisions on the key ECB interest rates. For example, when the ECB adjusts its policy rates, the new rates must be updated in various systems. The Bank of Finland also monitors how the decisions on the key ECB interest rates affect the economy. The ECB uses its policy rates to steer short-term money market rates.¹ There are a variety of money market rates, and for the Eurosystem the most important of these is the euro short-term rate, the €STR. The €STR is an interest rate administered and published by the ECB and paid by banks in the euro area on unsecured overnight deposits in the wholesale market.

Monetary policy is conducted in the euro area through monetary policy

counterparties, i.e. euro area banks, and money market rates provide central banks with important information on how well monetary policy is transmitted to the money market. When the ECB changes its deposit facility rate, the €STR rates should adjust by an equal amount. If not, or if they adjust with a lag, monetary policy is not fully transmitted to the money market. The Bank of Finland also monitors movements in other money market rates, such as secured repo rates. Monetary policy transmission is relevant for central banks. If changes in policy rates do not pass through to money market rates, a central bank's monetary policy is not as effective as when monetary policy transmission works well. In that case, the central bank must analyse the reasons for the unintended outcome and, if necessary, adjust its monetary policy instruments, for example.

As for the reference rates, many people are most familiar with the Euro Interbank Offered Rate – the Euribor. On its website, the Bank of Finland publishes daily values of Euribor rates for several maturities. Euribor rates indicate the price at which banks fund themselves in the unsecured wholesale euro money market. The majority of Finnish loans that are linked to reference rates use Euribor rates as a benchmark. The Bank of Finland does not set Euribor rates; they are determined on the basis of actual lending by specific panel banks and information derived from these transactions. Euribor rates are published and administered by the European Money Markets Institute (EMMI), and the Bank of Finland only lists the rates on its website. Many people follow Euribor rates close to the reset date of their housing loan, for example, or when comparing which reference rate to choose for their own loan.



The Bank of Finland's websites showing daily data on Euribor rates have attracted more than 2 million visits over the past 12 months.

¹ For more details on the steering of interest rates by the central bank, see Niko Herrala's blog post [Miten korkoja nostetaan? \('How are interest rates raised?', in Finnish\)](#).

Tracking Russian economic statistics has become more difficult since the start of the war



Heli Simola
Senior Economist

The need for information on the performance of the Russian economy has increased significantly since the country's attack on Ukraine in February 2022. However, since the start of the war, the availability of information and statistics has deteriorated and uncertainty about the data has increased. In addition to traditional information sources, data users have also had to rely on alternative indicators to track the Russian economy.

Less reliable statistics and more limited data coverage

Russia's Federal State Statistics Service Rosstat has continued to publish all key economic statistics even since the start of the war. There have, however, been concerns about the reliability of the data. It has been suspected that Rosstat might be massaging the figures to conceal the poor state of the economy. There is certainly more uncertainty surrounding the data, but at least so far there have been no signs of a large-scale and systematic manipulation of statistics in Russia. The country has also published gloomier figures. For example, according to the official statistics, the production of passenger cars contracted in 2022 in Russia by as much as 67% from a year earlier.

Many Russian authorities, however, have substantially reduced the publication of economic statistics. The Ministry of Finance no longer releases detailed breakdowns of budget expenditure. The Central Bank of Russia has suspended publishing several statistics on the banking sector, among other things, and the balance of payments statistics are also only available in a significantly more limited format. The Federal Customs Service stopped releasing foreign trade statistics altogether last spring and has resumed publication only partly.

Search for alternative indicators in support of economic analysis

Finding alternative indicators for many of the individual statistics describing the economy is difficult. Only rough estimates can therefore be made at present on the state of the Russian banking sector or on the growth of military spending. In the case of Russia's foreign trade, however, a more accurate picture can be gained by using mirror statistics, i.e. foreign trade statistics of Russia's main trading partners. Mirror figures have also been used in the past to assess the reliability of trade statistics for Russia and also for other countries.

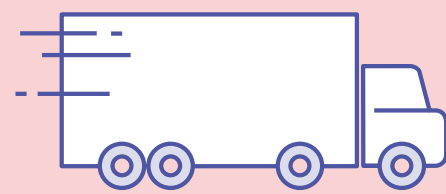
Such alternative indicators for Russia's goods imports and exports are used at the Bank of Finland Institute for Emerging Economies (BOFIT) to support economic analysis of Russia. The indicators are calculated on the basis of the foreign trade statistics of Russia's 17 main trading partners (incl. EU-27). Because of a more limited country group and technical issues, the precise values of the alternative indicators diverge from official trade statistics. Even so, the alternative indicators have followed changes in trade flows very closely in previous years (See chart on page 10).



-74%

**Russia produced
116 excavators in
December 2022, a
decline of 74% from
a year earlier.**

Mirror statistics indicate that the value of goods imports was in December 2022 about 26% lower in comparison to the pre-war level.



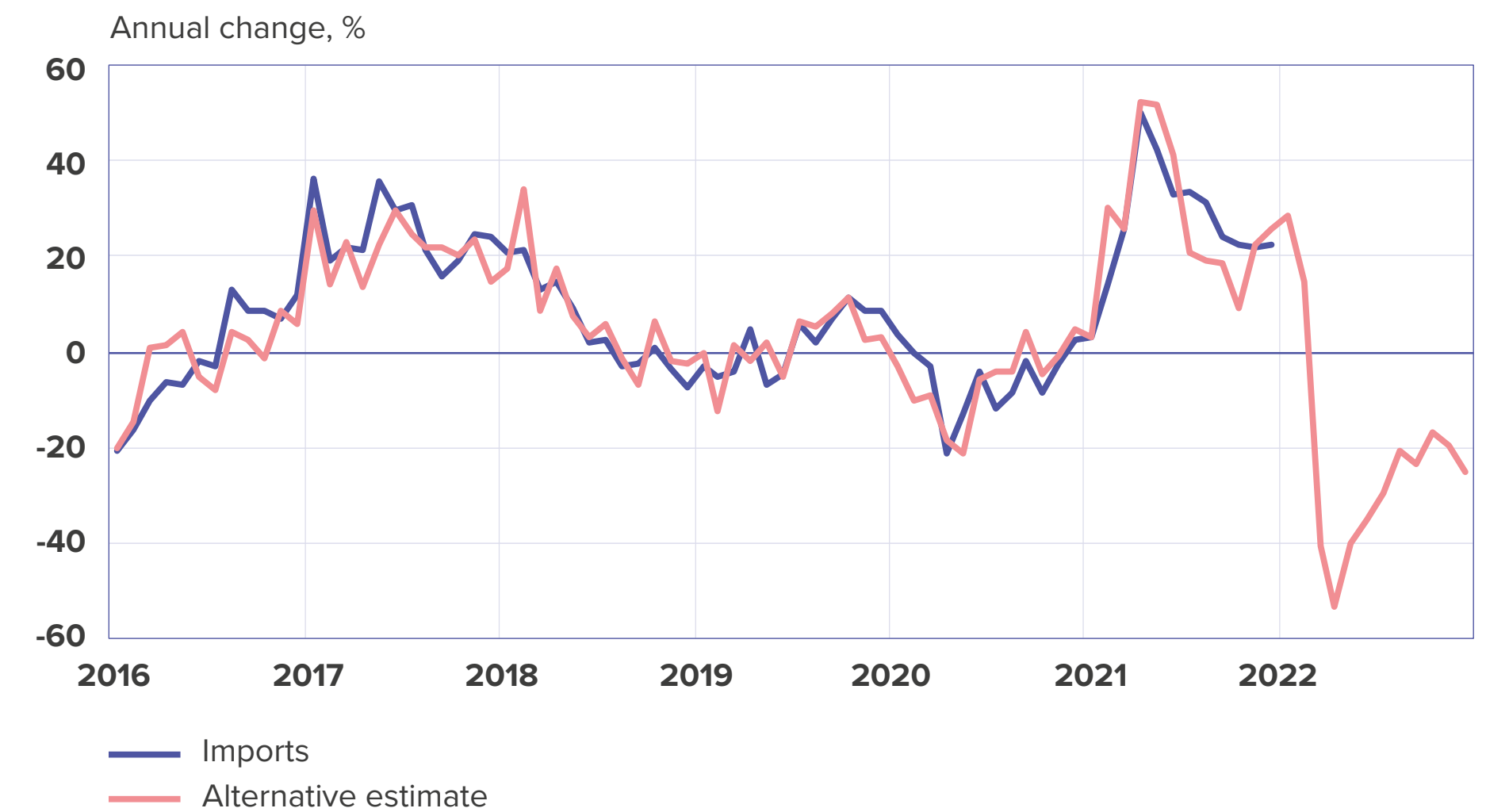
-26%

Alternative indicators shed light on the evolution in Russia's foreign trade

Based on an alternative indicator, Russia's export revenues increased in 2022 despite the war, supported by high commodity prices. Restrictions on exports from Russia have typically come with transition periods, and for example the EU import ban on Russia's main export product, crude oil, only took effect at the beginning of December 2022. Russia has also found alternative markets – particularly for crude oil – in India, China and Turkey. On the other hand, exports of many other Russian products, such as natural gas and timber, have declined substantially.

An alternative indicator for Russia's imports points to a sharp contraction in trade inflows. Mirror statistics indicate that the value of goods imports was in December 2022 about 26% lower in comparison to the pre-war level. Technology imports, in particular, have fallen sharply. Restrictions on exports to Russia imposed by the EU, the United States and other countries have specifically focused on technology products. However, imports into Russia from many countries that have not imposed sanctions on Russia, such as Vietnam and Thailand, have declined, too.

Evolution of Russia's goods imports and alternative estimate



Sources: Macrobond, Eurostat and BOFIT.

© Bank of Finland

Automation is helping quality control of payment statistics



Tia Kurtti, Economist
Anssi Heinonen, Economist
Juhana Hannuksela
Young Professionals programme

The payments transition was estimated to accelerate further during the COVID-19 pandemic¹, as card payments became increasingly popular, and contactless payments, in particular, were used more than before. In the preparedness debate in 2022, households were encouraged to withdraw money for a home emergency kit and to open an account with at least two banks². Both themes are closely connected to retail payments, and developments in this field can be followed, for example, with the help of payment statistics published by the Bank of Finland.

The Bank of Finland collects statistics on retail payments under the Regulation of the European Central Bank on payment statistics (ECB/2013/43, as amended by ECB/2020/59), in the collection of payment and fraud (MAPE), which started at the beginning of 2022. Statistical data are collected on a quarterly and half-year basis from domestic credit and payment institutions (including legal and natural persons offering a payment service without authorisation) as well as foreign credit and payment institutions' branches operating in Finland. The data collection provides a lot of granular data, and the reports submitted to the Bank of Finland's Statistics unit are very extensive.

A key part of the creation of reliable and comparable statistics is the quality control and assurance of the reports generated in the data collection. New types of and automated tools are needed to ensure that the statistical data submitted to the ECB are of the highest possible quality as the volume of data increases. The automation of routine reviews saves the time of experts for the analysis of more relevant deviations. For this purpose, the Bank developed the MAPE quality control tool, which is based on the Python language. The objectives of the quality control tool are as follows:

- More automated and targeted quality control.
- Easing and structuring reporting-entity communications related to data quality.

- Rapid adaptability of automated quality control.
- Utilisation of quality control data in data analysis.
- Enhancing Python know-how.
- Enhancing the development experience at the Bank of Finland as in the Citizen Development model.

In practice, the quality control tool analyses data reported in MAPE data collection to identify significant deviations in reporting entity-specific time series observations. The purpose is to examine the deviation of each observation from the time series-specific projections and the change in the corresponding value in the previous reporting period. From these observations, a composite indicator is created that describes the deviation of the observations, taking into account both of the criteria examined. From the observations sorted based on the indicator value can be identified the most significant deviations, which most likely require closer analysis. The method will become more accurate over time as data become available for more reporting periods.



What is Citizen Development?

Citizen Development refers to a business process that encourages non-IT-trained employees to become software developers. This approach to software development enables employees -- despite their lack of formal education in coding -- to become citizen developers. They create and customise existing software programs to suit a user's specific needs and improve operational efficiency within a company.

¹ Bank of Finland Bulletin 2/2021: COVID-19 is accelerating the payment revolution (<https://www.eurojatalous.fi/fi/2021/2/korona-kiihdytti-maksamisen-muutosta/>).

² Bank of Finland Bulletin blog: We all can prepare for possible disruptions in payments (<https://www.eurojatalous.fi/fi/blogit/2022/jokainen-voi-varautua-maksamisen-hairiotilanteisiin/>).

Energy performance of buildings from the perspective of the renovation obligation



Markku Ylitalo
Data scientist

Renovation obligation as a driver

As part of the ‘Clean energy for all Europeans package’, delivering on the EU’s commitments under the Paris Agreement, the European Commission issued a proposal for an Energy Performance of Buildings Directive (EPBD): the energy performance rating of residential buildings should be no lower than D by the year 2033 in the energy performance ratings A-G, and for non-residential buildings, the electricity consumption per square metre in the building stock should be lower than the threshold for the largest 15% fractile by 2030 and lower than the threshold for the largest 25% fractile by 2034. In autumn 2022, the Bank of Finland conducted a survey on the Finnish register of energy performance certificates to analyse the building stock entered in the register, if it were to be subject to the requirements of the proposed new Energy Performance of Buildings Directive. The renovation obligation included in the Directive requires that the renovations be started from the weakest portion of the building stock in terms of energy performance.

The Bank of Finland survey focused on analysing the share of the building stock in the register of energy performance certificates

- with the weakest energy performance ratings E, F, and G based on region and type of building and their distribution in metropolitan areas and regions,
- annual electricity consumption per square metre as well as the exceeding of the above-mentioned thresholds based on the 15% and 25% fractiles in annual electricity consumption per square metre in the building stock.

