

# OP Financial Group's Data Balance Sheet 2022



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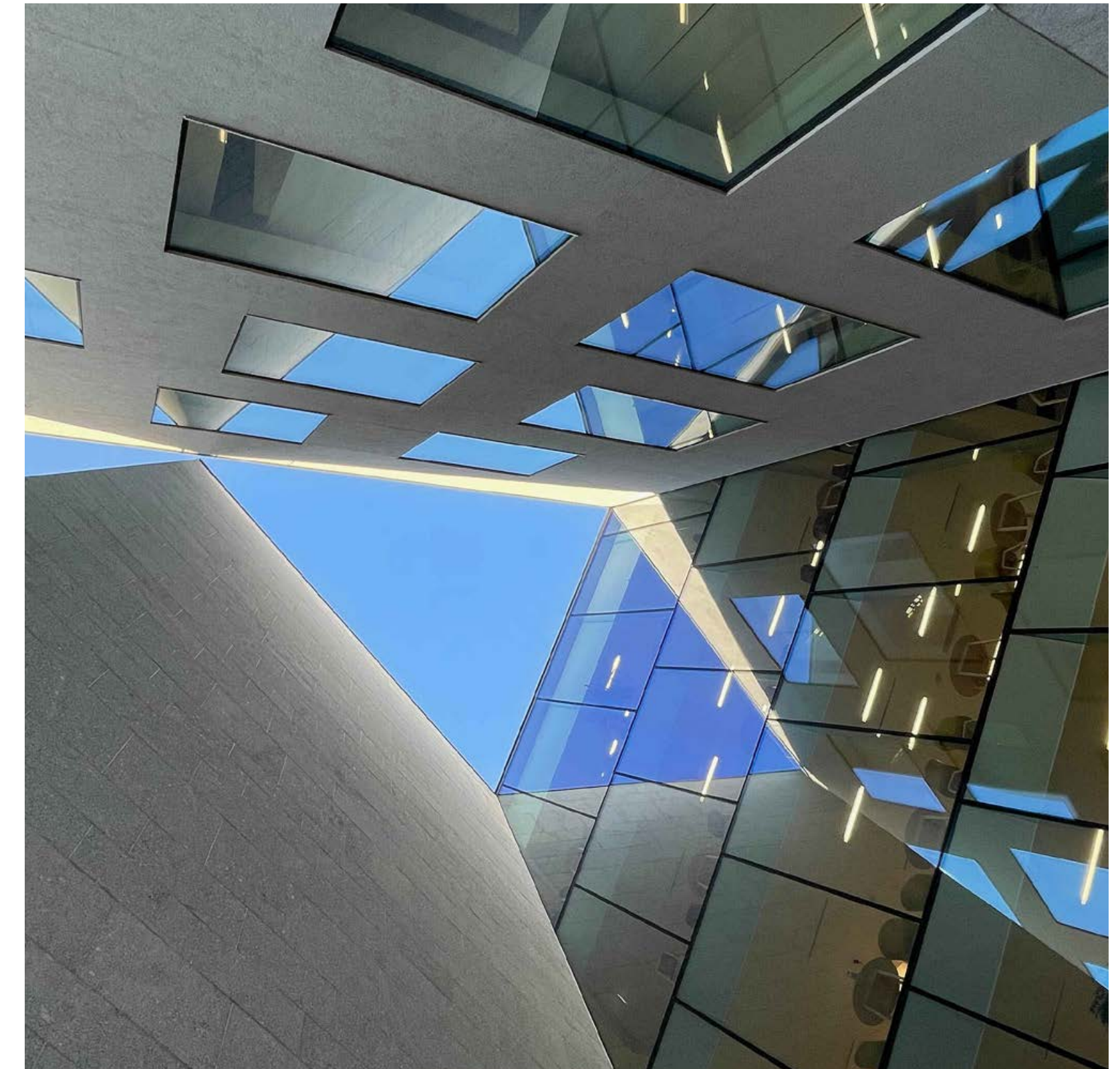
## OP Financial Group’s Data Balance Sheet casts light on the importance of data to OP Financial Group, its stakeholders and business environment

OP Financial Group’s Data Balance Sheet describes data governance, utilisation and protection in the Groups’ banking and insurance operations in a manner that creates value to customers, OP Financial Group and the operating environment. It also presents the key goals, operating models and results of OP Financial Group’s data governance and use, and the main principles and practices governing the secure and compliant processing and use of data. The report covers all OP Financial Group’s business segments, that is, Retail Banking, Corporate Banking, and Insurance.

### Extent of reporting and restrictions

The report covers key events within OP Financial Group’s internal and external digital services in 2022. It is the fifth Data Balance Sheet to be published. It is part of OP Financial Group’s annual review, which can be read at <https://vuosi.op.fi/en/2022/>.

OP Financial Group’s previous data balance sheets [can be found here](#).



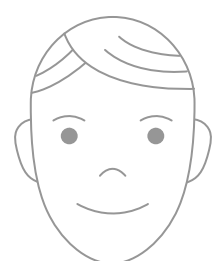
OP Financial Group’s Reports 2022:

- [OP Financial Group’s year 2022 and sustainability \(pdf\)](#)
- [OP Financial Group’s report by the board of directors and financial statements 2022 \(pdf\)](#)
- [OP Financial Group’s Corporate Governance Statement 2022 \(pdf\)](#)
- [Remuneration report for Governing Bodies 2022 \(pdf\)](#)
- [Remuneration policy for Governing Bodies \(pdf\)](#)
- [OP Financial Group’s Capital Adequacy and Risk Management Report 2022 \(pdf\)](#)
- [OP Corporate Bank plc’s Report by the board of directors and financial statements 2022 \(pdf\)](#)
- [OP Corporate Bank plc’s Corporate Governance Statement 2022 \(pdf\)](#)
- [OP Mortgage Bank’s Report by the Board of Directors and Financial Statements 2022 \(pdf\)](#)
- [OP Mortgage Bank’s Corporate Governance Statement 2022 \(pdf\)](#)

# OP Financial Group's digital year 2022

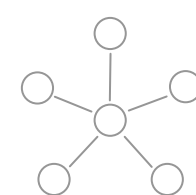
3.6

million Retail Banking and Corporate Banking customers



53

Digital channels NPS (+1)



43.3

million logins to OP-mobile on average per month (+8%)



6.1

million logins to OP.fi service on average per month



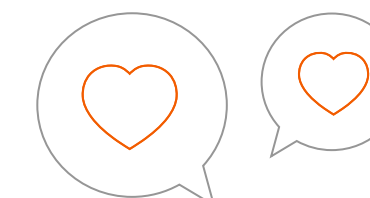
79

thousand home loan applications processed automatically



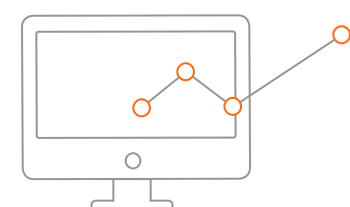
63%

Opotti chatbot's fully automated chats (+9%-pps)



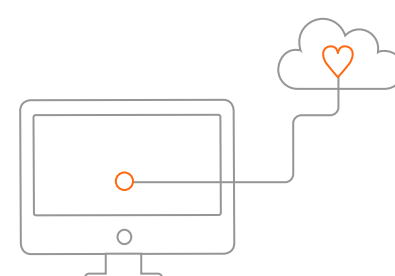
687

of data held in OP Financial Group's analytical databases (-22%)



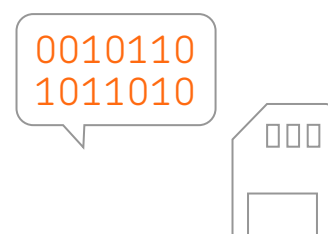
64

APIs for external data customers and partners (+1)



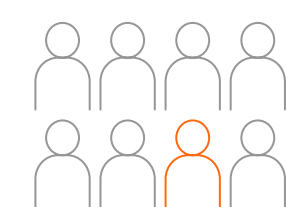
3,660

terabytes of real-time data transferred through external APIs (+14%)



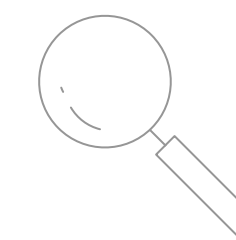
629

employees working on data development and refinement in OP Financial Group's central cooperative (-1%)



249

customer requests for access to personal data processed (-14%)



546

customer details maintained through the My Profile service (-12%)



# Message from management

Rapid development in technology increases the possibilities of OP Financial Group’s data collection, refinement and utilisation continuously. Based on our strategy and sustainability programme, we create value from data for customers, responsibly utilising our data capital and artificial intelligence.

Customers are interested in new opportunities introduced by technology, and expectations for personalised and intelligent services in the finance and insurance sector are increasing. OP Financial Group invests in the capabilities of data utilisation and governance on a long-term basis, and we will do it in the way requested in the financing sector, safely and ensuring availability.

OP Financial Group’s data platform and data analytics applications are a key part of the continuous technological development of the new way of working. This shared common data basis supports analytics’ and other data utilisers’ work and thus uniform customer experience in OP Financial Group, for example.

Additionally, the common processes of data governance, regulatory compliance, risk management,

and reporting create a necessary and strong foundation for the work to rely on. We also stay prepared for a worsening cyber threat situation and test our operations actively with the authorities and other actors in our field. Together, these areas of development brought us forward in 2022 in a safe and controlled manner.

The importance of cooperation between data, technology and people is focal when we provide the best customer experience and services. We succeeded in this area well because e.g. the use of digital services and service channels continued its strong growth via mobile, network and API services. We launched totally new and improved services that facilitate and enrich the daily life of our personal customers and enhance the business processes of our corporate customers.

The responsible utilisation of data requires from us extensive capabilities related to data and technology. One of the new aspects are stakeholders’ expectations related to the transparency of AI management and utilisation. In 2022, we developed and launched an assessment model of AI transparency that we will use in future to describe the operation of AI on our services that are favoured by our stakeholders.

The technological change in many areas is now quicker than ever. AI’s natural-language capabilities will make the use of intelligent services more common and increase the productivity of work considerably. Our efforts to develop responsible and customer-driven data capability will continue. We create value for our customers, stakeholders and business environment – together through time.

**Kasimir Hirn**

Group CIO, EVP Development & Technologies  
OP Financial Group



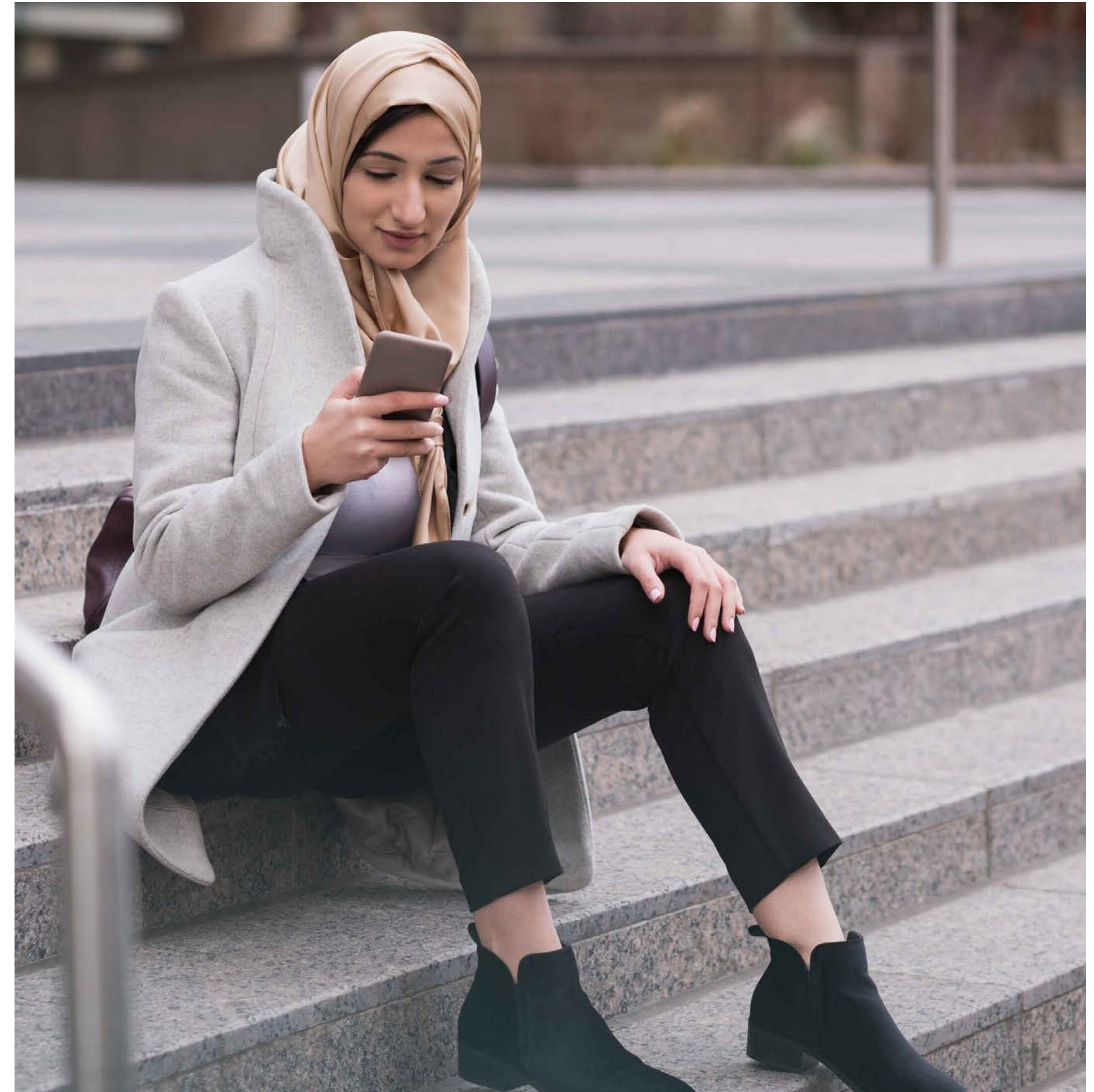
# Data are central to OP Financial Group

Data governance and utilisation are an inseparable part of banking and insurance business. We invest in the continuous strengthening of our data capital and in productive and secure management of data. We utilise data in a target-oriented way and use them to create value for the customers, OP Financial Group and the business environment.

In 2022, our special focus in data governance was on strengthening data capabilities in business operations and developing a data platform, data governance and architecture at the group level.

The method and ways of working in managing the life cycle of data are conventionally based on centralised specialist operations. In 2022, we continued the transfer from the centralised method towards a more business-centred and decentralised method of managing, utilising and publishing of data. Our goal is a more customer- and needs-oriented way to create value from data that also considers the special characteristics of each of our business segments.

The value created of data is realised for the OP Financial Group and its customers and other stakeholder groups, inter alia, as excellent customer experience, innovative services and efficient and secure basic operations. Risk management, which is a central operational requirement in the financial sector, depends on data and their utilisation. Ensuring the regulatory compliance of the data throughout their life cycle and in all operations is a prerequisite for its utilisation in business operations.



## Cornerstones of data strategy

OP Financial Group's data strategy seeks to create value for customers and OP Financial Group, secure high-quality and efficient operations, and foster the data capabilities and competitive edge they enable.

### Value from data

Data-based value creation calls for strong trust between the customer and OP Financial Group.

Data are utilised responsibly in creating personal customer experience and gain, as well as in managing and developing business operations.

The use of advanced analytics and smart automation is increased in responsibly and transparently.

### Ownership of data in business activities

Data ownership and utilization are a customary part of business activities.

Data orientation makes decision-making and processes more effective, clarifies quality responsibilities related to data ownership and prioritizes development based on business value.

### OP Data Platform

The OP Data Platform supports the capabilities of the business units to publish the data of their operations to use for themselves and other business units.

The OP Data Platform supports data quality and flexible and quicker development.

Data publishing responsibility transfers from centralised specialists to business units.

### Compliance as way of working

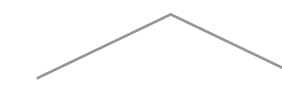
Ensuring regulatory compliance and extensive data risk management are built into all functions and processes.

The strong base enables the secure and versatile use of the data and the consideration of the current and future regulation.

## OP Financial Group's strategic policies related to data

### Goals

- Customer delighted with new services
- Profound understanding of customers and market
- Data-directed business
- Strong data culture as enabler



### Basis

- Leading competence in AI and process automation
- High competence in data governance and high data quality
- Capabilities in data storing and reporting centralised for critical parts
- Strong risk management and cybersecurity
- Secure technological infrastructure

### Cornerstones of data strategy

- Value from data
- Ownership of data in business activities
- OP Data Platform
- Compliance as way of working



### Role of business segments as data owners increases

OP Financial Group’s capability to utilise data from the premises of different business segments has become stronger in recent years. As part of the change, ownership of data and their utilisation have been brought from the central cooperative closer to the customer to business segments. In 2022, this change to more business-driven data management advanced in several pilot projects.

The change in the business segments’ role will also be implemented in the management of the data life cycle. Previously, the business segments were primarily responsible for using the data, but the target is to increase their responsibility to also cover data creation and refinement and enable their responsible utilisation in business.

In the banking and insurance business, the considerable quantity of data created every moment provides both possibilities and risks for business. Our goal is that the data created are increasingly utilised at the OP Financial Group’s level in a way enabled by regulation and customer consent.

### Leading competence in AI

The Data Platform and AI function is responsible in OP Financial Group for developing the AI and analytics capabilities and for supporting the business segments as utilisers of the capabilities. It develops

and creates applications of AI to enhance customer experience, recommendation, prediction, monitoring and support decision-making.

In addition to business segment specific solutions, the Data Platform and AI function creates solutions related to analysing customer understanding, digital assistants and chatbots, and customer finance and risk profile for OP Financing Group.

The Data Platform and AI function is also responsible for making the use of AI more common. In 2022, a special Citizen Data Science project advanced. In the project, business segments’ analysts and business specialists are trained to utilise the OP Financial Group’s data property by means of a data and analytics platform and AI applications. At the end of 2022, OP Financial Group had a total of 100 Citizen Data Scientists.

In the Data Platform and AI function there are

**70**

data scientists and engineers.



## CASE: AI predicts home price development

The OP Financial Group's home loan portfolio of about 41 billion requires that the value of loan collaterals is known as precisely as possible. An extension of an AI application developed for the valuation of collaterals estimates the future development of home prices in various macroeconomic scenarios.

The AI application launched in 2020 aims to determine the current market value of an apartment or a property being collateral to a loan. This determination makes extensive use of the collateral's properties and historical market data.

As housing and work markets as well as economic structures differentiate regionally, there is an increasing need for predicting the collateral value of homes further to the future. For example, different scenarios on the development of the economy, employment rate and migration have an effect on the future value development of dwellings.

In 2022, an extension based on predictive analytics was added to the AI application. The application assists in estimating the value of the dwelling locally, so that, for example, growth centers stand out from the rest of the country.

The scenario-based AI model developed by OP Financial Group's economists and data scientists uses national and local variables that affect home prices. At the national level, important variables are interest rates, gross domestic product and inflation. At the local level, the variables include the share of the population residing in the town centre. The result is a prediction that reflects the local value development.

The AI application supports loan origination and risk management such as an assessment of capital adequacy and monitoring the value of the collateral base and reporting. The European Central Bank (ECB) requires banks to apply comprehensive and reliable methods to determine the value of apartments and properties included in their home equity portfolio.





## Responsibility guides our use of data capital

We manage data responsibility on many levels. Ensuring processes comprise all the steps of data-based value creation: data acquisition, processing, utilisation, and creating impacts. Corporate responsibility acknowledges viewpoints essential to the customers and OP Financial Group, as well as possibilities and risks of value creation.

The responsible collection and use of data are a key aspect of the corporate responsibility programme in OP Financial Group, which was updated in 2022. Benefiting the customer is always our priority when utilising data. We have gained our customers' confidence through responsible and diligent operating models, and transparency in collecting, storing and using data. OP Financial Group communicates transparently about its collection, processing and use of customer data. Our marketing and sales respect the limitations of customer data utilisation as described in Privacy Notices, while observing good marketing practices and regulatory compliance.

Data responsibility is also highlighted in the positive impacts created for people, society and the environment. Data are a part of OP Financial Group's value-creation model, which describes impacts created by means of data to the stakeholders and the business environment. In financing and investing services, OP Financial Group extensively

utilises the Environment, Social, Governance (ESG) responsibility data to increase the sustainability of the financing market and to improve the management of risks related to ESG factors.

Assessments of transparency, intelligibility and ethicality related to the use of AI become increasingly common as the use of AI increases. Customers' trust in the explicability, transparency and responsibility of the workings of artificial intelligence is a key factor. Those who develop and utilise AI are responsible for exercising control over it.

OP Financial Group has a set of Ethical Principles of Artificial Intelligence to help ensure its responsible use of AI.

### Ethical principles on the use of artificial intelligence

- People first
- Transparency and openness
- Impact evaluation
- Ownership
- Privacy protection

[Read more about OP Financial Group's ethical principles on using AI](#)

## People-driven AI assessment model increases comprehensibility and transparency

Use of AI is increasing rapidly, raising people's expectations of understanding how AI is governed and functions in the services they use. In 2022, OP Financial Group created a people-oriented model for assessing and enhancing the transparency of its AI-based services.

The model enables systematic assessment and improvement of the transparency,

governance and explicability of AI applications in eight subareas. The outcomes are used in areas such as user communications and the preparation of separate transparency reports on widely used AI apps. The first AI transparency report based on the model describes the AI in the popular My financial balance service.



[Read the Artificial intelligence transparency report here](#)

## Regulatory compliance management and reporting

OP Financial Group anticipates and monitors regulation and regulatory compliance related to data actively. This is to ensure that data processing and use are responsible and compliant. The Regulatory Affairs & Monitoring unit foresees future regulation and takes part in its preparatory work in bodies such as Finance Finland (FFI) and European Association of Co-operative Banks (EACB).

In addition to the EU's General Data Protection Regulation (GDPR) and the revised Payment Services Directive (PSD2), key regulation and control frameworks in the financial sector are the EU's Capital Requirements Regulation (CRR), Solvency II Directive, and the Banking Supervision Standard BCBS 239 of the Basel Committee.

Future and partly enforced regulation frameworks are the EU's extensive data regulation framework, the Basel III capital adequacy requirement framework, and the EU's Digital Operational Resilience Act (DORA), which was enacted by the Commission in November 2022 and will advance to national and sector-specific implementation.