Based on the energy performance certificate data used in the survey, the renovation obligation included in the proposal for a directive is targeted mainly at residential buildings, which account for the majority of Finland’s building stock.

Background of the survey

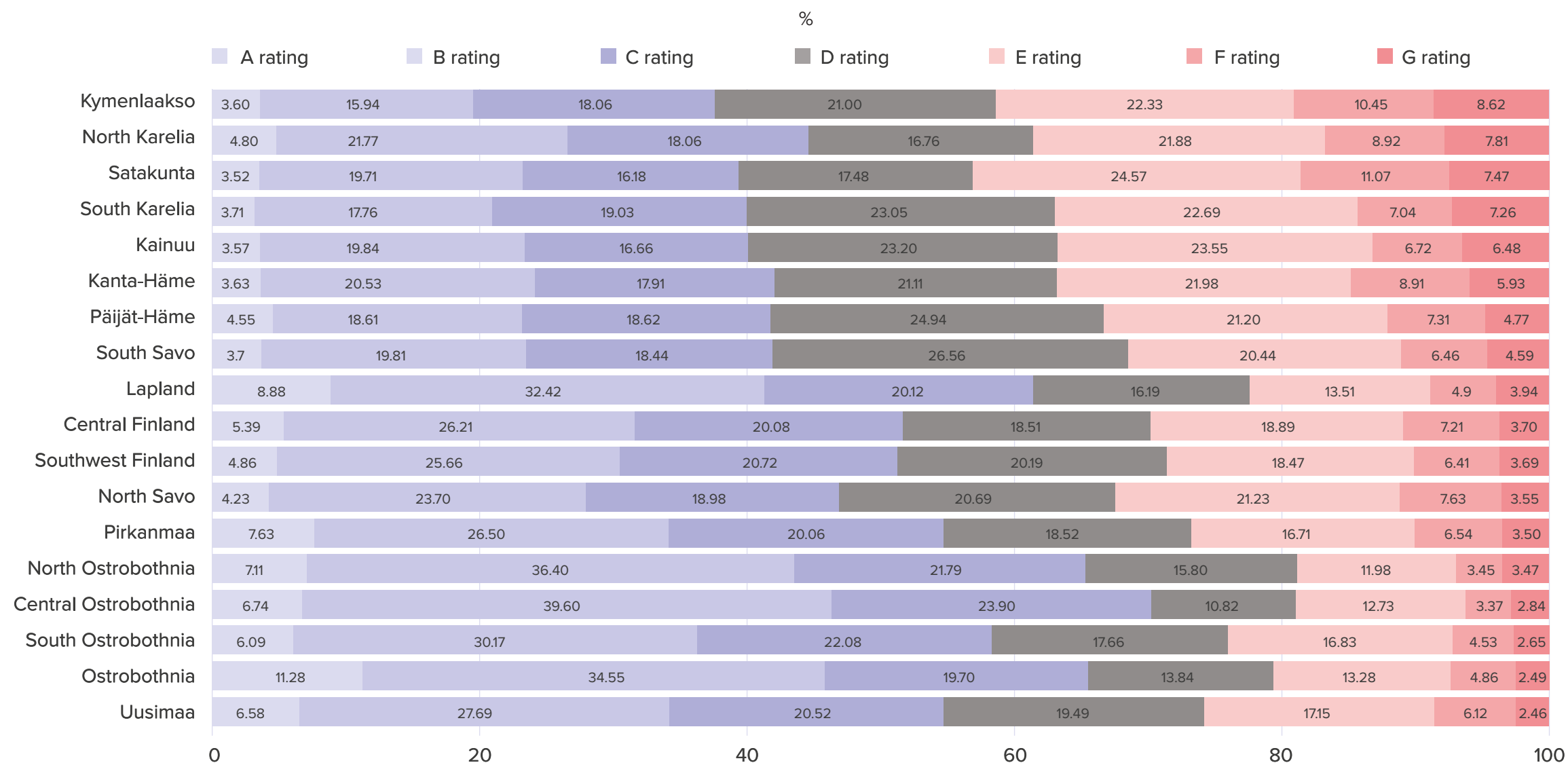
The data source for the survey was a dataset based on the register of energy performance certificates of the Housing Finance and Development Centre of Finland (ARA). At the time of the survey, the dataset included a total of 261,360 energy performance certificates in Finland’s building stock and 48 related variables for the years 2013 and 2018. From the dataset, the following key figures were prepared for the purpose of the survey: average of the energy performance rating, energy performance rating mode, shares of the various energy performance ratings (particularly E, F and G), average heated net area (m²), average electricity consumption (kWh), electricity consumption per square metre (kWh/m²) and the number of buildings per area exceeding the threshold of energy consumption per square metre and their share of the stock of buildings. In addition, the key figures for the energy performance ratings A–G were aggregated to the metropolitan area, regional and municipal level, to enable an analysis per type of area.

Key takeaways

A significant portion of Finnish residential buildings have a renovation backlog to some degree related to the energy efficiency target in the proposal for a directive. Of the residential building stock within the scope of the survey, 27.9% were in the three lowest ratings E, F and G of the energy performance ratings scale A-G. The largest renovation need was in residential buildings with several flats. Of the residential blocks of flats in the register of energy performance certificates, as many as 38% were buildings with a renovation backlog. Of the terraced houses or linked houses in the register, 37% had an energy performance rating E, F or G. In the case of residential buildings with one or two flats, the renovation backlog was significantly smaller relative to the number of buildings. However, over one



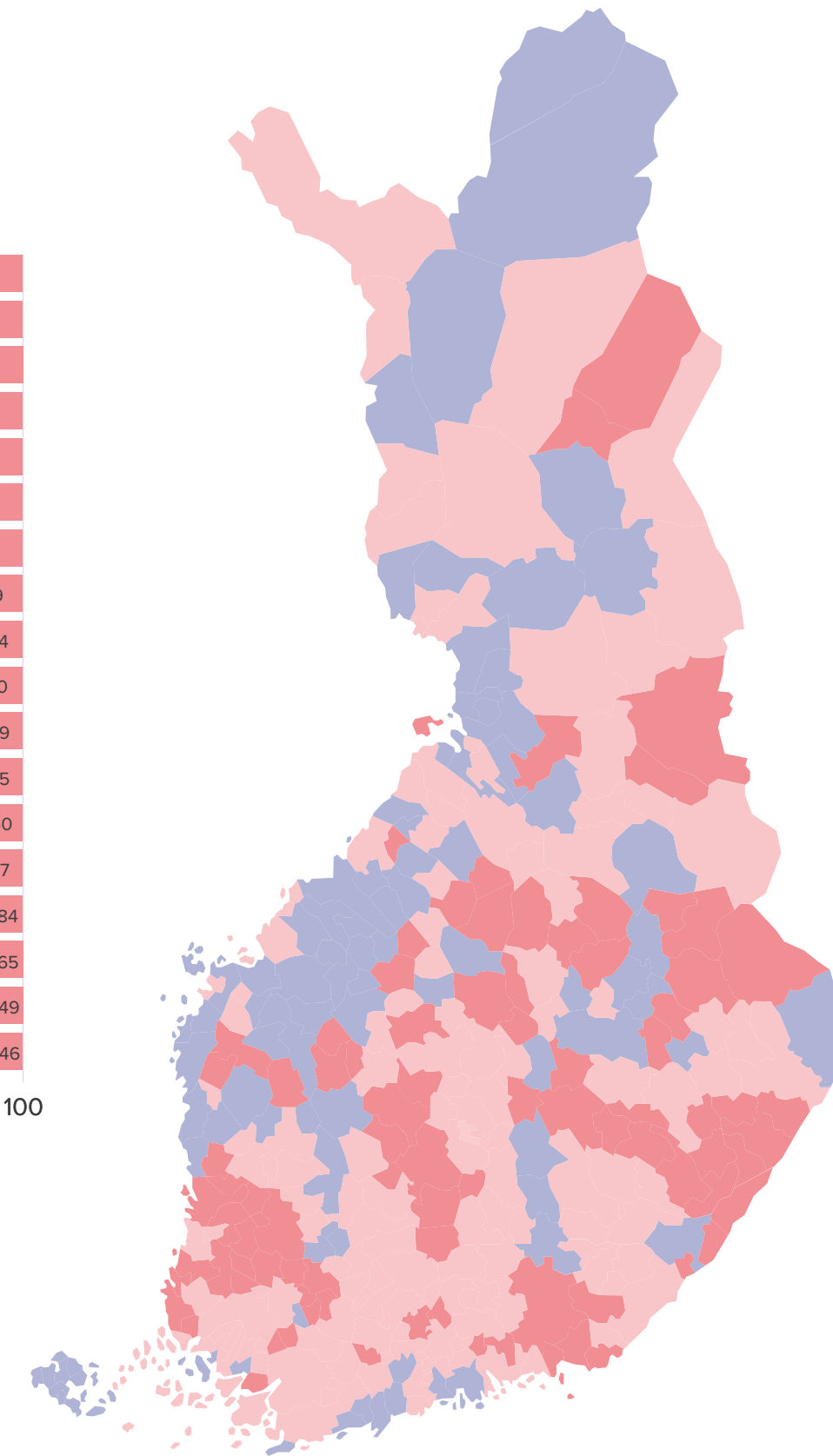
Regional distribution of energy performance ratings of residential buildings in the Finnish register of energy performance certificates (excl. Åland)



Source: Bank of Finland

The map shows the combined shares per municipality of the energy performance ratings E, F and G of residential buildings entered in the Finnish register of energy performance certificates of the total number of registered energy performance ratings, represented by three colours:

■ < 20% ■ 20 – 40% ■ > 40%



fifth of the stock of detached houses and semi-detached houses (20.2% and 22% respectively) in the register of energy performance certificates were in need of renovation.

Of the metropolitan areas in Finland, the situation was the weakest in Southern Finland relative to the size of the residential building stock and the renovation obligation included in the proposed directive, as nearly one third (32.8%) of the residential buildings in the register of energy performance certificates had the weakest ratings E, F and G. The situation of the metropolitan area Helsinki–Uusimaa, i.e. Uusimaa region, was relatively good, despite its largest stock of buildings among the regions in Finland. Of residential buildings in Uusimaa, 25.8% had received an energy performance rating of either E, F or G. In Helsinki, the share of residential buildings with a renovation backlog was 32.7%, in Vantaa 26% and in Espoo 18.5%. The examination of the various regions shows that the weakest situation as to E, F and G ratings was in Satakunta (43.9%), followed by Kymenlaakso (43.8%) and North Karelia (38.8%), where of the building stock in the regional register of energy performance over one sixth had the rating E, F or G.

Of the non-residential buildings, on average 6.9% exceeded the threshold for the 15% fractile set for electricity consumption per square meter. Correspondingly, over one tenth (10.8%) exceeded the threshold for the 25% fractile. The average electricity consumption of non-residential buildings was 89.3 kWh/m²/year. In the examination of electricity consumption, the threshold for the 15% fractile was 133.4 kWh/m²/year and the threshold for the 25% fractile was 108.9kWh/m²/year.

Data enables more efficient cash supply

Anja Harju
Senior Specialist



New Year's Day 2022 marked the 20th anniversary of the introduction of euro cash in Finland and 11 other EU countries. New countries have since joined the euro area, and now the euro is the currency of 20 EU Member States, following the introduction of the euro in Croatia on 1 January 2023.

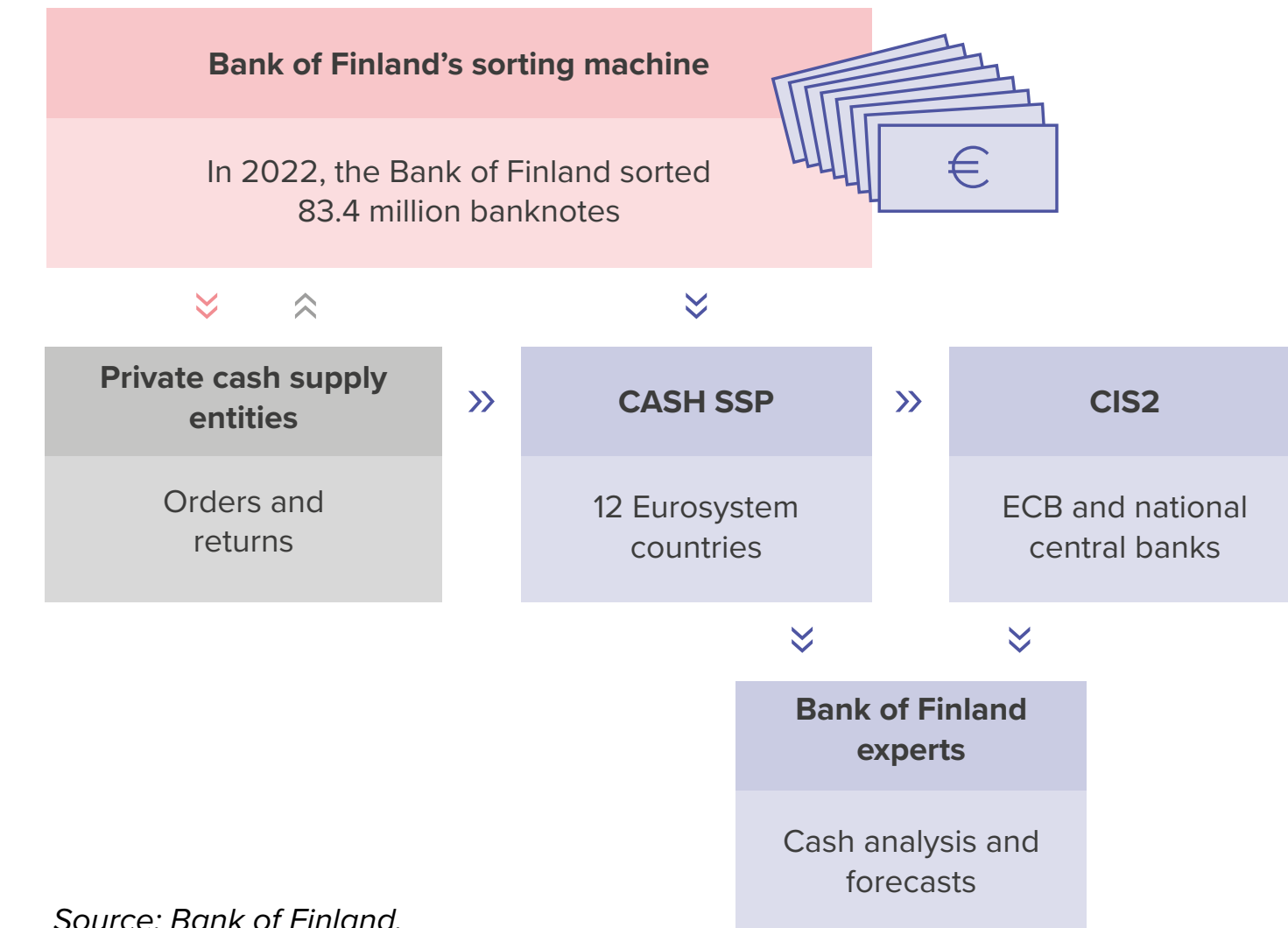
The issuance of banknotes and coins in Finland is one of the basic tasks of the Bank of Finland. This is authorised by the European Central Bank (ECB) as, by virtue of the Treaty on the Functioning of the European Union, the ECB was granted the exclusive right to authorise the central banks to issue banknotes and the right to approve the amount of coins put into circulation in euro area countries. The Bank of Finland also contributes to ensuring the fitness of cash by withdrawing unfit banknotes and coins from circulation.