The EU's new regulation on data, digital services, digital markets, data governance or AI has a wide effect on the prospects of data use, share and transfer. The new regulation also provides business opportunities that are prepared for actively. Based

on the current information to be updated, the new regulation is not expected to significantly affect OP Financial Group's strategic opportunities or challenges related to data.

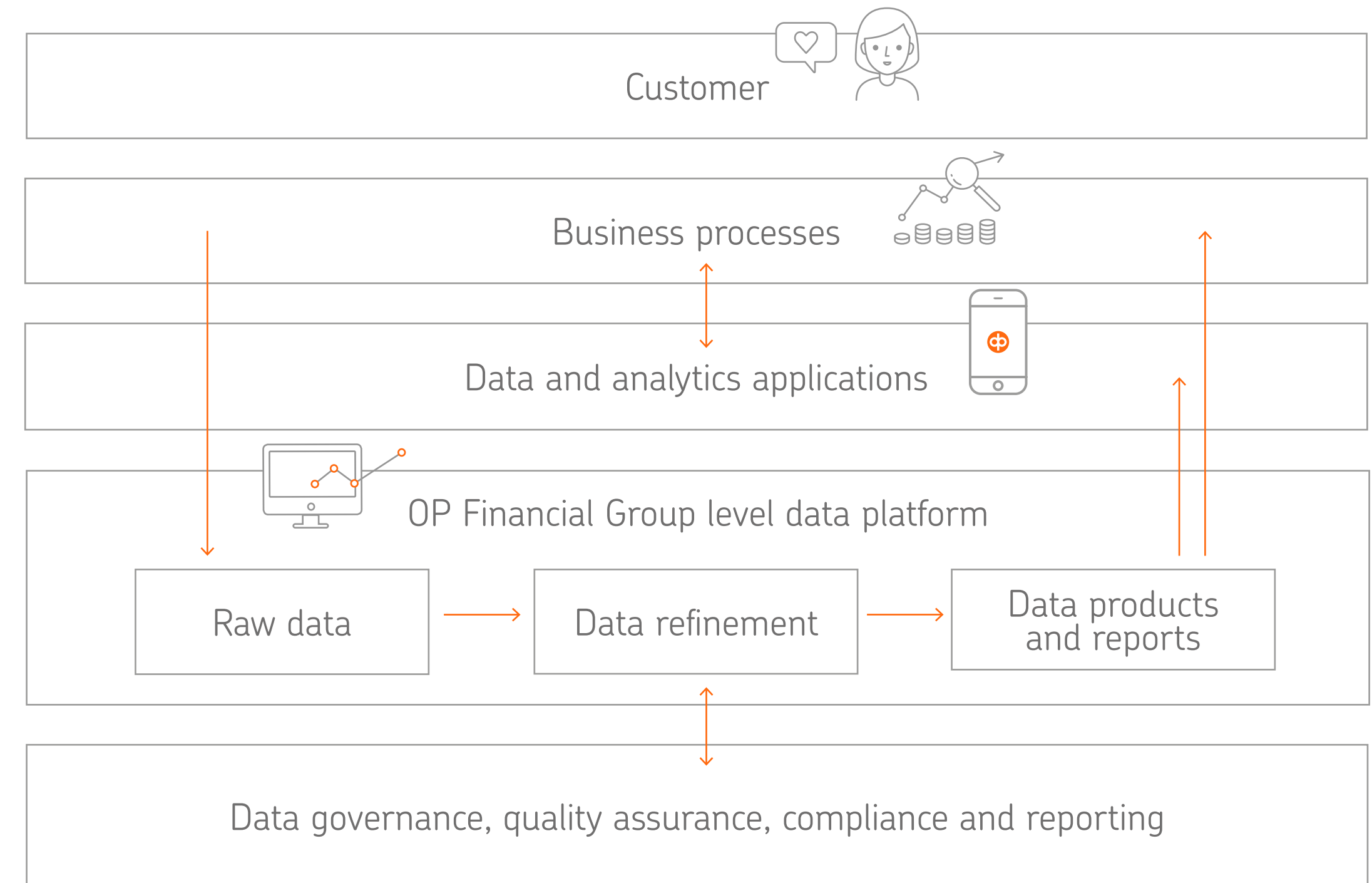
OP Financial Group's data governance model is updated continuously in the various subareas of data governance based on changing regulation and recommendations. In addition, OP Financial Group reports to the supervisory authorities regarding these areas.

## Digital enterprise architecture supports value creation

Our enterprise architecture describes our digital way of working that helps us create multichannel banking and insurance services for customers utilising the common data platform and applications. In 2022, we continued to develop the architecture, which is uniform and crosses borders between business segments.

The OP Financial Group's enterprise architecture combines highly-advanced banking and insurance business activities with an extensive common data basis and uniform customer experience crossing the borders between the business segments. OP Financial Group's units and centres of excellence for development and technologies, economy and risk management promote and ensure the active utilisation and continuous improvement of business applications and use cases.

## OP Financial Group's digital enterprise architecture



Data governance is supported by the strong data governance model and the control models for development and maintenance. Data governance and protection also ensure enterprise risk management and compliance throughout the OP Financial Group.

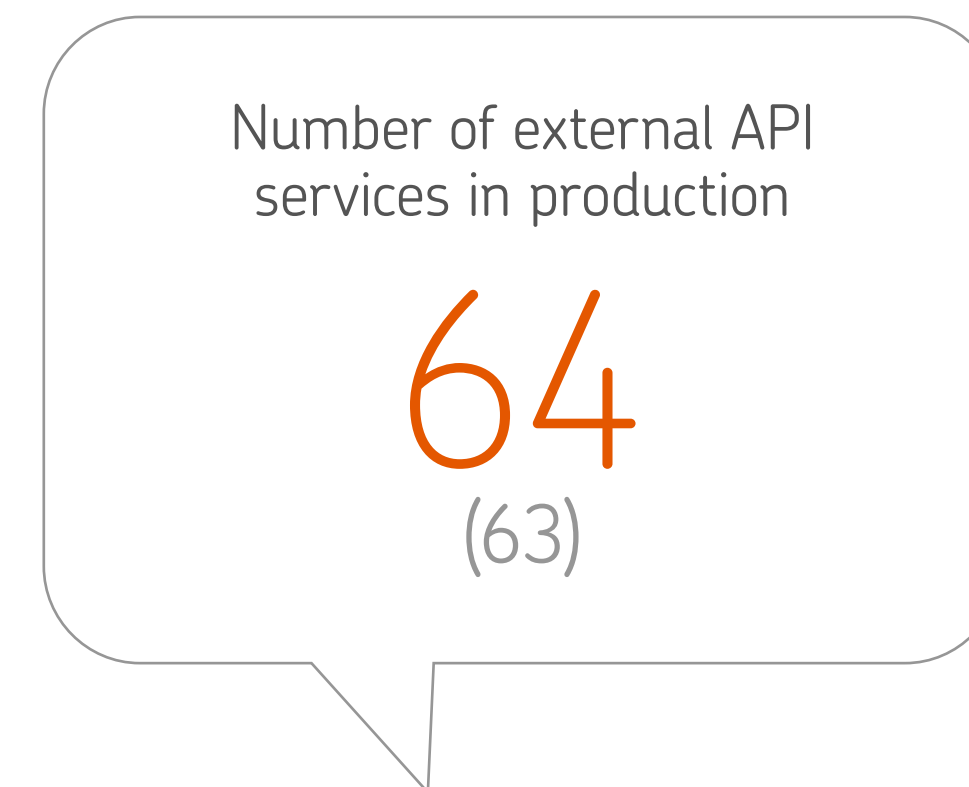
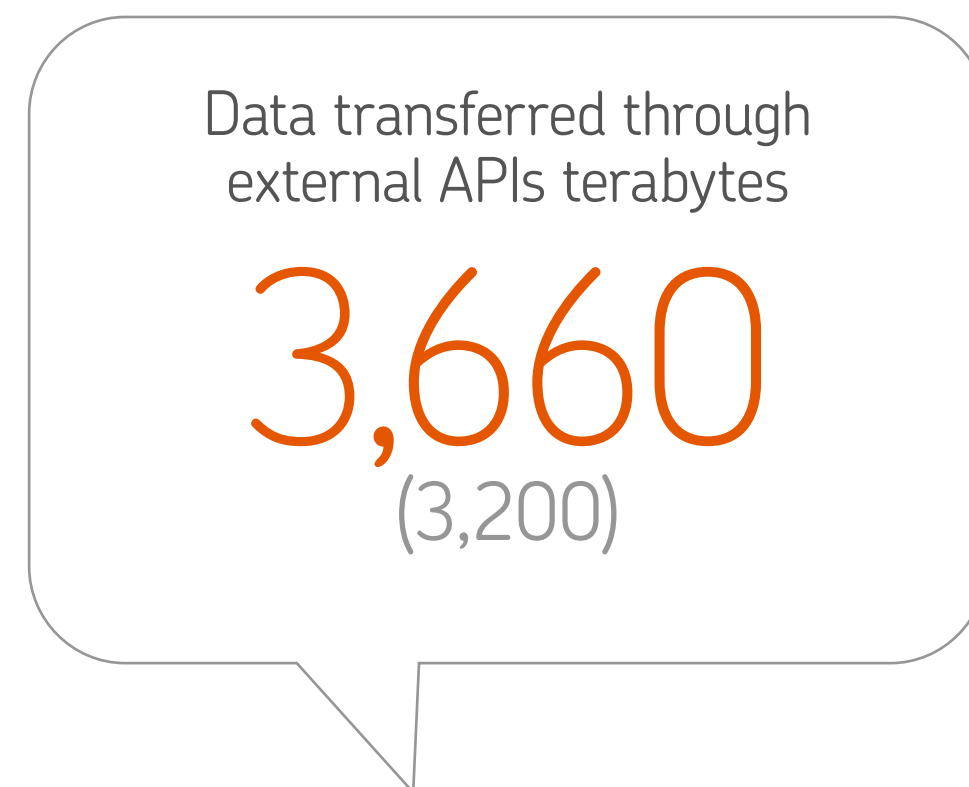
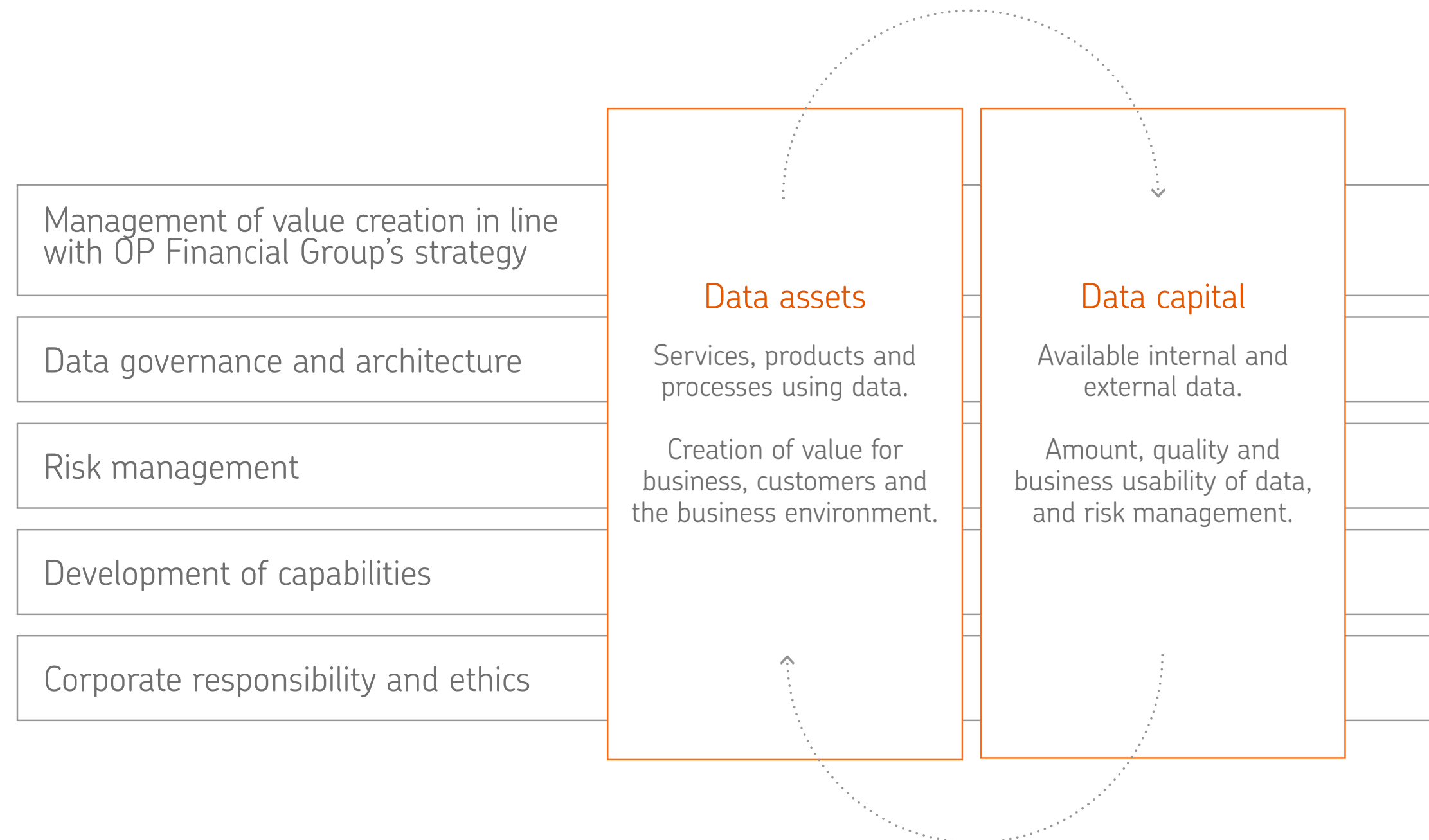
## Data balance sheet combines data and their use

Data-based value creation is based on the OP Financial Group's data balance sheet and the balanced management of the sheet. The data balance sheet presents the OP Financial Group's internal and external data capital and digital services, products and processes utilising data, that is, data assets.

It combines the management of data quantities, quality and life cycles related to data capital with the management of value creation within OP Financial Group's services, products and processes based on data assets. A balanced data balance sheet enables sustainable growth of value creation.

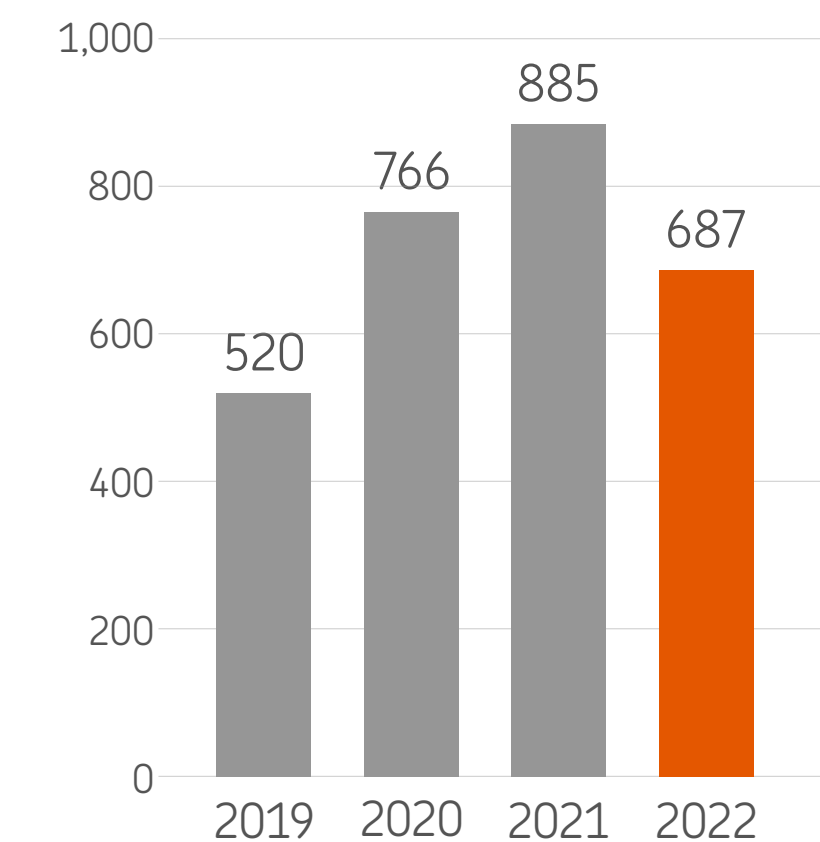
OP Financial Group's data balance sheet grew stronger in 2022. The number of external APIs and the amount of data transferred via them increased, reflecting increasing use of internal and external data capital gathered via OP Financial Group's services. In terms of data assets, the number of users of digital services grew, and new services were introduced. Real-time data are strongly growing in importance on OP Financial Group's data balance sheet.

Please read more about OP Financial Group's data balance sheet on page 27.



Amount of data in analytical databases

Terabytes



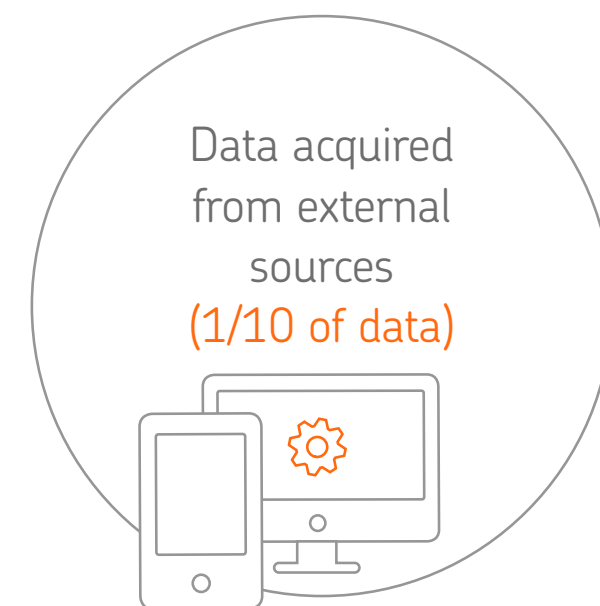
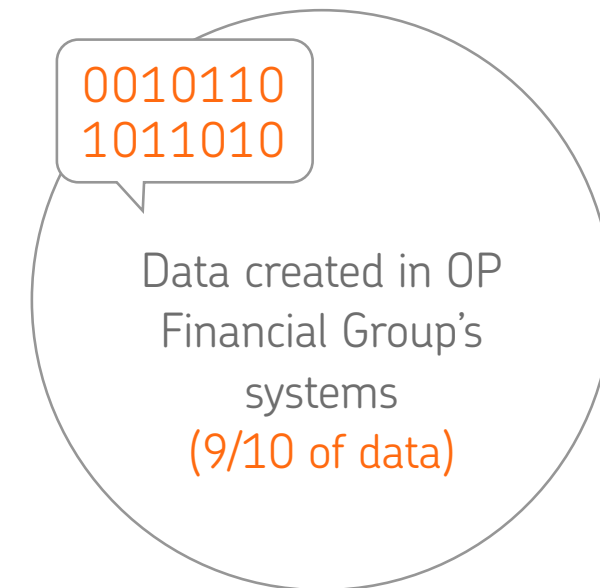
## Data as part of OP Financial Group's value creation model

OP Financial Group's value creation model depicts the kinds of resources and capital the Group uses to implement its mission and strategy and the kinds of outputs and impacts its activities have.

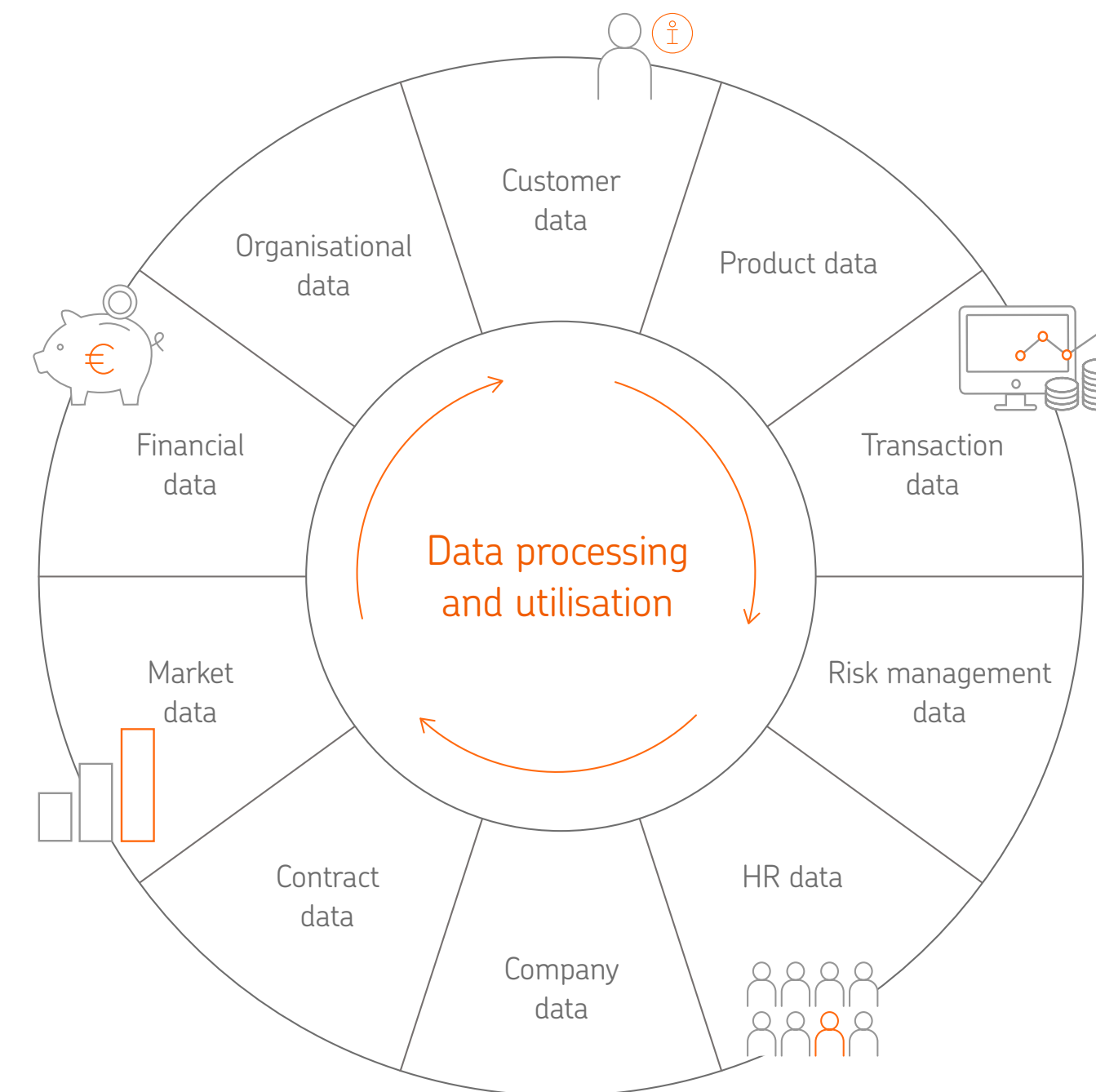
High-quality data capital and its profitable use are a key part of value creation for the OP Financial Group. We want to use our data capital to create new, sustainable and unique value for our customers, the Group and its operating environment.