To ensure the efficient and proportionate issuance of cash, the ECB and the national central banks collect statistical data on cash. Statistical data on the issuance of euro cash are based on common definitions and practices for the calculation of data. The statistics make use of data provided by the central bank's operative cash supply and the data provided by private parties involved in cash supply. The data are used for analysis and decision-making purposes both at the Bank of Finland and in the Eurosystem. The data enable for example the identification of actual phenomena, and data are used for preparing forecasts on cash needs in various countries. The forecasts are used for making joint euro area decisions on future banknote production and for monitoring the need for cash transfers between the national central banks.



Jenni Liikanen
Information Specialist

Life cycle of Finnish cash data



Source: Bank of Finland.

Data flows automatically in information systems

The collection and distribution of data between the Bank of Finland and the private cash centres that process cash as well as national central banks and the ECB take place automatically in cash supply information systems. The Bank of Finland uses a joint information system, the CASH SSP (Single Shared Platform) with 11 other European central banks. The purpose of the CASH SSP is to ensure smooth and secure management of cash. Orders and returns of banknotes and coins as well as banknote sorting data are entered in the





Discussion about a 'home emergency kit' for payments has also increased the demand for cash and has been reflected as an increase in orders at the Bank of Finland.

information system. The ECB uses the Eurosystem Currency Information System (CIS2) to collect statistical data from national central banks. These two information systems enable the analysis of both country-specific and euro area-wide phenomena.

In the information system, data flows automatically but the accuracy of data is checked manually at several points of the process. For example in banknote sorting, data are transferred automatically from the Bank of Finland's sorting machine to the CASH SSP, without possibility of manual alterations. In CASH SSP, the sorting machine data are checked manually against return data provided by the customer. Staff confirm congruent data or record deviations. Access to the system requires personal identification, and thereby the information on the person who has confirmed the data remains stored. Data are transferred from CASH SSP to the ECB's CIS2 system in the same manner. The data are transferred automatically between the systems but, at the beginning of the month, they are verified manually.

Crises create needs for new type of data analysis

In recent years, new needs for operative cash supply data have emerged. The COVID-19 pandemic since early 2020 and Russia's war in Ukraine in 2022 had an impact on the need for cash in Finland. The monitoring of daily and weekly data became increasingly important alongside monthly data, because the aim was, on the one hand, to ensure the sufficient availability of cash and, on the other hand, to monitor the general development in the demand for cash. COVID-19 was reflected in Bank of Finland statistics as a decrease in orders and returns: the volume of cash needed for circulation was smaller, and the cash held by citizens and companies circulated efficiently enough through private cash centres. Russia's war, in turn, was reflected as an increase in orders. Discussion about a 'home emergency kit' for payments has also increased the demand for cash and has been reflected as an increase in cash orders at the Bank of Finland. The Bank of Finland is monitoring these changes closely and is therefore well prepared to respond to possible changes in cash needs.



Photo: Shutterstock

New HR management system was launched at the start of 2023



Aune Kiviharju
HR Specialist

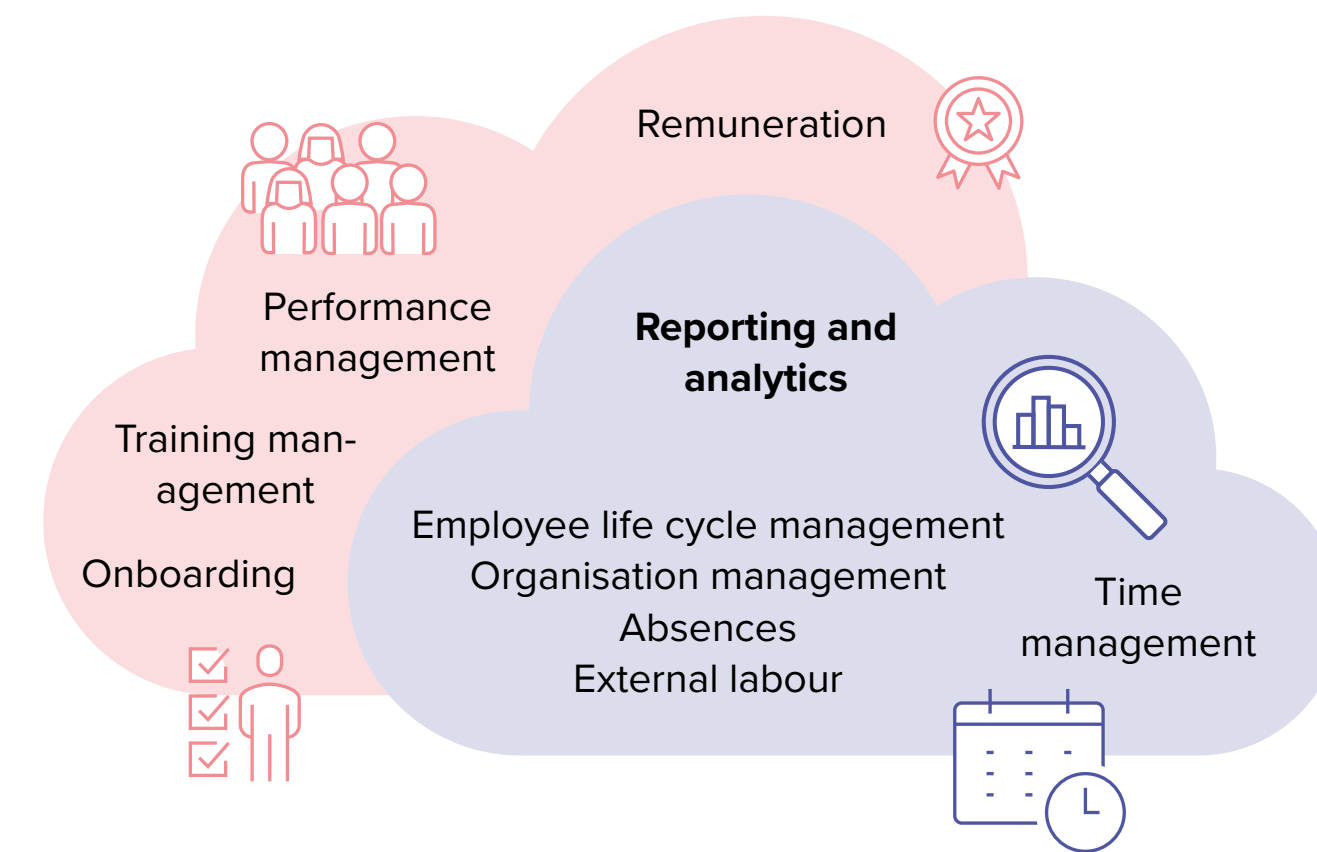
Is the procurement of a smoothly functioning information system a rare event? At least you rarely hear of successes. Failures of information system projects become headlines, particularly if they happen in public administration or inconvenience a large group of people.

The Bank of Finland needed to procure a new HR system as the life cycle of the old SAP eHR system, introduced in 2004, was coming to an end. Before the public tendering was launched, we prepared descriptions of our HR processes, which identified, in particular, the difficult bottlenecks. A large number of staff participated in these workshops. The public tendering was launched in autumn 2021. Of the bids submitted, the Bank selected SAP SuccessFactors.

What changed?

Off-the-shelf software is rarely ready for use. Many software packages that require customer-specific tailoring and configuration are called off-the-shelf, but they can rarely be introduced as such. The adaptation of off-the-shelf software to the client's processes takes time, which increases costs and risks. The adaptation of this HR system to our processes took about a year. As the system was adjusted to our organisation's needs, our processes were also developed to suit the system. The most important changes related to the simplification and clarification of the competence rules governing HR issues as well a change of three months to the period in which staff can use the annual leave they have accrued.

A major change was also made to the management of working hour and absence data. The old 'clock card' was discontinued and replaced with a modern time-management system, accessed via browser or smartphone. HR reporting and analytics improved and was automated with the new system. Data is up-to-date and readily available. Remuneration, onboarding as well as training management and performance management were added into the same system in the second stage of introduction.



Source: SAP SuccessFactors

The procurement of the new system involved many requirements, the most important of which was the usability of the software. We wanted to provide our personnel with a modern, easy-to-use HR system that is easy to adopt. The introduction of the new system means that we have to learn new skills and adjust practices we had become accustomed to. The software functions smoothly if it is used correctly. We all had to make an effort, particularly in the first stages of introduction. Training and information sessions support the adjustment of practices and the introduction of the new system. We will be in for a touch of luxury compared to the new HR system, but surely also a large measure of smoothness in our everyday activities. In the assessment of information systems, one of the key factors is, indeed, user satisfaction.

I want to thank everyone who participated in the project at the Bank of Finland and the Supervisory Authority. Together we created a HR system suited to our needs. A good feature of a cloud service is that it can be developed and diversified as user needs change.

Satisfaction surveys as part of IT customer service process



Sami Kirjonen
Head of Division

What is HappySignals?

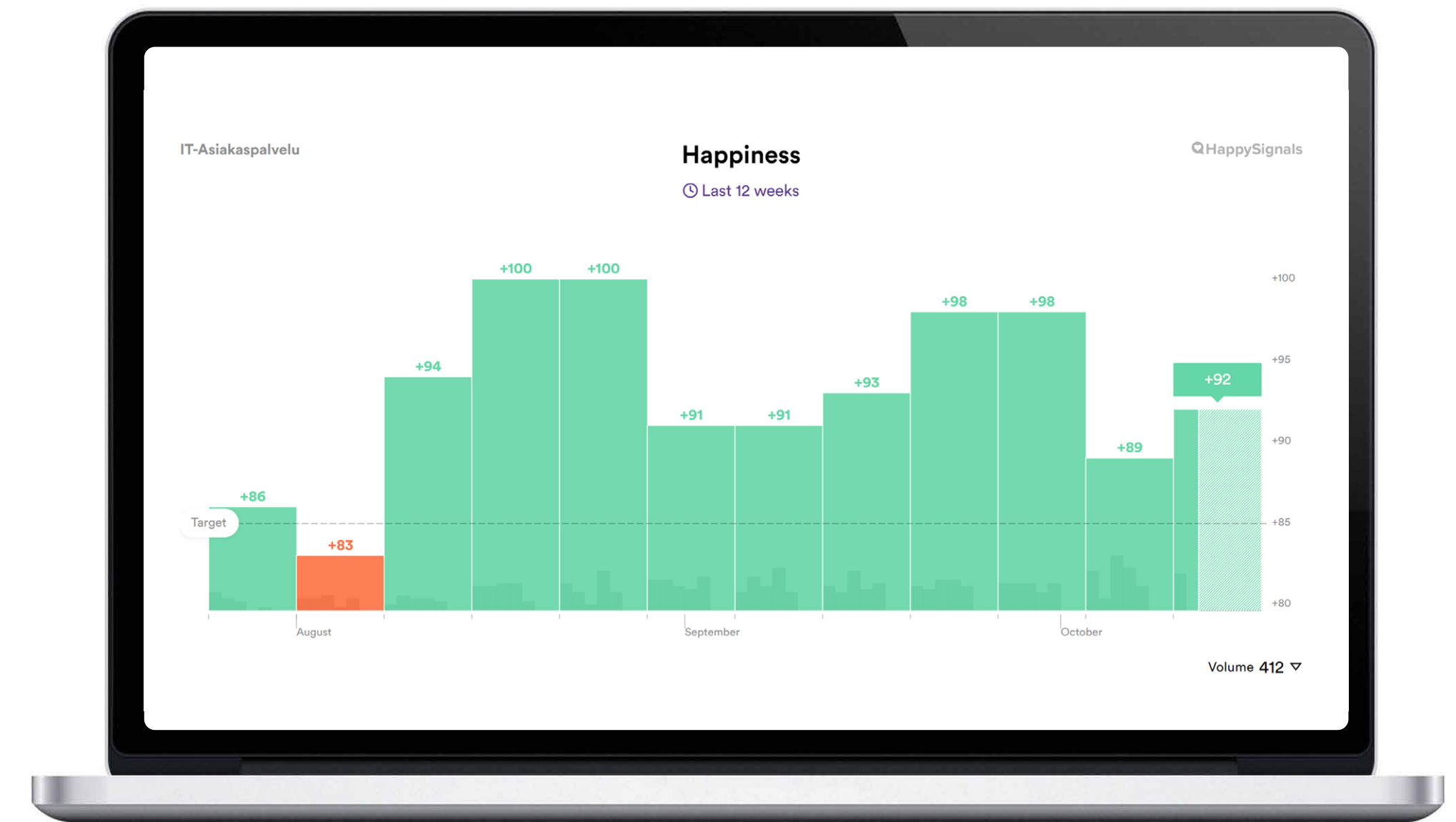
The Bank of Finland uses the HappySignals IT Experience Management Platform, which helps the Bank's ICT and Information Management department steer and develop its activities on the basis of data obtained from satisfaction surveys. HappySignals enables the department to capture and measure end-users' service experiences, share the experience data, identify focus areas where improvements are needed, and make improvements in exactly those areas which increase employee productivity. The aim is to create more smiles and less time wasted – for us at the ICT and Information Management department and for all end-users at the Bank of Finland.