OP Financial Group's Year 2022 and Sustainability and corporate responsibility includes an overall description of the Group's value creation model, see [vuosi.op.fi/en/2022/](https://vuosi.op.fi/en/2022/).

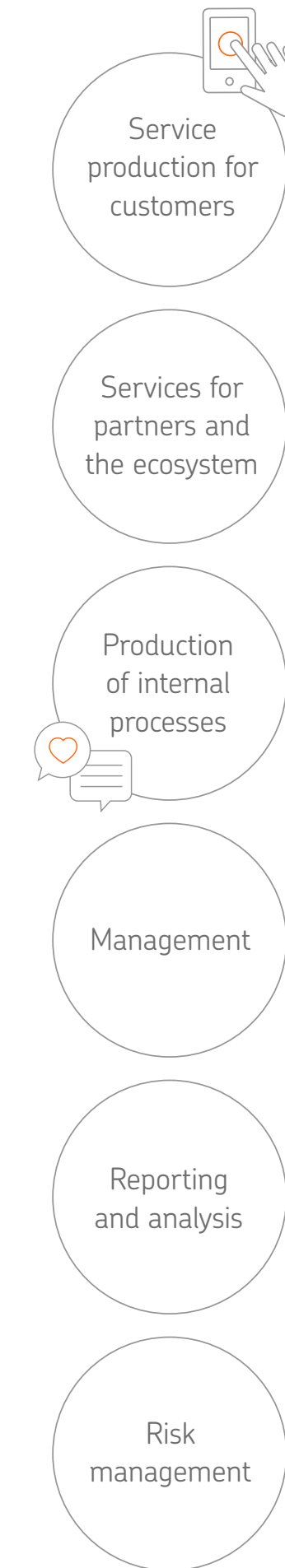
### Data capital



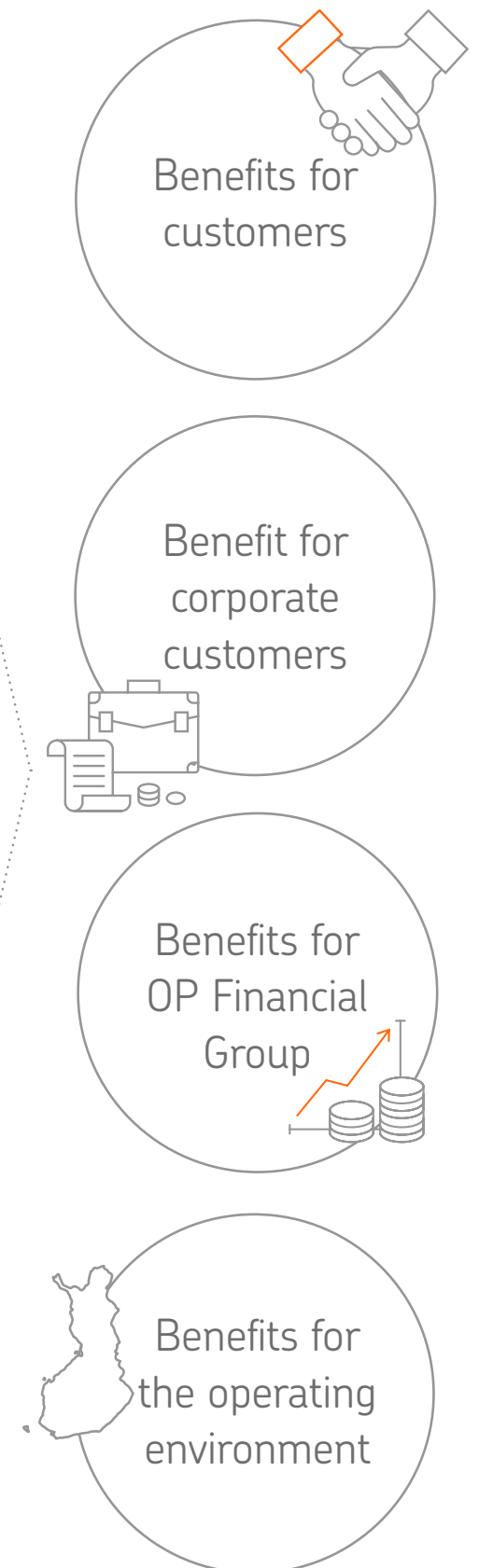
### Data refinement



### Analytics and applications



### Benefits



# Data create value for customers

OP Financial Group utilises data and technology to create sustainable value for its customers, the Group and its business environment. This section describes special features of business functions and current examples from 2022.

As the largest financial services group in Finland, our mission is to promote the sustainable prosperity, security and wellbeing of our customers and operating region. The OP Financial Group's different business units utilise uniquely large data capital in Finland's scale to implement this basic task.

High-quality data basis and centralised and decentralised capabilities support business segments and promote their collaboration. Based on comprehensive customer insight, our personal and digital services complement each other via multiple channels.

Data provide opportunities for continuously improving profitability and efficiency, and the customer experience and services. Data and analytics will be used to produce almost all new services that provide customers with added value. Digitalisation and au-

tomation facilitate the customer's everyday life and improve the customer experience when routine work is automated, processes are accelerated, and flawless operations are increased.

OP Financial Group has a total of **3.6** million banking customers.



## OP Financial Group's business segments as data users

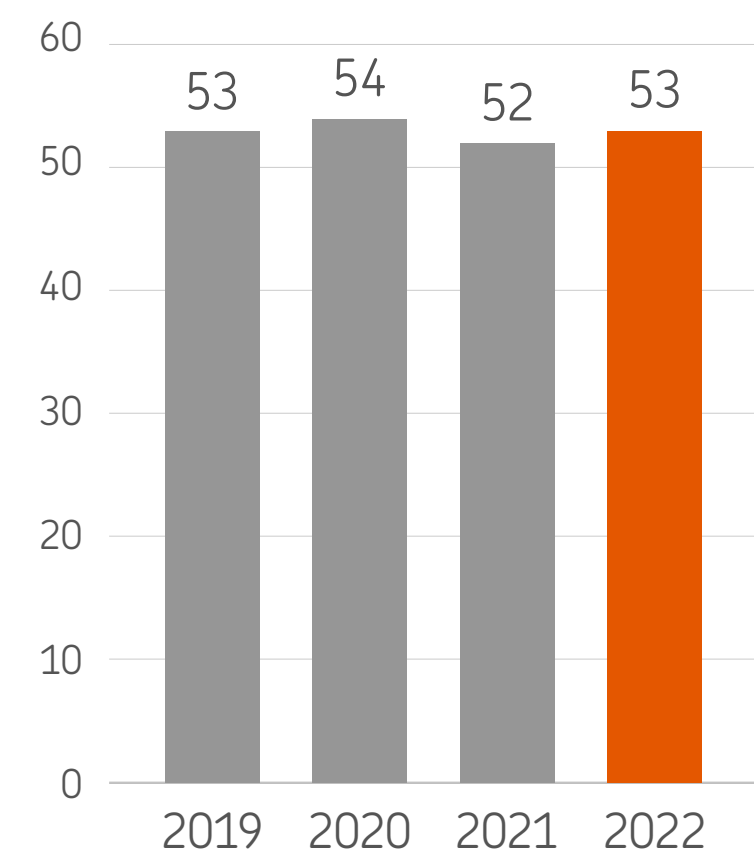
Retail Banking	Corporate Banking	Insurance	
		Non-life insurance	Life insurance
<p>Data enables the best customer insight, customer experience and services.</p>			
<ul style="list-style-type: none"> <li>• Customer and their situation is extensively known due to data.</li> <li>• Customers are offered digital banking services that are useful and ease their everyday life on mobile and online bank.</li> <li>• AI and analytics are utilised in services which help customer in banking and in managing their own finances and property.</li> <li>• Various data sources and analytics are used in a versatile way to support customer service, communications and marketing.</li> <li>• Customer's consent and regulation control the offering of services.</li> </ul>	<ul style="list-style-type: none"> <li>• Data enhances and safeguards customers' basic services and supports their business and financial processes.</li> <li>• Data are utilised in producing customer service and benefits, for example, in investment decisions and peer service.</li> <li>• Credit risks are managed by means of customer data and analytics.</li> <li>• Offered digital services are seamlessly connected to the customer's processes in the form of APIs and applications supporting payments and financial management, for example.</li> </ul>	<ul style="list-style-type: none"> <li>• OP Financial Group works as a data-controller partner in its customers' risk management.</li> <li>• Data and analytics enable end-to-end customer benefits in insurance business.</li> <li>• Identifying the customer's need for cover and risk-based pricing utilises most internal and external data sources.</li> <li>• Use of AI and process automation accelerates claim application handling and helps identify dishonest actors.</li> </ul>	<ul style="list-style-type: none"> <li>• Data help us enhance and automate core processes and support high-quality processes in risk management and regulation.</li> <li>• We enforce business-based data-driven decision-making, data governance, and data-based implementation of product and service development.</li> </ul>
<p>Robotic process automation and smart automation enhance processes and increase reliability.</p>	<p>ESG data is utilised extensively in offering sustainable products and services.</p>		<p>Cybersecurity and data protection are ensured in all operations.</p>

### Best customer experience: Use of our mobile services channel grew, digitalisation of services progressed

Use of services in digital channels continued its growth in 2022. Use of mobile services in all customer segments grew steadily, and average monthly logins increased particularly on OP Business mobile. OP Financial Group develops all its new services based on its strategy primarily for mobile use. Our aim is to stand out in the market as the provider of the smoothest service across channels.

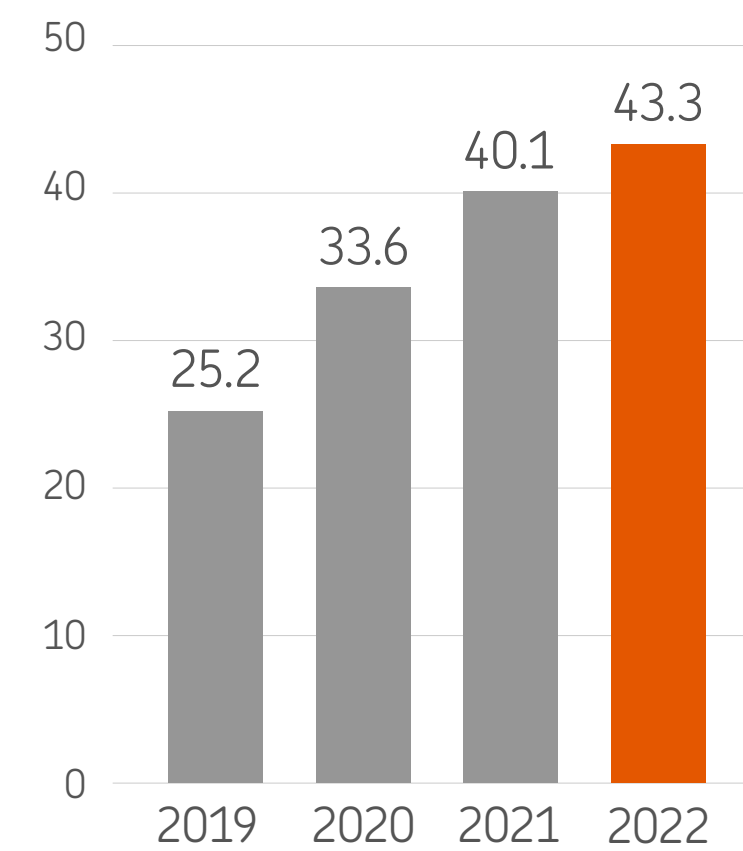
A customer-centric approach and strong data security are priority design principles for our digital services. These principles ensure that our services are developed, as planned, to be convenient, useful and secure. Accessibility is a key aspect of service development at OP.

Digital channels NPS<sup>1</sup>



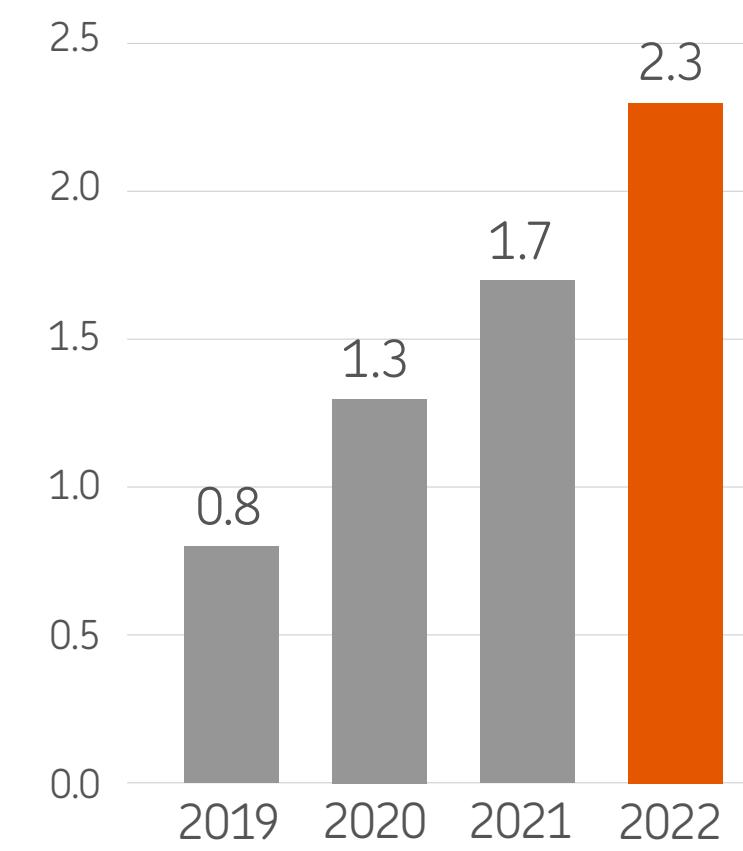
Use of OP-mobile

million logins on average per month



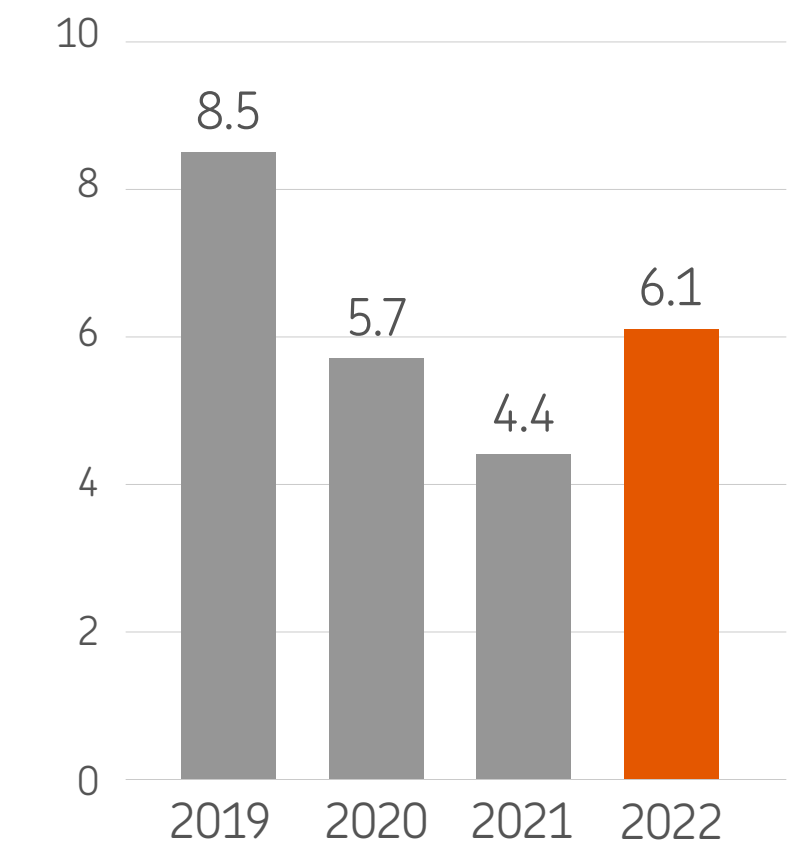
Use of OP Business mobile

million logins on average per month



Logins into the op.fi service<sup>2</sup>

million visits per month on average



<sup>1</sup> Net Promoter Score (NPS) measures the likelihood that a user will recommend the service on a scale of 0 to 10. The index is calculated by subtracting the percentage of detractors (scores -9-10) from the percentage of promoters (scores 0-6).

<sup>2</sup> The figures are not comparable due to a change in the measurement method in 2022.

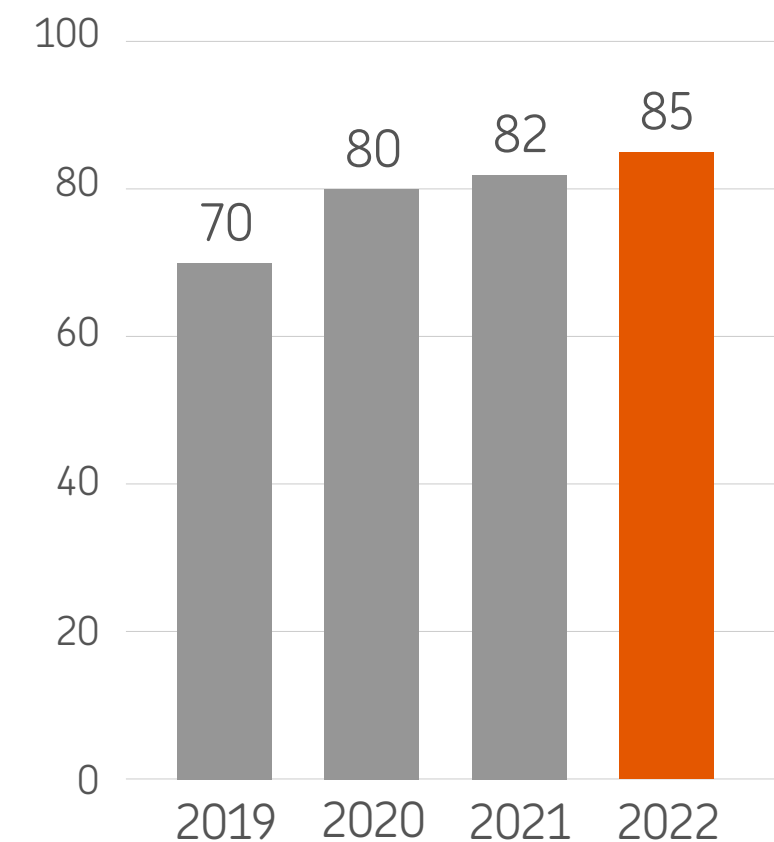
AI and automation are in daily use

Use of data and analytics in services and background processes enables smart self-service, while assisting customer advisors and other personnel in all business functions. During the year, OP Financial Group improved its digital assistants, making them even smarter and with a better ability to meet customer needs. This training and active development of the AI solution has markedly improved the precision of chatbots' responses.

In many services for customers or support solutions developed for employees, AI needs automation for support. They are not competitive or exclusive to each other, but smartly combined, the whole they produce is more than their sum.

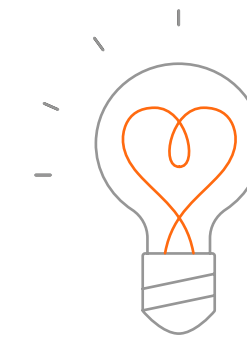
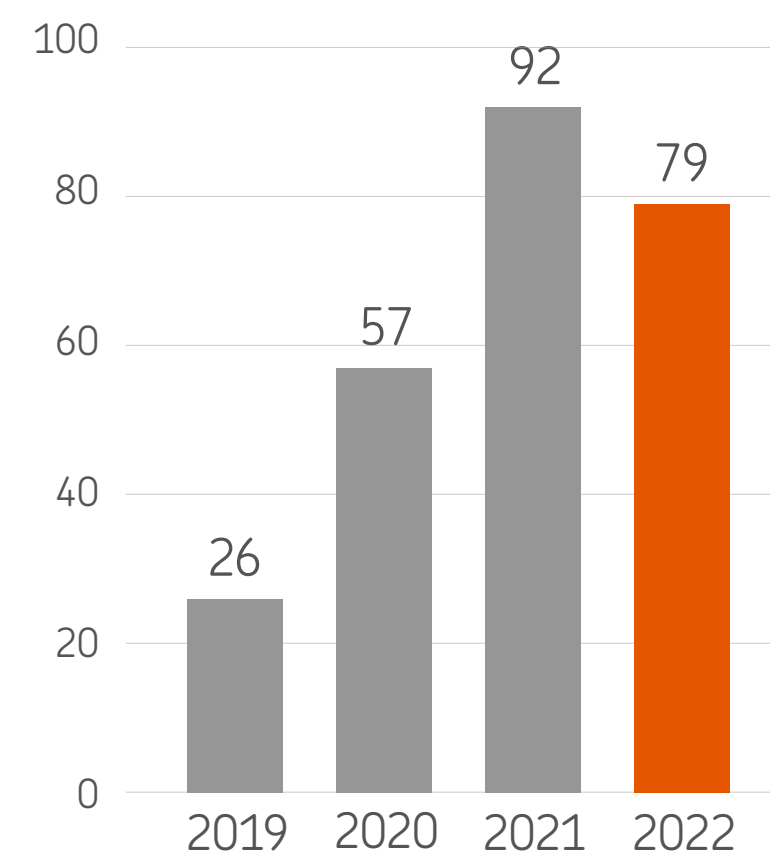
OP Financial Group uses robotic process automation and AI applications extensively. These provide customers with added value and increase the OP Financial Group's operational efficiency and improve its risk management.

Opotti chatbot's message resolution rate (%)



Automatic processing of home loan applications

Home loan applications processed by the Credit Engine, 1,000 applications



CASE: Data improve customer experience in Customer Service

The most satisfied phone service customer is the one whose issue was solved. OP Financial Group utilises data analysis when targeting the highest possible solution rate and customer satisfaction.