HappySignals collects statistical data on feedback, which can be analysed either at the organisational level or at the level of, for example, individual departments or divisions. The adjacent chart shows an example of HappySignals statistics extracted at the organisational level for a three-month period.

Satisfaction surveys and their utilisation

The HappySignals analysis system has been integrated into the ServiceNow service management system so that satisfaction surveys form part of service requests and incident notifications, or service and incident tickets. After a ticket is resolved, the customer receives an email that requests them to rate how happy they were with the service provided on a scale from 1 to 10 and to estimate how much time they lost because of the issue. The data are collected and compared against global HappySignals benchmarks.

Happiness statistics



Source: HappySignals





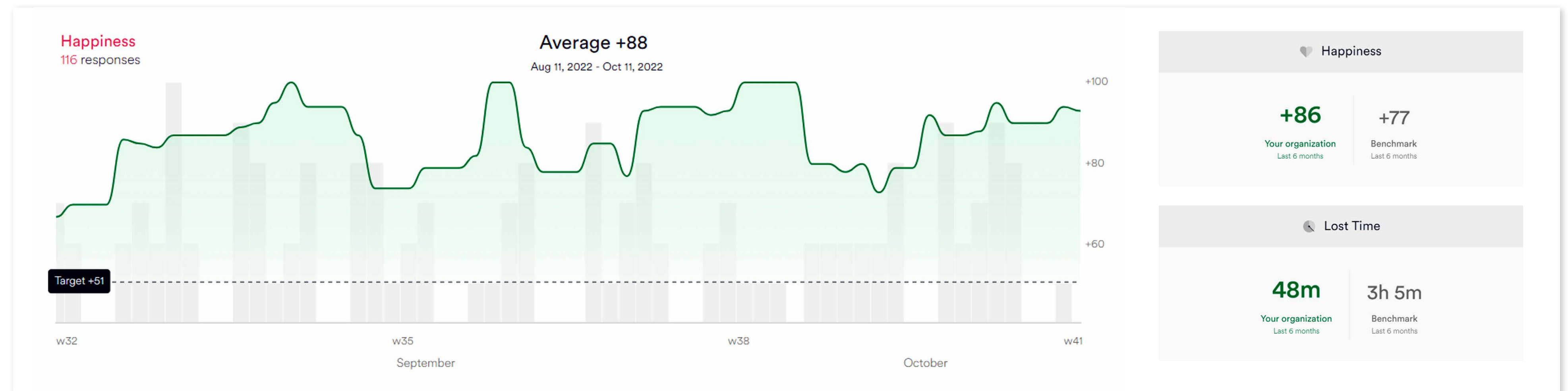
A comparison of HappySignals results shows that average happiness among the Bank of Finland's employees is above the global average.

The Bank of Finland's ICT and Information Management department has a strategic happiness target (> +85), on the basis of which the department's activities are developed. Each feedback with a score below 6 is always discussed together with the customer. In addition to the numerical scale, the customer can also give feedback by selecting text alternatives from a choice list of answers or write free comments. Text feedback is shown as part of the statistical reports generated by the system. Feedback is broken down into three categories: positive, neutral and negative.

A comparison of HappySignals results shows that average happiness (based on the 'Happi-

ness Score') among the Bank of Finland's employees is above the global average. In a six-month period up to the time of writing this article, the Bank scored +86, compared with the global benchmark score of +78%. Lost worktime at the Bank of Finland amounted to 48 minutes, compared with the global benchmark of 1 hour 44 minutes.

The satisfaction survey is also used to measure remote work experience. In connection with ServiceNow notifications, the employees may occasionally be asked how happy they are with remote work. All feedback is read and analysed to improve remote work tools and practices.



Three-month statistics show that employees have been happy with remote work.

Source: HappySignals.

Happiness score and estimate about lost time for the last six months.

Source: HappySignals.



Information management, information resources and information flows



Data catalogue guides data users to data sources



Susanna Mannerkoski
Information Specialist-Economist

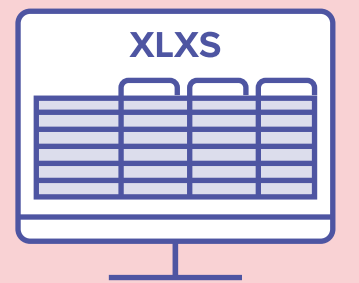
In their work, economists make extensive use of datasets gathered from different sources. To be used effectively throughout the organisation, datasets must be easy to find and understand. Data siloing slows down and hinders the making of analyses, and may produce duplicate or unnecessary work. A data catalogue is a tool that helps data users find the data they need.

In 2022, the Bank of Finland's Financial Stability and Statistics department launched a pilot project to build a data catalogue. The pilot project documented on one platform the datasets managed by the department. Financial Stability and Statistics was selected as the location for the pilot project because the department collects and manages large amounts of data and has already possessed data management expertise for a long time now. The data catalogue will, however, be shared for use throughout the organisation. The purpose of the data catalogue is to benefit the entire organisation, and after the pilot project its content may possibly be expanded.

In addition to descriptions of datasets, the catalogue gathers metadata about the content and technical information of data. A dataset may contain, for example, GDP figures of European countries, keywords such as "GDP" and "European economies" of content-related metadata, the starting date of the data, technical metadata, the owner of the data or limitations related to the data. A good description of the data and up-to-date metadata are important for the efficient use of the catalogue and the filtering of its contents.

The content of the pilot project's catalogue is collected in an Excel file, which is updated as new datasets are published or substantial changes are made to old data. The user interface of the data catalogue is implemented using the Power BI reporting platform. In addition, a dedicated Teams channel, where catalogue users can ask questions about its content, will be created for the data catalogue. The channel will also inform users when the catalogue has been updated with new data. In this way, information about new data will be disseminated better within the organisation, and economists can find new useful data that they can use in their work.

The purpose of the pilot project is to better understand the catalogue's data content and users' needs. Technological development was outside the scope of the pilot. In the future, however, it will be possible to move to using more technologically sophisticated tools that will utilise information obtained from the pilot project with regard to the content requirements of the data catalogue.



**A data catalogue
helps data users find
the data they need.**

Enterprise architecture supports information management

Mia Ristimäki

Head of Information Management



The Act on Information Management in Public Administration (Information Management Act) sets requirements not only for the different areas of information management, but also for the management of an enterprise architecture or an information management model. The organisation's operations and operating environment must be monitored and, when necessary, development paths created to implement reforms. An enterprise architecture is a way to develop the organisation's activities as a whole. It is used as a tool when there is a need to understand how operations, information and systems relate to each other and function as one.

How do changes affect information and its management?

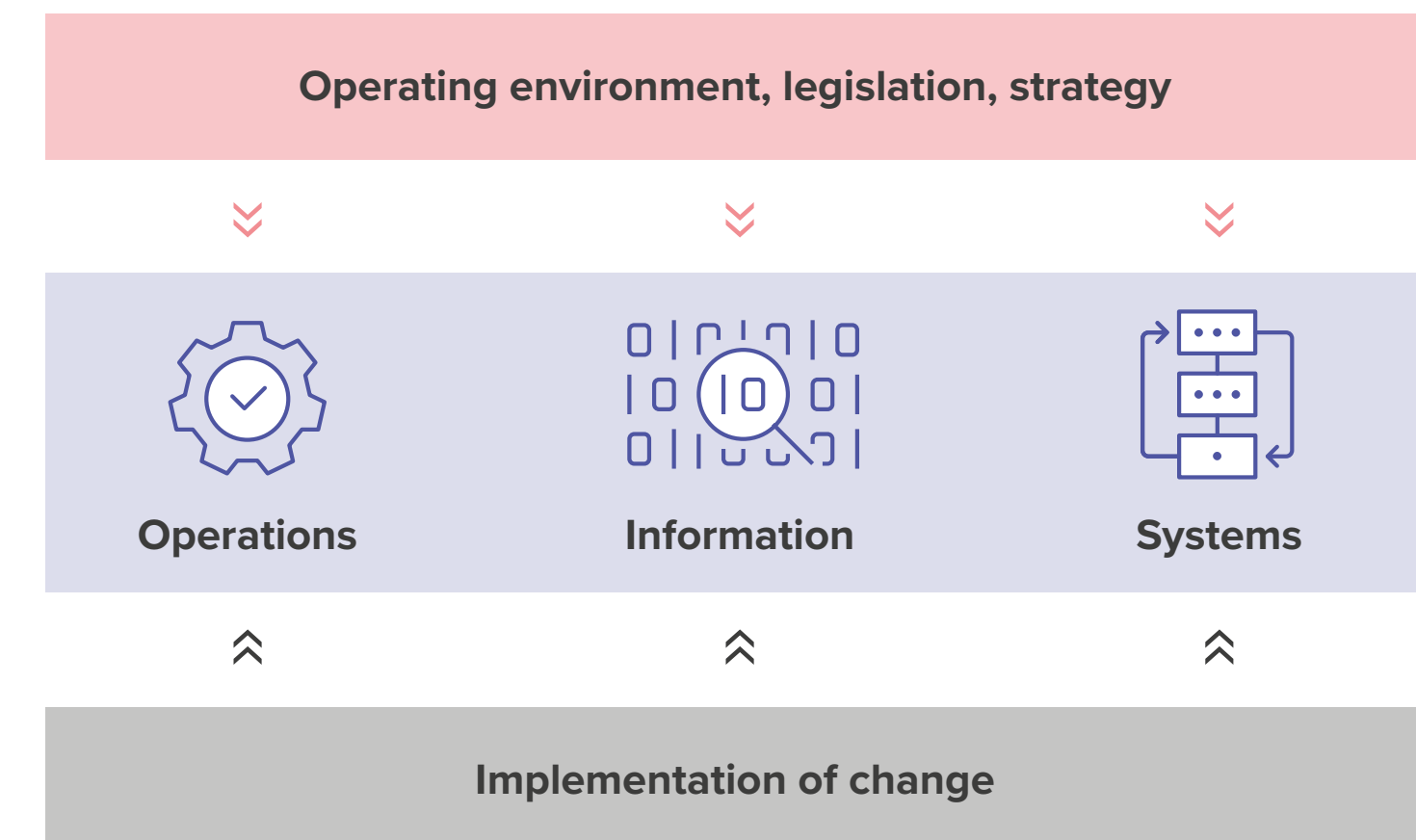
The Information Management Act obliges us to assess changes to information management and the impacts they have. The changes may be to operations or systems. Changes to operations inevitably impact information management. New systems or changes to systems also often affect the collection, use and management of information.

The purpose of conducting change impact assessment is to guide the planning of the said change by asking the right type of questions. By incorporating an information management model into the process, overlaps can be detected and existing implementations or information reserves thereby utilised.

Change impact assessment has been integrated into the normal development process at the Bank of Finland and the FIN-FSA, and it was introduced in early 2022. A data protection survey and a GDPR risk assessment are also included in change impact assessment in the case of changes involving processing of personal data. In connection with the introduction of change impact assessment, the guidelines for describing operations were updated

and training in them was organised. The guidelines and impact assessment were piloted in various projects, with good results! Assessment of the impact of changes pauses projects at an early stage and encourages consideration of what new information will be generated and how the use and the lifecycle of the new information should be managed. The easiest way to make guidelines work and put them into practice is to first test them in real use, for example when launching a new information system project. In this way, their benefits become evident immediately in the project planning stage.

An effective formula for changes is to look at the overall picture "from the top down" and, on the other hand, to embark on making the change "from the bottom up".



Source: Bank of Finland

Jaana Helsing

Project Manager, Information
Management Development
Programme



Case management system and Information Management Act



Jari Suutari
Acting Head of Records
Management,
until 6 September 2022

The Act on Information Management in Public Administration (Information Management Act) entered into force on 1 January 2020. The new act came at an opportune time, as a new case management system for the Bank of Finland and the Financial Supervisory Authority (FIN-FSA) was then being planned, and the new or amended requirements of the Information Management Act could therefore be taken into account in the planning and implementation of the system.

Unique case identifier and metadata changes

New compared to the previous setup, there was an obligation to create a unique case identifier for cases taken up and submitted for consideration. This case identifier largely corresponds to how cases were previously identified in the case management of the Bank and the FIN-FSA. The most significant metadata changes of the Information Management Act concerned the information to be defined for each case, enabling the information management unit (business ID), the authority and the operational process to be identified. For each document that arrives at a public authority, the method of arrival is entered in addition to the time of arrival. It is worth noting that, in the future, metadata in accordance with section 26 of the Information Management Act will be required from both the case management systems and other operational systems that include case management.

Mandatory metadata alone generally do not constitute sufficient metadata content for case management. Each organisation needs additional metadata in its operations. In order to standardise metadata, the Ministry of Finance published in 2021 a recommendation on metadata in case management. When building Astra, the case management system of the Bank of Finland and the FIN-FSA, both mandatory metadata and other necessary metadata were naturally taken into account. This work was greatly facilitated by the fact that most of the mandatory and recommended metadata were already included in the case management systems used by the Bank and the FIN-FSA. Their use had become established through the regis-

tration tradition of public administration and the SÄHKE2 development work of the National Archives of Finland.

Case measures

The biggest challenge for the Bank was the requirement of the Information Management Act to register for each case the measures taken and the documents processed in them by processing stage. In practice, this requirement means going through and renewing previously prepared file plans to make them even more detailed. This work has been carried out together with the divisions and departments, and is part of the permanent activities of the Records Management Services team.

Promoting interoperability

One of the goals of the Information Management Act was to promote the interoperability of information systems and data resources. In procurement, it is essential to ensure that information security requirements have been met in information systems and data processing. In addition, information systems must be such that their functionalities fulfil the requirements of case management or services information management, that the interoperability of information systems and data resources can be realised, and that technical interfaces can be opened at least in those situations required by the Information Management Act. The data structures of technical interfaces must also be defined and the interface descriptions available to the information management unit and to actors receiving data. These were taken into account when the new case management system was acquired, and they must also be taken into account when making acquisitions in the future.

The new act came at an opportune time, as a new case management system for the Bank of Finland and the Financial Supervisory Authority (FIN-FSA) was then being planned, and the new or amended requirements of the Information Management Act could therefore be taken into account in the planning and implementation of the system.

New institutional repository (Kaisu)



Soile Hakonen
Head of Library

Kaisu, the new joint institutional repository of the Bank of Finland and the Financial Supervisory Authority (FIN-FSA), opened on 22 November at the address <https://publications.bof.fi/>.

The new repository has a more modern user interface which, due to browsing options, has better search features immediately on the front page. Accessibility has also been improved. Saving publication information has become easier thanks to features such as publication timing and up-to-date keyword extraction. We introduced the automatic indexing tool [Annif](#).

A short and concise name was sought for the repository. In a name competition, Kaisu was chosen from numerous excellent suggestions.

Institutional repository renewal project

A Bank of Finland and FIN-FSA expert group, led by a project manager, as well as repository services experts from the National Library of Finland were responsible for most of the renewal work. From spring 2022, both teams were closely involved in, among other things, configuration, migration, layout and metadata corrections.

In autumn, the following interface builders joined the project: IT services and communication and service providers CGI, Ebsco, the administrators of the National Library of Finland's [Finna.fi](#), and the [Legal Deposit Office](#).

Research repository interfaces were the responsibility of Leibniz University Information Centre for Economics ([Econstor](#), [RePEc](#)) and Elsevier ([SSRN](#)). In total, information is transferred to around 10 other sites.

Thanks to the commitment of publishing and repository systems specialists and expert project managers, the renewal project was completed ahead of schedule.

What is the institutional repository?

Kaisu contains digital and digitised articles, research papers, blogs, annual reports, statistics and other publications as well as materials from the Bank of Finland archives. The content ranges from the 1860s to newly published publications. When Kaisu was brought into use, it had more than 10,000 publications and nearly 13,000 files. These numbers are constantly growing, both through new publications and the digitisation of archive material and old publications.

In Kaisu, history buffs will find source literature and documents, for example about the 1990s' banking crisis, the history of Finnish banknotes from the period of autonomy to the euro, or the activities of frontline bank offices during wartime. The latest monetary research can be followed in the Bank of Finland's research discussion papers. Those concerned about the current state of the economy may wish to visit the Bank of Finland Bulletin website [bofbulletin.fi/en/](#) in addition to the institutional repository.

Currently, the oldest publication is a 1866 report in Swedish, *Berättelse angående Finlands Banks förvaltning*, about the management of the Bank of Finland. Every year, 1–2 archive collections are digitised, one of which is generally the reports of the Supervisory Council from 100 years ago. A small number of old research publications and statistics are also digitised every year.

Part of the publishing process

One essential feature of the institutional repository is its interoperability with other systems. Kaisu also plays an important role in the publishing process. Kaisu's links to other sites significantly reduce the work involved in saving publications: a publication's information and files are saved only once in Kaisu, and they are automatically transferred from there to the Bank of Finland or FIN-FSA websites, international scientific repositories, and Finna, the discovery service of Finnish libraries, archives and museums. The National Library of Finland's Legal Deposit Office collects publications automatically from the institutional repository.

Publications are also transferred for internal use to a discovery service and an expert work monitoring application. Other organisations using the same supplier's discovery service can use Kaisu's content.



The institutional repository's most downloaded publication of all time is an economic analysis of Bitcoin.

File plan advisable to develop in stages



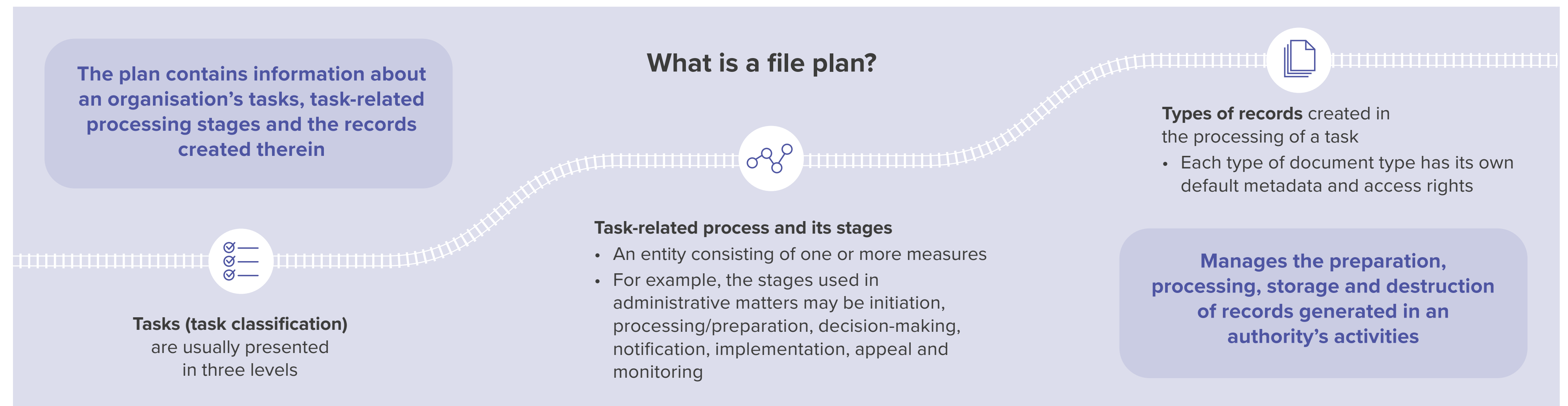
Jaana Nuortia
Senior Information Specialist

A file plan is needed particularly in electronic processing stages, where it guides users aided by default metadata and access rights, and specifies for cases and records a lifecycle that includes the storage period as well as information about possible archiving or destruction.

Public authorities have been making file plans for years. The Bank of Finland and the Financial Supervisory Authority (FIN-FSA) both have their own file plans. In spring 2022, the Bank and the FIN-FSA introduced a new case management system, whose user interface describes the progress of a case as a 'railway track'. It describes the measures (processing stages) taken in the case and the documents created in the measures. A well-described task flow helps users to advance according to the process, provides guidance in doing things in a timely and orderly manner, and gives information on the record types related to the measures. In a way, it acts as a notepad, recording what has already been done in the

task and what still needs to be done. Records are accordingly prepared and saved at the right stage of the process.

In the current plans, many of the processing stages related to tasks are often presented as a simple process. In practice, a task might have only one processing stage, often entitled "processing". A more detailed description of the task processing stages should be made in connection with normal updates of the file plan. This is important always when a process related to the handling of a task is renewed or a completely new task arises for handling.



Source: Bank of Finland

The file plan is not only made for the case management system; the plan's specifications can be utilised in many of the organisation's other systems.

Process monitoring must be clear and comprehensible

When preparing a task process, it is worth considering the level at which the process should be described, so that it does not become unnecessarily too detailed or too superficial. The process can also describe those measures that do not generate records if this is sensible for the clarity of the process. It is important to state precisely what is done in the task, where the handling of the task begins and where it ends. Process clarity is obtained by itemising all of the records generated in the handling of the task. It is worth ascertaining the range of record types, but it may be sensible to combine record types that are rarely generated into one applicable record type. A clear and suitably comprehensive description of the process will help users to make the right choices in the system, enhancing efficiency.

Describing process-related measures and record types cannot be done by the Records Management Service Team, because there is no precise information about the course of the process; the information outlined in the plan must be prepared through a collaborative effort of business operations and the Records Management Service Team. The Records Management Service Team is responsible for the technical maintenance of the file plan.

A well-prepared file plan can be widely used

A well-prepared file plan serves those who handle the actual task, but the Records Management Service Team, too, receives information about records and their lifecycle. In the plan, tasks are often assigned an owner, who is responsible for handling them. The file plan is not only made for the case management system; the plan's specifications can be utilised in many of the organisation's other systems. The file plan must cover all of the authority's tasks and related records.

It is recommended to develop the file plan in small sections, because it is laborious to update the entire plan all at once. It is worth keeping the plan up-to-date, at least such that all tasks are mentioned in the plan, and the necessary record types with default values and access rights are specified. Smaller parts of the process can be refined annually. Tasks that are no longer performed are removed from the plan. Information about these is preserved in previous file plans, which can always be revisited, if necessary.