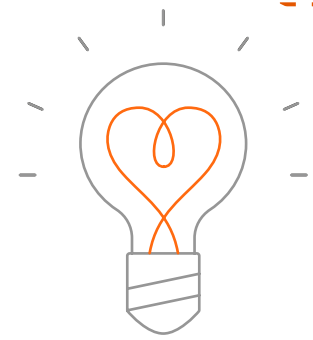
The customer experience and its associated solution rate are monitored through customer surveys and extensive data analysis. The customer experience is excellent, regardless of queueing time or call duration, when the customer's problem is solved. The Net Promoter Score (NPS) describing the customer experience remains low if the problem is not solved, and a long queueing time increases the feeling of dissatisfaction even more.

The improvement of the solution rate is supported by the comprehensive aggregate view of the customer relationship used by the customer service officer.

The aggregate view shows the status of daily services that the customer uses and their other background information. When the customer's key details are available to the customer service officer in an easy and aggregated way, they can handle the customer's situation more quickly and effectively.

Data also play a key role in customer service resourcing and operations assessment and in supporting the personal development of customer service officers. Prediction of peak and off-peak periods helps plan the customer service resources allocation.





## CASE: Digital assistants becoming increasingly common

Opotti is OP Financial Group's best-known digital assistant, which helps the customer in banking tirelessly and on its own initiative if necessary. Opotti knows how to get down to it if something in the customer's banking requires attention or solving.

Opotti started its career in customer service as a chatbot as early as 2018. The new Opotti version launched in 2022 is a more capable personal digital assistant, which unprompted helps the customer solve issues related to the banking service.

Currently, such situations and problems include exceeding account and card limits, uncovered payments, unsuccessful credit card payments or due insurance premiums. Card spending and withdrawal limits can be raised, account

balance can be increased by a credit transfer, or the invoice past its due can be paid.

Opotti and the other digital assistants are actively developed, and they receive new functions regularly. The aim is to make the customer's life and banking as easy and good as possible. Competent and problem-solving digital assistants are an important part of the good customer experience.

## CASE: Trip continues quickened by data

When something happens when you are on the move, you need quick and understanding assistance. OP Financial Group's Insurance business segment with its partners takes care of the customer for the whole trip, from the starting point of the vehicle event to a happy end result.

OP Financial Group's Insurance business segment has an extremely comprehensive partner network to make sure that the customer who has experienced a vehicle event can continue their daily life as smoothly as possible. After the customer reports the event, a service path tending to their needs is started, and the customer understands perfectly what will happen next, and when. For example, in a towing situation, the customer can monitor in real-time where the towing vehicle is on the map.

Data analytics bring value for OP Financial Group's Insurance business segment in repair shops' process management and estimation of repair costs and time use, as well as for developing the cooperation and mutual understanding between the insurance company and the repair shop. The

Insurance business segment and its repair shop partners utilise a shared electronic calculation system that includes extensive data on the vehicle repairs and time required. The repair process can thus be managed very effectively.

When the customer gets their repaired vehicle back, they are asked how satisfied they are with the service. Data also assist in monitoring the realisation of targets and service levels. In addition to customer satisfaction, key components are time and financial targets. Analysing the factors helps understand which factors affected the fluency of the service, and how the partners succeeded. This also enables operations to be improved case by case, always aiming for the highest customer satisfaction possible.



## CASE: Climate change necessitates new methods for risk modelling

Climate change and its associated risks concern OP Financial Group and its customers comprehensively. We implemented new ways in property insurance to understand and acknowledge the risk environment of tomorrow.

OP Financial Group has modelled common risks of loss or damage for a long time. Insurance pricing is a primary focus of data utilisation. The changing climate also requires the identification of new kinds of risks, the improvement of risk management and the utilisation of new methods alongside conventional methods.

As a result of climate change, the risk profiles of insured properties change when extreme weather conditions like rain and drought become stronger, sea and waterway surfaces can rise, and the ecosystem change, creating new pest risks.

The risk modelling of property classes like buildings and forest typically utilise data related

to the features and location of the property. In addition, the models now use more data related to the climate and geography, such as weather conditions and landforms.

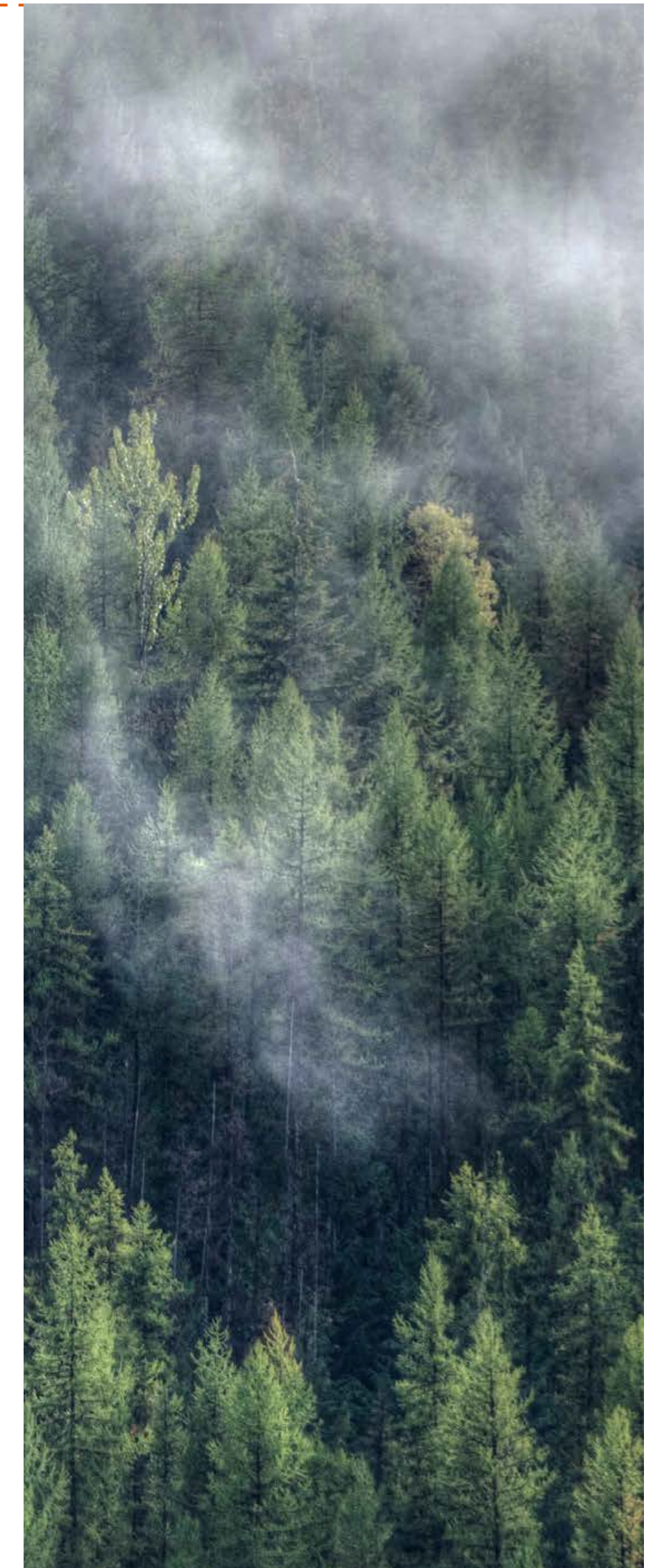
Combining conventional and new data and utilising different modelling methods provide OP Financial Group with extensive and reliable regional and property-specific risk data. A precisely analysed risk referring to the insurance policy content, pricing and cover can be proportioned as fairly as possible.

A phenomenon of the new risk environment is that flood damage will probably become more common. OP Financial Group's Insurance busi-

ness segment has implemented new data analytics for modelling flood risks, such as the Finnish Environment Institute's Flood Map Service and partners' flood damage scenarios. Based on these, they assessed some areas in Finland where flood risks are most probable and would cause most damage if realised

Another risk increased by climate change is insect damage in forests, which has increased, especially last year. Its assessment utilises damage data, as well as forest reserve data and forest use declarations.

Advanced models that utilise several data sources help OP Financial Group assess the future by means of new data, because only historical damage data do not show what kind of risks we will face in the future. OP Financial Group's target is to share the information more with the customers, because the improved understanding of risks also helps customers proactively take measures that decrease the risk of various damage as climate change advances.



# Data governance

Data governance ensures the highest possible total quality of data, their usability and security in our operations. In 2022, OP Financial Group continued the important redesign of the data governance model to be more business-driven.

The data governance model supports the OP Financial Group's business functions as data needs multiply and diversify, and the data amount increases continuously. Operations based on the Group-level data governance model improve data quality owned by business units, ensures data utilisation from the perspective of business and risk management, and supports the fulfilment of the demands of regulation.

Data are needed for business. management and reporting increasingly quickly and from more and more sources. In 2022, we continued to develop data governance processes that ensure data quality, availability and updatedness in rapid data flows connected to several systems. We prioritise the development of different data flows driven by business.

The OP Financial Group's data governance is guided by a set of instructions that brings together data governance principles and policies, procedure guides, practical application guides, operating instructions, and the supporting guidelines and standards. This enhances the management of data and their life cycle.

## Data governance model update advanced

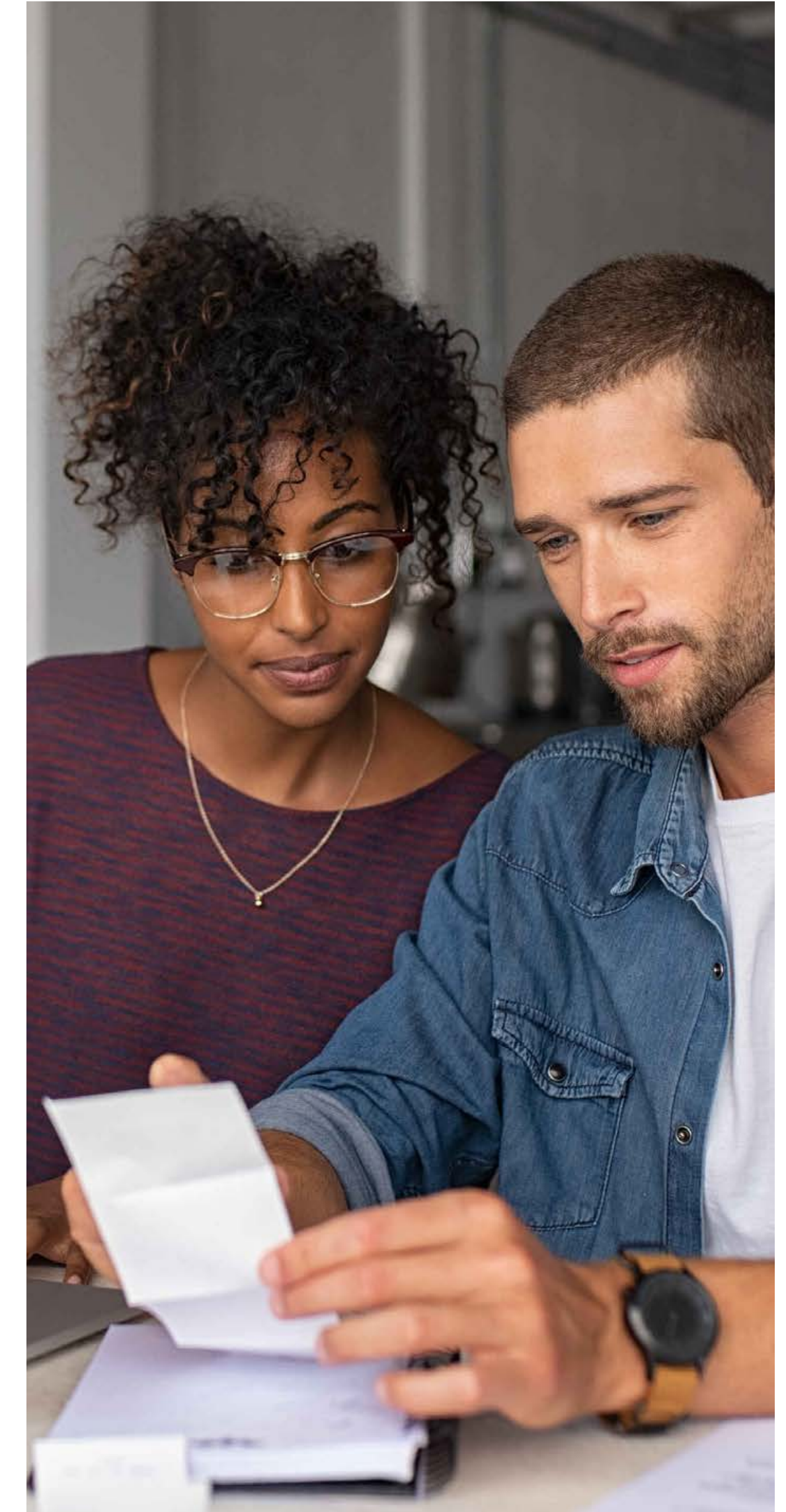
OP Financial Group started in 2022 the redesign of its data governance model (Data Governance 2.0). The target is to update the roles, responsibilities and ways of working of centralised data governance, as well as that of business units, to correspond to the new business-driven data architecture.