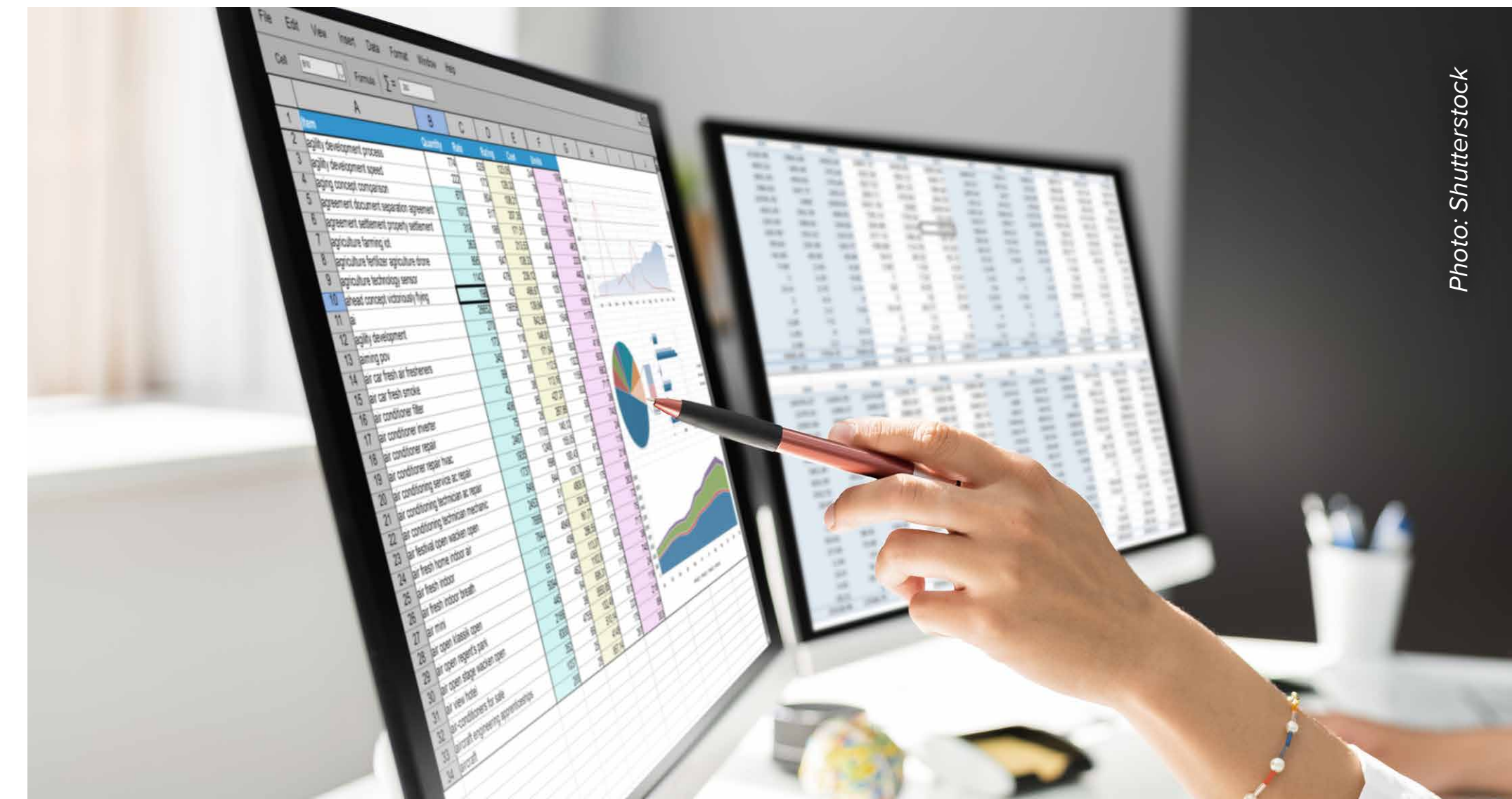


Photo: Shutterstock

Data at the core of data and knowledge management



Fredrik Löfman
Strategy Specialist

Jaana Helsing
Project Manager,
Development Programme for
Information Management

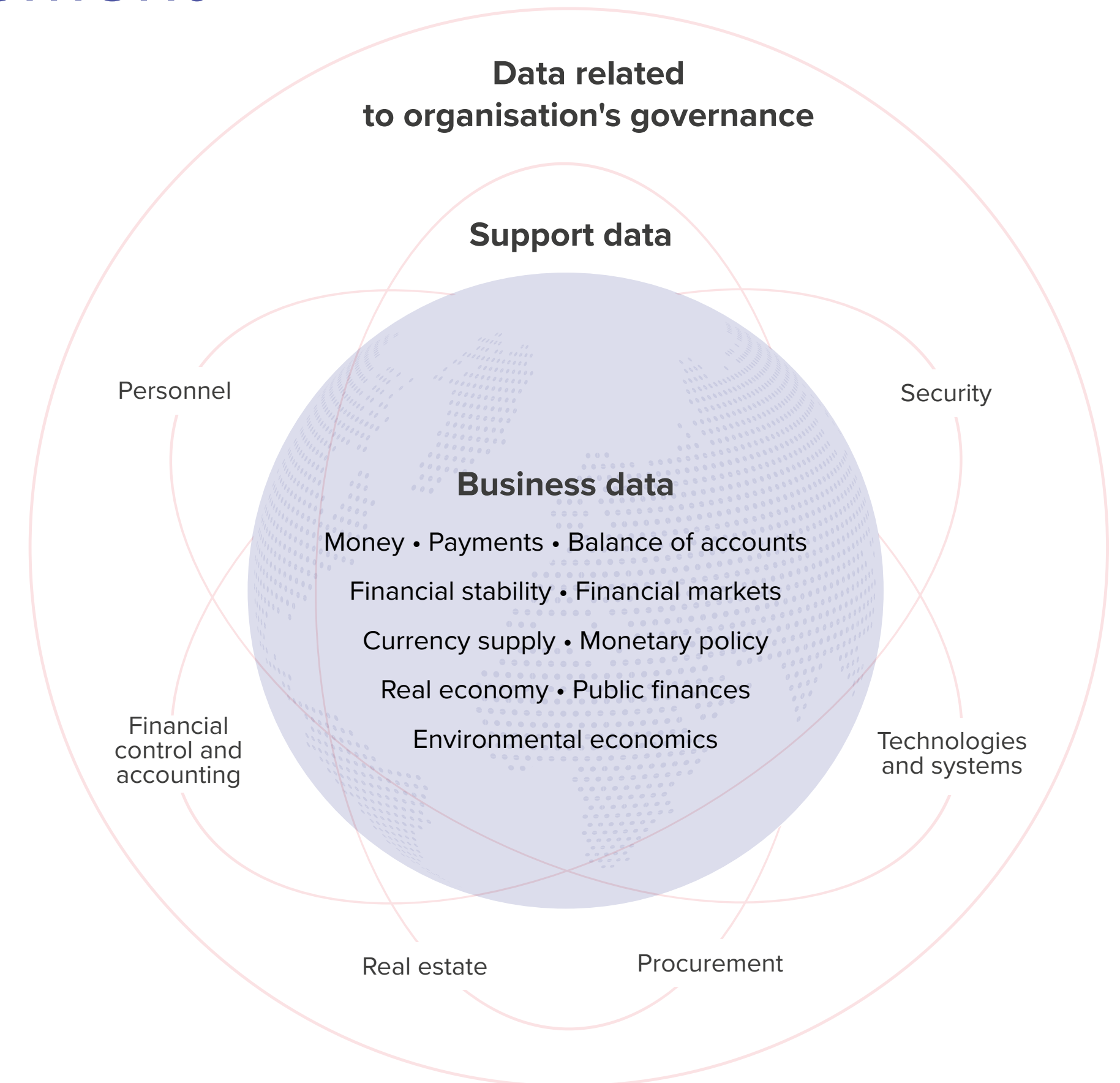
Tatu Räsänen
Young Professionals Programme

Utilisation of data is generally conditional upon obtaining an understanding of what data we already have, what data we need and where these data can be accessed. Imagine data as a product that can be purchased at a designated data store, where it is displayed in plain language and is easy to find. The data contents, date of data production, data producer and best before date, if any, are known. Awesome, right?

There is a wide range of different solutions on the market for achievement of these objectives, but in order to access all the features listed above, we have to go back to the very basics.

By designing an information architecture, the building blocks of an organisation's intellectual capital can be easily and comprehensibly described. What data is needed to ensure utilisation of data for both data and knowledge management and organisational development? The information architecture helps to fade the systems into the background and put the data back at the centre of development. This is done by describing data using its own essence: money market data, balance of payments data, loan data, and so on.

Work on the Bank of Finland's information architecture is carried out within the framework of the TAMRO project, which has resulted in a global data map capturing the data of the Bank of Finland. The first version has seen the light of day and measures have been initiated to put it into practice. So far, the data domains have been identified, whereas identification and management of data will continue in connection with a data catalogue project. A data catalogue is the first version of a data collection, and work on building a more comprehensive data warehouse continues.



Source: Bank of Finland

Reports of the Bank of Finland's Supervisory Council are a fascinating source



Vappu Ikonen
Historian

For the first decades following its establishment, the Bank of Finland operated under the authority of the Senate or, as it is now called, the Government. In 1867, the Bank of Finland was transferred to be subordinate to the Diet (now the Parliament). The same organisational model existed in Sweden, for example. At the same time, the Supervisory Council of the Estates, currently the Parliamentary Supervisory Council, was named as the Bank's highest decision-making body.

The Board of the Bank of Finland remained the highest executive body. The Supervisory Council intervened in great detail in the bank's day-to-day activities, however.

From 1882, the Supervisory Council began to publish an annual report. This reviewed both the Bank of Finland's operations on a practical level as well as the development of Finland's economy and financial markets as a whole over the preceding year. Information was collected in connection with the Bank of Finland's annual operations, and it provides a unique look into the development of both the world of 19th-century banking and the economy.

From the very beginning, the reports of the Supervisory Council were published in both Finnish and Swedish. The texts were probably originally written in Swedish and then translated into Finnish. The names of the Finnish translators are not known, but they created a strange, poetic synthetic language, and at times clearly had to invent new words to express economic developments.

From the beginning, the Supervisory Council reports also included concise statistical annexes, which mainly addressed the development of items on the Bank of Finland's balance sheet and the income statement.



Status, operations and governance of the Bank

After the highly intense fluctuations in activity seen in the period 1872–1876, and the economic disruptions caused by this having been corrected to some extent, a generally calmer period has arrived when, however, the lethargy that naturally follows such excessive endeavours and shortages has become increasingly evident, particularly in reduced demand and through the resulting fall in the price of goods in several of the most important sectors of industry.”

Reports of the Supervisory Council of the Estates 1882–1884 (1885, 2).

I. Pankin tilasta, liikkeestä ja hallinnosta.

Ajanjaksolle 1872—1876 omituisen, korkealle kiihtyneen asioimisliikkeen jälkeen, ja sittenkuin sen synnyttämät taloudelliset häiriöt ovat jossakin määrin korjautuneet, on yleensä levollisempi aika koittanut, jolloin kuitenkin hervaanus, joka luonnollisesti seuraa voimain liikaa ponnistamista ja kärsittyä pulaa, yhä edelleen on tuntuvasti ilmaantunut, varsinkin vähennetyn menekin ja siitä syntyneen tavarain hinnan alenemisen kautta muutamilla teollisuuden tärkeimmillä aloilla.

2:0 On the question raised as to whether proficiency in the national languages of our country is a condition of eligibility for a position and service in the Bank of Finland.

When, on 21 September 1882, a proposal was made to fill the vacant position of legal director on the Board of Bank of Finland, the Supervisory Council took up for discussion whether the existing general provisions apply that a person submitting an application for a government position and service, including Bank of Finland positions, must demonstrate proficiency in both languages of the country.

In view of a difference of opinion that arose when the matter was discussed, the Supervisory Council considers that it is its duty to refer this matter to the Banking Committee, so that the question of whether proficiency in both of the domestic languages of the country is a condition of eligibility for a position and service in the Bank of Finland may, with the approval of the Committee, be referred to the Estates for consideration. The Supervisory Council considers this to be all the more justified because the Board, in its opinion on the new code of practice for the Bank of Finland mentioned below, has indicated to the Supervisory Council that, in the Board's opinion, such language proficiency may hardly be lacking within the Bank.

Reports of the Supervisory Council of the Estates 1882–1884 (1885, 57).

2:0 Nousseen kysymyksen johdosta, oliko taito maamme kotimaisissa kielissä kelpaavaisuuden ehto virkain ja palveluksen saamiseksi Suomen Pankissa.

Kun Syyskuun 21 p:nä 1882 tehtiin alamainen ehdotus avonaiseksi tulleen lainoppineen treditöriviran jälleen asettamiseksi Pankinjohtokunnassa, ottivat Pankkivaltuusmiehet keskusteltavaksi, koskevatko voimassa olevat yleiset säännökset siitä, että sen, joka pyytää päästä valtion virkoihin ja palvelukseen, tulee osoittaa taitonsa maan molemmissa kielissä, myöskin Suomen Pankin virkoja.

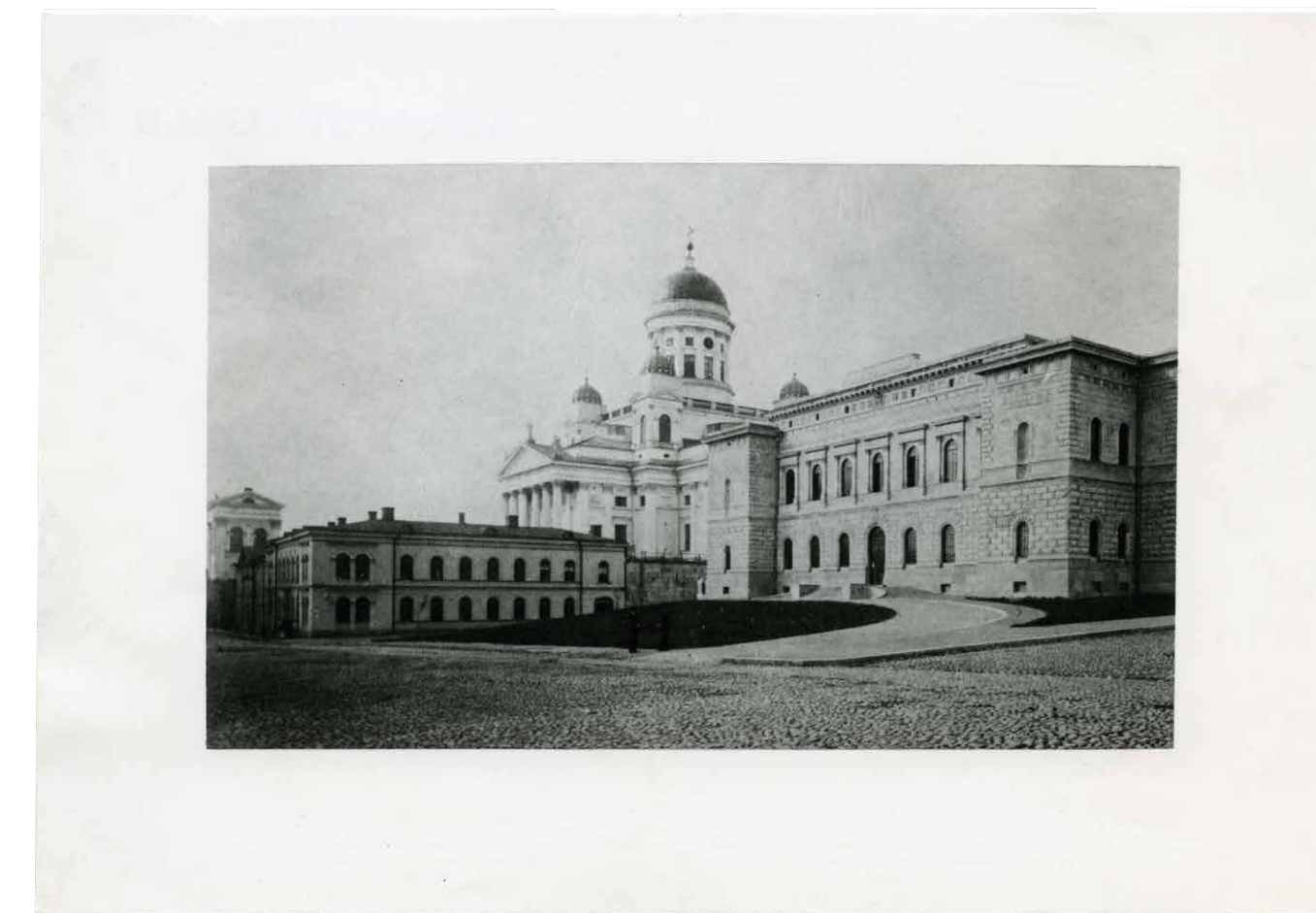
Erimielisyyden johdosta, joka asiaa käytettäessä ilmaantui, ovat Pankkivaltuusmiehet katsoneet velvollisuutensa tästä asiasta ilmoittaa Pankkivaliokunnalle, jotta kysymys siitä, oliko taito maan molemmissa kotimaisissa kielissä kelpaavaisuuden-ehto virkain ja palveluksen saamiseksi Suomen Pankissa, Valiokunnan suosiollisella avulla jätettäisiin Säätyjen mietittäväksi. Pankkivaltuusmiehet katsovat tähän olevan sitä enemmän syytä, koska Pankinjohtokunta alempana mainitussa lausunnossa uudesta ohjesäännöstä Suomen Pankille on Valtuusmiehille huomauttanut, että Johtokunnan mielestä sellainen kielentaito Pankin palveluksessa tuskin saanee puuttua.

”

The reports of the Supervisory Council of the Estates, and later the Parliamentary Supervisory Council, commission can be found digitised at the following address

» [Annual reports – Bank of Finland Institutional Repository \(bof.fi\)](https://www.bof.fi/en/annual-reports)

The Bank of Finland has also published its annual reports in printed form since 1914. They provide a clearly more traditional economic history description of the state of the Finnish money markets in the preceding year. Extensive statistical annexes cover, among other things, the different items of the Bank of Finland's balance sheet and the development of financial markets as well as the exchange rates and interest rates in each year.



New main building of the Bank of Finland in the 1880s.
Photo: Bank of Finland

Bank of Finland's Civil War documents collection



Vappu Ikonen
Historian

The Bank of Finland's over 200 years old archive is an official archive. The documents have therefore been prepared following existing legislation and the best official practices of the time. An interesting exception is the spring 1918 collection, which in the Bank's institutional repository is named "Civil War documents".

In spring 1918, the head office of the Bank of Finland was occupied by the People's Delegation for just under three months. The occupation was led by Edvard Gylling, Chairman of the Bank of Finland Supervisory Council. The Senate, which moved to Vaasa, and the Bank of Finland had to develop various emergency solutions to compensate for the loss of the Bank. At the same time, the Red Bank of Finland printed banknotes that were later declared illegal. The ensuing means of payment chaos lasted until 1922, when a new series of banknotes was issued.

The Red occupiers of the Bank of Finland left in their wake around one and a half shelf-kilometres of archive documents. The collection is incomplete and primarily contains material discovered in the head office in April 1918. An attempt was made to destroy some of the material (for example some of the preserved correspondence has burn marks). Some material was also successfully destroyed. Incomplete as it is, the collection nevertheless provides a glimpse into the everyday activities of the Red Bank of Finland.

The "Civil War documents" have been digitised, and they can be found published via this link:

» [Civil War documents – Bank of Finland Institutional Repository \(bof.fi\)](#)



*In front of the Bank of Finland, April 1918. Finnish Heritage Agency.
Source: Finnish Heritage Agency*

Bank of Finland's historical archives conserved also by digitisation



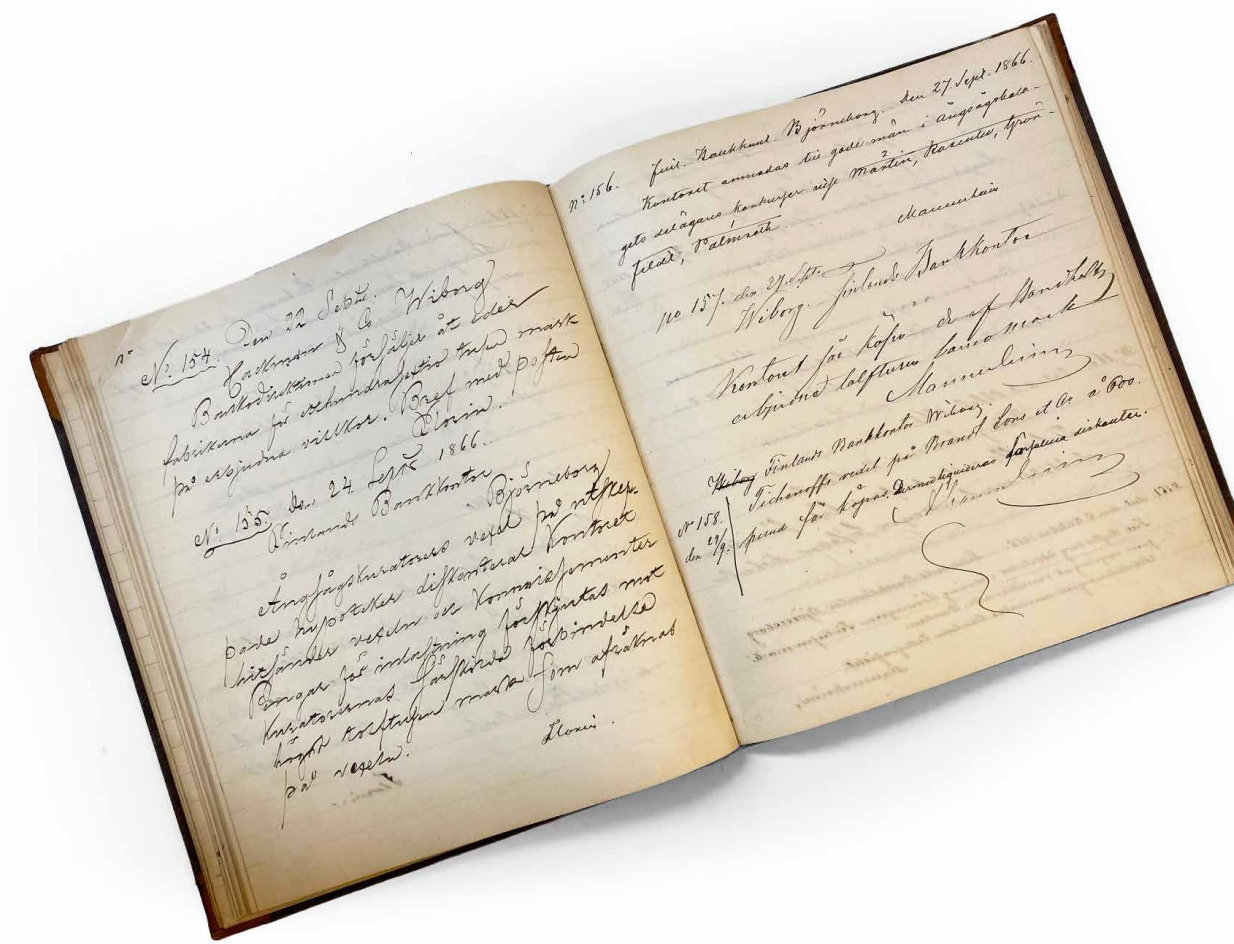
Vappu Ikonen
Historian

The Bank of Finland has an historical archive dating back to 1812 and occupying around seven shelf-kilometres. Although the Bank of Finland does not transfer its archives to the National Archives of Finland, the obligations and regulations of the Archives Act and the guidelines of the National Archives also apply to the Bank of Finland.

Under the Archives Act, the Bank of Finland keeps its permanently stored archive material in its own archives. The law obliges the Bank to ensure the conservation and accessibility of archived documents. The Archives Act provides that documents must be stored such that they are safe from destruction, damage and improper use, in premises as determined separately by the National Archives.

In 2017, materials damaged by moisture and otherwise in danger of being lost were found in a subsidiary archive of the Bank of Finland. The findings led to the launch of an extensive project in which improvements were made to the archive facilities, the worst-affected materials were conserved, and protective digitisation was started to preserve the information of materials at risk of destruction.

In the project, it was decided to follow a so-called hybrid model in which one third of the material for protective digitisation was digitised in-house and two-thirds of the digitisation outsourced. Following a competitive tender, the company Analogia Finland Oy was selected as the service provider for the project. Although the digitised materials will not be transferred to the National Archives,



Book of outgoing telegrams 1866–1868.
Photo: Aino Strömberg

the requirements of the National Archives with regard to both metadata and technical specifications were followed. We received much assistance from the requirements, for example in determining the quality of the digitisation. The extensive project has been a learning challenge for both the customer and the service provider.

The bank's own digitisation work was carried out through the acquisition of two handsome digitisers, which the project workers named Jare and Jere. The devices were used by Aino Strömberg (MSc) and Tanja Syvänperä (MA).

At times, one of the twins in particular acted up slightly, but with warranty repairs the digitisation kept running and on schedule.

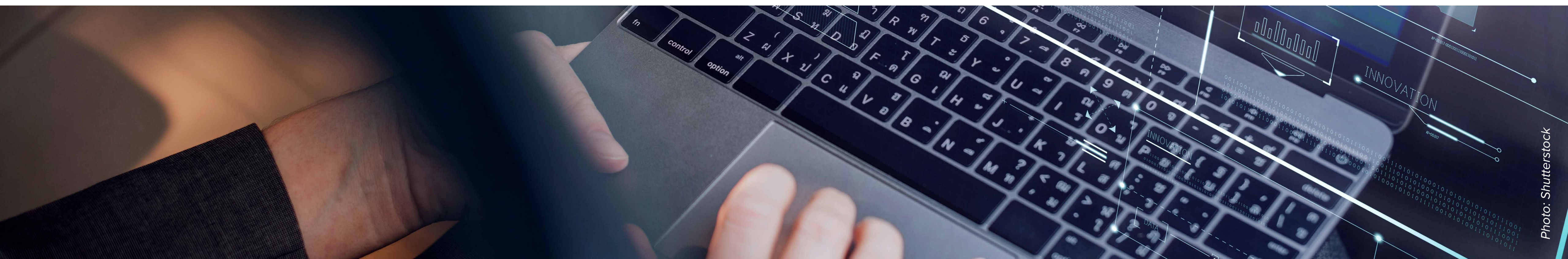
During the protective digitisation project, which lasted around two years, approximately 90 shelf-metres of material, around 1.4 million pages, were digitised. The age of the material ranged from the mid-1860s to the interwar period. Part of the material was bound books, part was highly challenging loose sheets of tissue paper.

The material digitised for protection has not been published online, and there are no plans to do so, at least for the time being. The Bank of Finland has, on the other hand, been digitising and publishing online smaller archive collections of interest to the public for a few years now. These have included the 100-year-old minutes of meetings of the Supervisory Council, material from 1918, and the archives of the old Bank of Finland research institute. The digitised material can be found at [Bank of Finland Historical Archives – Bank of Finland Institutional Repository \(bof.fi\)](https://www.bof.fi/en/foia)

In the coming years, the plan is to continue digitisation and to publish, for example, the President Risto Ryti archive, the archives of some members of the Board, and wartime material. Similarly, plans include on-demand digitisation, which is already in use in most archives, which means that, in the future, the aim will be to respond to requests for information at least partially by digitisation.



Information security and data protection



Working safely and securely is about knowing and doing – every day



Mari Hienonen
Head of Web and
Digital Communications

Each of us is helping build a shared culture of safety and security

The ‘Working safely and securely’ joint campaign of the Bank of Finland and the Financial Supervisory Authority (FIN-FSA) was concluded in summer 2022, having run for more than a year. It began in spring 2021 with a test for staff about basic everyday safety and security matters. The test revealed gaps in staff members’ knowledge on such matters. The pandemic then brought a working environment that was more digital and varied, and required competence in new ways of working.

The joint campaign, focusing on safety, security, data protection and communications, sought to remind everyone about the right things to do in terms of safety, security and data protection. It achieved this through:

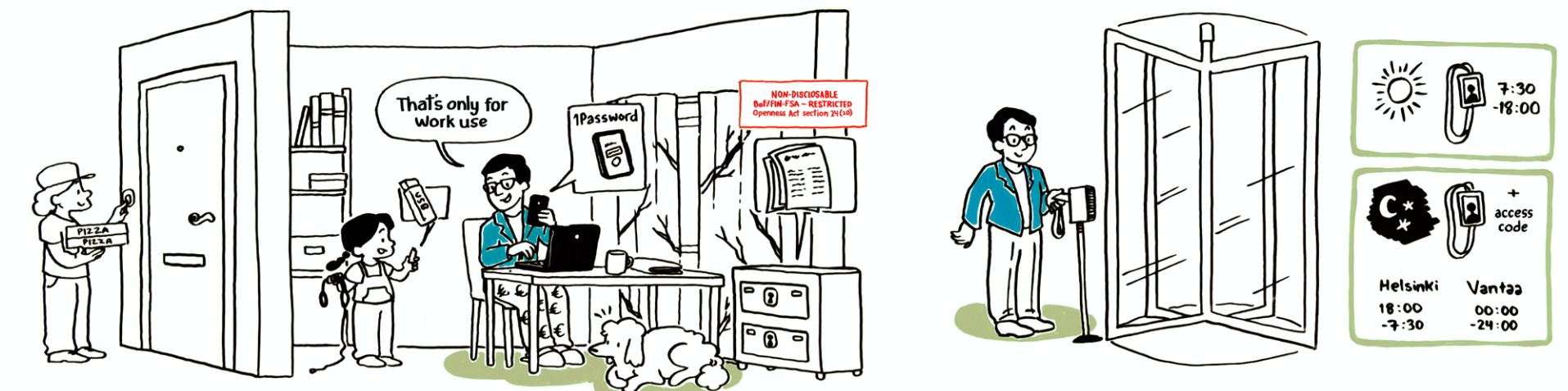
- surveying knowledge and awareness
- communicating regularly
- providing staff training and
- promoting use of the necessary practices.

The aim was that staff will act in accordance with the guidelines, encourage others to do so, and maintain their knowledge in the future, for instance through training.

Exceptional times called for new ways of working

As the familiar saying goes, a chain is only as strong as its weakest link. This highlights the importance not only of our own awareness and knowledge but also our encouragement to others to act safely and securely.

Working safely and securely
is about knowing and doing
– every day



Illustrations: Tussitaikurit Ltd

We decided to strengthen our own chain through a variety of measures, also making use of new communication methods. Our campaign’s imaginary hero economist Tomi featured in an animated video, and we made a number of videos giving tips on achieving a safer and more secure working environment. We also held a series of data protection clinics and had several ID lanyard designs made as a way of encouraging staff to keep their ID card visible. We also got staff involved through different competitions, by issuing prizes and by game playing. We published a range of articles on the campaign theme and had surveys done to assess staff knowledge and awareness.

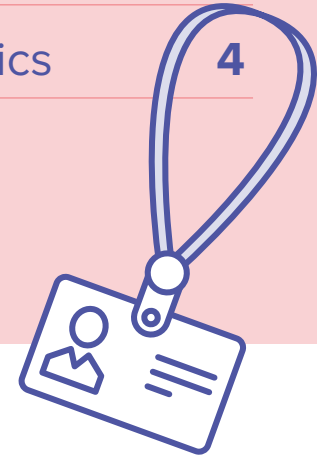
The valuable information obtained from the initial survey related not only to matters that staff were already familiar with but also those on which they desired further guidance.

Via themes that changed every few months, staff became more familiar with everyday security and data protection matters in different work situations. In conjunction with the campaign, we updated the intranet guidelines to reflect the increasingly diverse ways of working, and we offered systematic staff training based on the deficiencies identified. We communicated actively and regularly, at all levels.



Campaign in figures

News and articles	40
Videos giving guidance and tips	12
Staff surveys	3
Webinars	4
Training in safety and security	18
Competitions	4
Phishing simulation messages per employee	85
Security-themed prizes drawn for staff	21
ID-card lanyard designs	4
Data protection clinics	4



Preparedness and everyday safety and security gained a completely new meaning after February 2022. Scarcely any of us foresaw Russia launching a cruel invasion of Ukraine. This sudden transformation of the security environment is a heavy strain mentally, following, as it does, on the heels of the long pandemic.

Hence our decision to incorporate into the campaign matters related to contingency planning and the security environment, and to include these in our internal communications.

This refers to efforts to:

- make staff more familiar with contingency preparations and practical training
- guide staff in the safe use of social media and protection of user accounts
- focus on responsible messaging and the importance of media literacy, and
- discuss information influence activities through articles and training.

Knowing the basics creates a sense of security and helps retain the ability to function

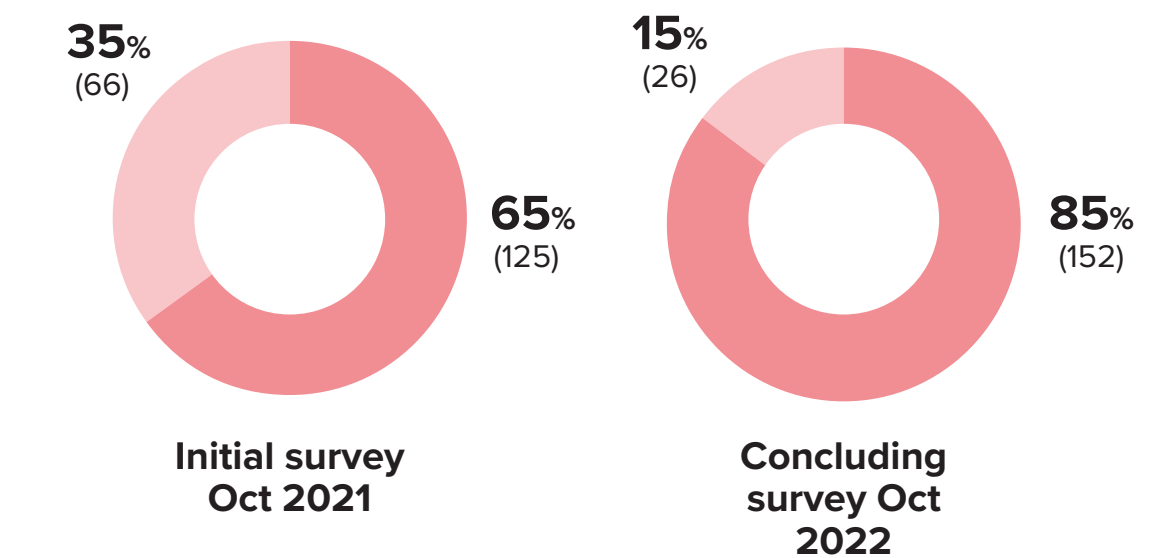
We decided to carry out a concluding survey at the end of the campaign in autumn 2022 to obtain information on the level of staff knowledge in relation to the initial survey conducted earlier, and on any deficiencies in that knowledge, as well as to see how successful the year-long campaign had been. Almost 200 Bank of Finland and FIN-FSA staff responded to the survey.

We were delighted to see the campaign had been a success. Based on the results of the concluding survey, progress had been made in almost all areas. We are now striving to work more safely and securely: this is evident in our everyday work via new practices, firmly established security measures and beneficial training. The joint staff magazine for Bank and FIN-FSE staff now has its own regular column on these matters, making them visible to staff through articles by specialists.

Each of us has an important role to play. Work and working practices are constantly changing. We are living in exceptional times in other ways too. This is why it is important that each of us follows safe and secure ways of working on a daily basis. Being aware of these basic matters is important if an unforeseen situation arises, and confidence and a sense of security are essential factors for building our future – on an everyday basis.

Do you feel that you work safely and securely?

- Yes
- Could still improve in some aspects



Source: Bank of Finland, Survey report on working safely and securely 2022

Survey on safe and secure working 2022: Survey responses indicate staff feel they are working more safely and securely than a year ago, before the campaign.

Development of data protection



Mari Rusi
Data Protection Officer

Data protection work is part of our daily activities

Data protection is an entity that did not reach its final state when we completed the project implementing the General Data Protection Regulation (GDPR); we are constantly developing our processes to ensure that data protection is implemented in all of our activities.

Growing awareness through experience and education continually raise new questions related to data protection. Since the entry into force of the GDPR, a new decision-making practice has also emerged, and both the European Data Protection Board and national data protection authorities have issued new guidelines and recommendations on the application of the GDPR. Data protection work is also part of our daily activities.

Our data protection organisation was renewed in 2022

Our data protection organisation was reformed in 2022 by transferring the data protection officer's post from the ICT and Information Management department to the Legal Affairs unit of the General Secretariat and by appointing a new data protection officer. I started as data protection officer of the Bank of Finland and the Financial Supervisory Authority in August 2022. I cooperate with ICT and Information Management and particularly in the field of data security, so that legal and technical expertise can be combined in the implementation of data protection.

We renewed our data protection tools in 2022

One of our tools for taking data protection legislation into account and fulfilling the obligation to demonstrate compliance is the data protection survey. Using the data protection survey, we assess and document compliance with the GDPR in the processing of personal data for each register or system.



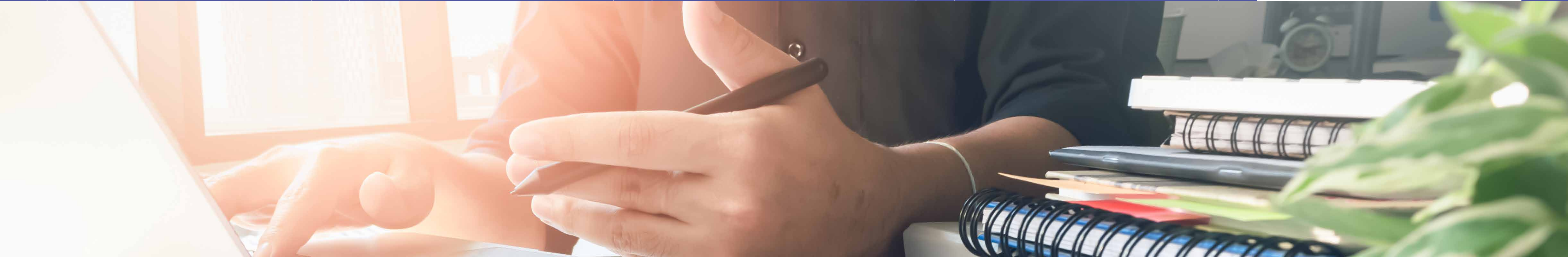
Photo: Shutterstock

When we plan any new processing of personal data or changes to the current processing of personal data, we make a concise GDPR risk assessment in addition to preparing or updating the data protection survey. In the concise GDPR risk assessment, we assess whether any processing of personal data we have planned poses a high risk to data subjects. If, based on the assessment, the processing does indeed pose a high risk to data subjects, we carry out a data protection impact assessment before implementing the planned change.

In autumn 2022, we renewed the data protection survey, the concise GDPR risk assessment and the data protection impact assessment tool and added the data protection survey and the concise GDPR risk assessment as part of an information management change impact assessment, as required by the Information Management Act. The data protection officer advises on the use of the tools and collects experiences of their use. The goal is to further develop the tools, based on the experiences gained.

Development of expertise

In order to develop the data protection expertise of our personnel, we organise data protection training. In 2022, new training materials aimed at all personnel, Data Protection in the Bank of Finland and Data Protection in the Financial Supervisory Authority, were prepared and training events on them were also organised.



Monitoring and key figures



Data Balance Sheet key figures 2022

	2022	2021		2022	2021
Case management and documents ¹			Communication channels		
Matters entered in case management system	566 cpl	378 cpl	Social media		
Documents stored in case management system	2 447 cpl	1 925 cpl	BoF Facebook followers	746 cpl	582 cpl
Documents transferred to digital archive	6 505 cpl	7 816 cpl	BoF Museum Facebook followers	1 166 cpl	1 064 cpl
Extent of historical archive in shelf-kilometres	7 shelf-kilometres	7 shelf-kilometres	BoF Twitter followers	12 858 cpl	11 502 cpl
Documents in digital archive, total	432 831 cpl	427 140 cpl	BoF Instagram followers	1 921 cpl	1 475 cpl
Number of visitors to historical archive	29 persons	9 persons	BoF Museum Instagram followers	771 cpl	693 cpl
Duration of visits, total hours	116 hours	30 hours	BoF LinkedIn followers	19 796 cpl	17 290 cpl
Data and statistics assets			BoF experts on Twitter	85 cpl	84 cpl
Statistical data collections performed	12 cpl	11 cpl	YouTube subscribers	903 cpl	no comparison
Regular reporters of statistics	1 675 cpl	1 578 cpl	Digital services		
Statistical data collection reports received	24 771 cpl	28 967 cpl	Visits 2021		
Statistical data storage capacity	> 1 TB	> 1 TB	Suomenpankki.fi	3 838 286 cpl	1 520 038 cpl
Time series entries in the time series database	10 265 341 cpl	9 787 655 cpl	Eurojalous.fi	182 240 cpl	191 403 cpl
Statistics dashboards in external network	37 cpl	35 cpl	Rahamuseo.fi	24 320 cpl	16 403 cpl
			BOFIT	77 813 cpl	69 441 cpl
			Helda/Kaisu digital repository ²	49 705 cpl	25 992 cpl
				around	
			API calls in open data service	2.5 million cpl	181 560 cpl

¹ *New task management system introduced in April 2022.

² *New digital repository Kaisu was introduced in November 2022.

	2022	2021
Publications		
Publication files and archive files loaded into Helda/Kaisu during year	732 cpl	460 cpl
Digitised material for archiving and publication (estimated in pages)		
External digitisation	610 000 pages	294 000 pages
Own digitisation	111 000 pages	80 000 pages
Total	721 000 pages	374 000 pages
Blog posts published in Bank of Finland Bulletin (fi + en)	55 cpl	60 cpl
Articles and analyses published in Bank of Finland Bulletin (fi + en)	53 cpl	106 cpl
Peer-reviewed research published	18 cpl	26 cpl
Requests for experts, statements and information		
Requests for experts	52 cpl	30 cpl
Requests for statements	38 cpl	55 cpl
Requests for information	42 cpl	28 cpl
Emails³		
Emails received	6 380 643 cpl	5 664 705 cpl
Emails blocked	6 434 747 cpl	12 634 974 cpl
Spam emails and emails with attachments quarantined or links removed	85 834 cpl	82 094 cpl
Blocked viruses	3 903 cpl	5 003 cpl
Total	12 905 127 cpl	18 386 776 cpl

³ The email figures comprise emails of the Bank of Finland and the Financial Supervisory Authority (FIN-FSA).

Capabilities and expertise

The Bank of Finland arranged three morning events on understanding information management (Tiedonhallinta tutuksi) for the staff during 2022. The topics of the sessions included non-disclosure grounds and the handling of confidential documents, document classification, data protection, the change impact assessment process, the task management system and the electronic records management plan.

It was possible to seek departmental approval to take part in external information management training. This included training in the use of data and analysis tools and software. Most of the internal information management training is jointly provided for Bank of Finland and FIN-FSA staff.

The task management training covers the task management system, document handling and processes. Training in document management focuses on the handling of official documents in the electronic workspaces. Training given to content managers covers the electronic workspace functions and user rights administration, and forums present new developments and discuss future needs. General training in information management includes current topics in information management and also a review of e.g. document classification and processing rules, data protection or systems use.

Through the development programme for information management, advanced-level training was arranged in information management, and the enhancement of expertise in data and process modelling is continuing.

A data science specialist (r.kioski) is organising presentations and workshops on data science issues. The topics discussed in 2022 included the data science workstations of the Bank's own data centre, a workshop on the use of Anaconda, R and other equivalent software or programming languages in everyday analysis work, big data in economics and state of the art data management.

System or tools training:

Training in the new Astra case management system	17 cpl
Document management training	15 cpl

Lecturers and courses on a specific theme:

Presentation of the digital repository Kaisu	1,5 hrs
Master data management training	1 day
State of the art information management - What is it and what is the benefit for me?	1 hrs
Power BI: Online meetings on current issues	1 hrs
Process description training	3 x 1 day
Understanding information management	3 x 1 hrs
Data protection at the Bank of Finland and the FIN-FSA	2 x 1,5 hrs
Data protection meeting	2 x 1,5 hrs
AI/ML lecture: Keep It Simple - Practical Machine Learning Examples (& Basic Principles)	1 hrs
Inventing and testing with IT: Microsoft Azure and AI/ML	1 hrs

Other events related to data, data use or information management:

In October 2022, the Bank of Finland organised a half-day Techday seminar coordinated by the data management department, discussing trends in technology, the LowCode platform and LowCode usage guidelines for the Bank, utilisation of AI at the FIN-FSA, an introduction to new Teams features, new winds in Azure and a summary of MS Ignite.

A campaign on everyday safety and security was launched in October 2021 in collaboration with data protection and security. The campaign continued in early 2022, with a focus on everyday safety in the workplace and emergency situations.

» [Statement on public access to documents](#)
(not available in English)

» [Privacy statements](#)



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