The data governance model includes two key roles: data owner and data steward. Data owners make sure that data are maintained and used in accordance with agreed policy decisions, rules and legislation, and that data quality meets the requirements of business and regulation. Data stewards are the best business specialists in a specific data area who support data owners in data governance.

## Taxonomy work unifies data structures

The increasing use of data in business requires that information related to data is available uniformly and comparably. In 2022, OP Financial Group started a new data taxonomy project with the aim of implementing more advanced OP Financial Group data platform data structures.

The new data structures support everyone working with data. They describe more accurately and uniformly at OP Financial Group's level what data there are and their type, where they can be found, who is responsible for them, and where they have been or can be used.



## Monitoring of data quality and compliance

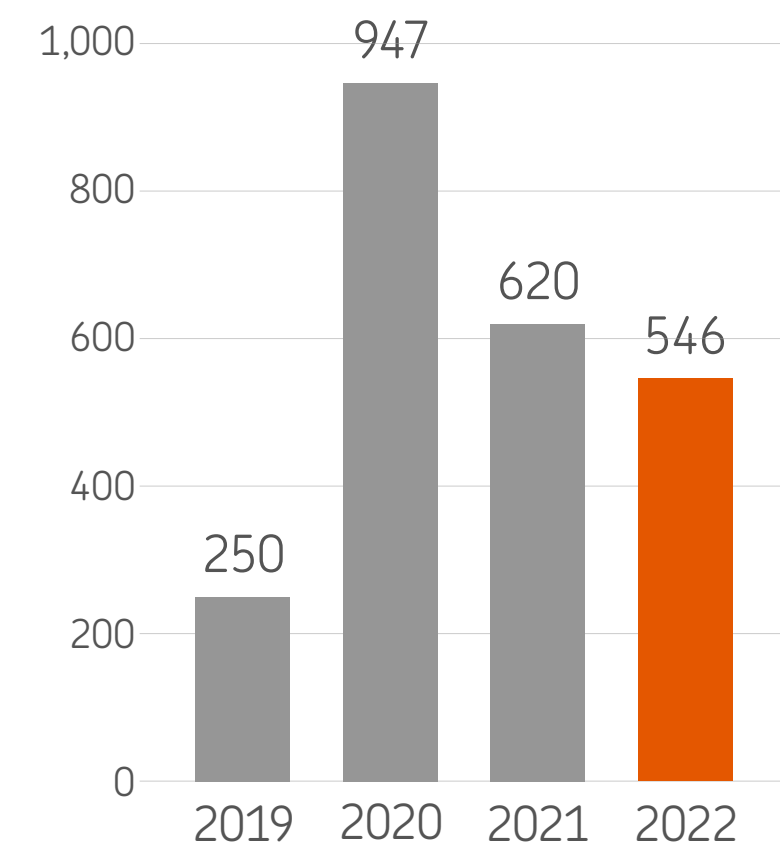
High-quality data are the basis of the OP Financial Group’s ability to create value for its customers, operate with quality and efficiency, ensure regulatory compliance, and manage risks reliably. Quality management is therefore considered in the instructions and practices of OP Financial Group’s operations and development.

The data quality management model is a common way of working in which the monitoring and improvement of data quality are structures as part of each work flow, work step and individual measure. We use quality management to detect quality deviations and their business impacts and to fix the root causes of quality deviations.

We develop our data quality practices and solutions for improving data quality. The data quality correction process is a key element of quality management. We also invest in technology that is used for monitoring data quality driven by regulations and utilising automation. The compliance of data is a key element of their quality. We started a project in 2022 in which the ongoing monitoring of data compliance will be integrated as part of the continuous automated monitoring of data quality.

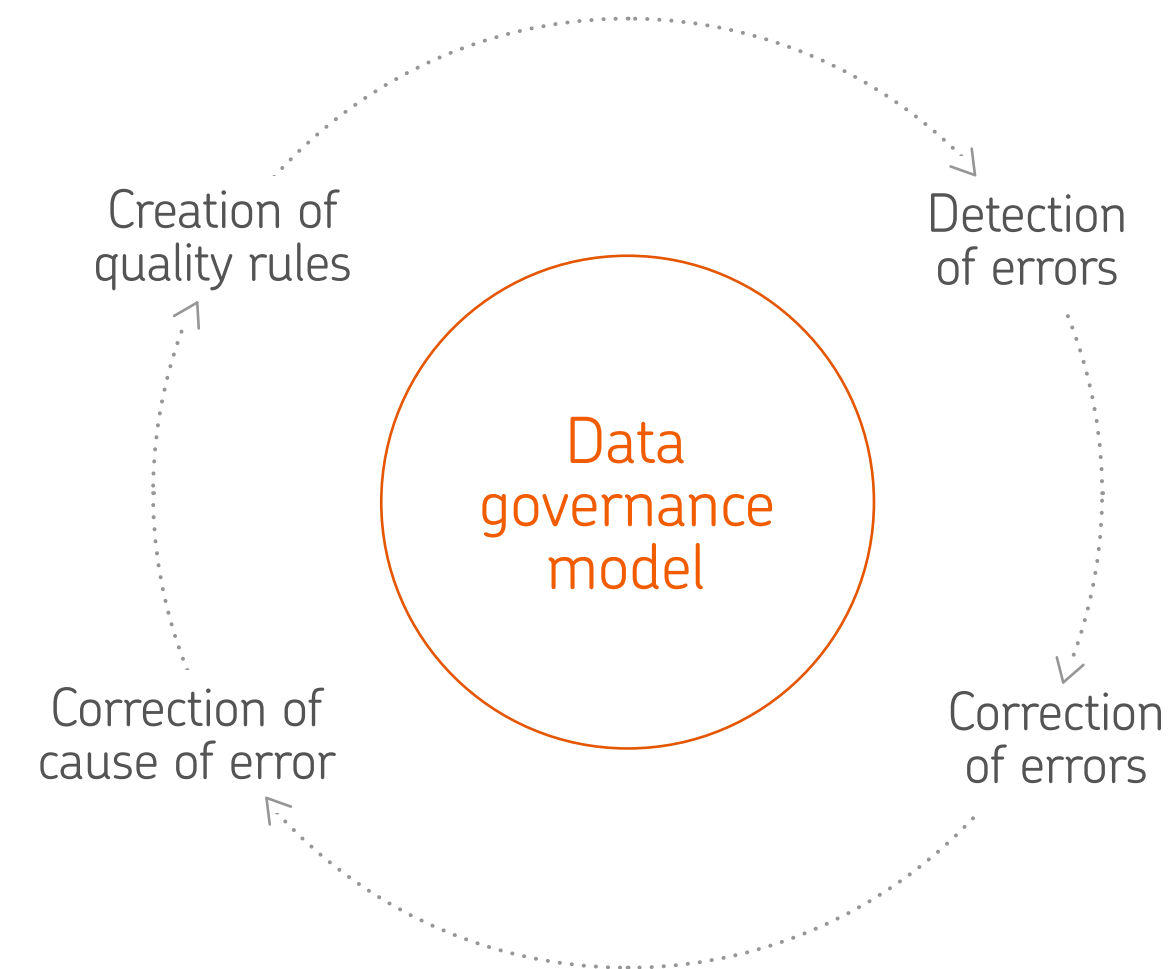
## Customer details maintained through the My Profile service

1,000 applications



## Data quality management in OP Financial Group

### Continuous improvement



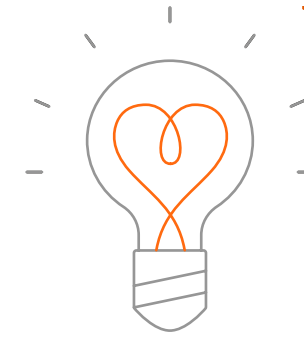
### Quality assessment

- Completeness
- Uniqueness
- Timeliness
- Compliance
- Accuracy
- Consistency
- Integrity
- Availability

## OP Financial Group’s data governance model

We ensure that the decision-making procedures on data are consistent within the roles and bodies specified in the data governance model.

Level	Tasks	Roles and groups
Strategic	Strategic goals and targets	President and Group Chief Executive Officer Data Governance Team Chief Data Officer
Tactical	Development of data capital Operational business control by data governance Development and maintenance of data governance Data architecture guidance Data quality management	Chief Data Officer Data governance working groups for specific theme areas Data owners Data stewards Data Governance Office Architecture guidance
Operational	Data processing in accordance with the data governance model	Data maintainers



## CASE: Unique peer-to-peer insight on investing

Investing and equity investments are quickly becoming more common among the OP Financial Group’s customers. History shows that long-term investments are an excellent way of making your money grow. OP Financial Group developed a service for its customers that offers investment ideas from a network of peers.

Active investors can often ponder where to invest in right now. The number of alternatives can easily make your head spin, and you cannot always find new and interesting investment options. OP Financial Group Retail Banking’s new peer-to-peer service for investing helps the investor look in the same direction as other investors like them.

It provides personally tailored investment ideas based on where other similar OP Financial Group’s customers are investing. This service makes it simpler to limit ideas from a large investment product range.

Currently, investment ideas are at their best based on the analytics of customer age groups, current investments and investor profiles. The ideas are updated every day so they always represent the latest peer investor views and thus help to learn more about current funds, shares and ETFs.

This service is available for the customer after logging in to the “Where to invest right now” op.fi page.



## CASE: API solutions for real-time management of finances

Data related to company finances and payment transaction usually move almost in real time. API solutions provide companies a direct and quick way to connect the banking services with their own business operations.

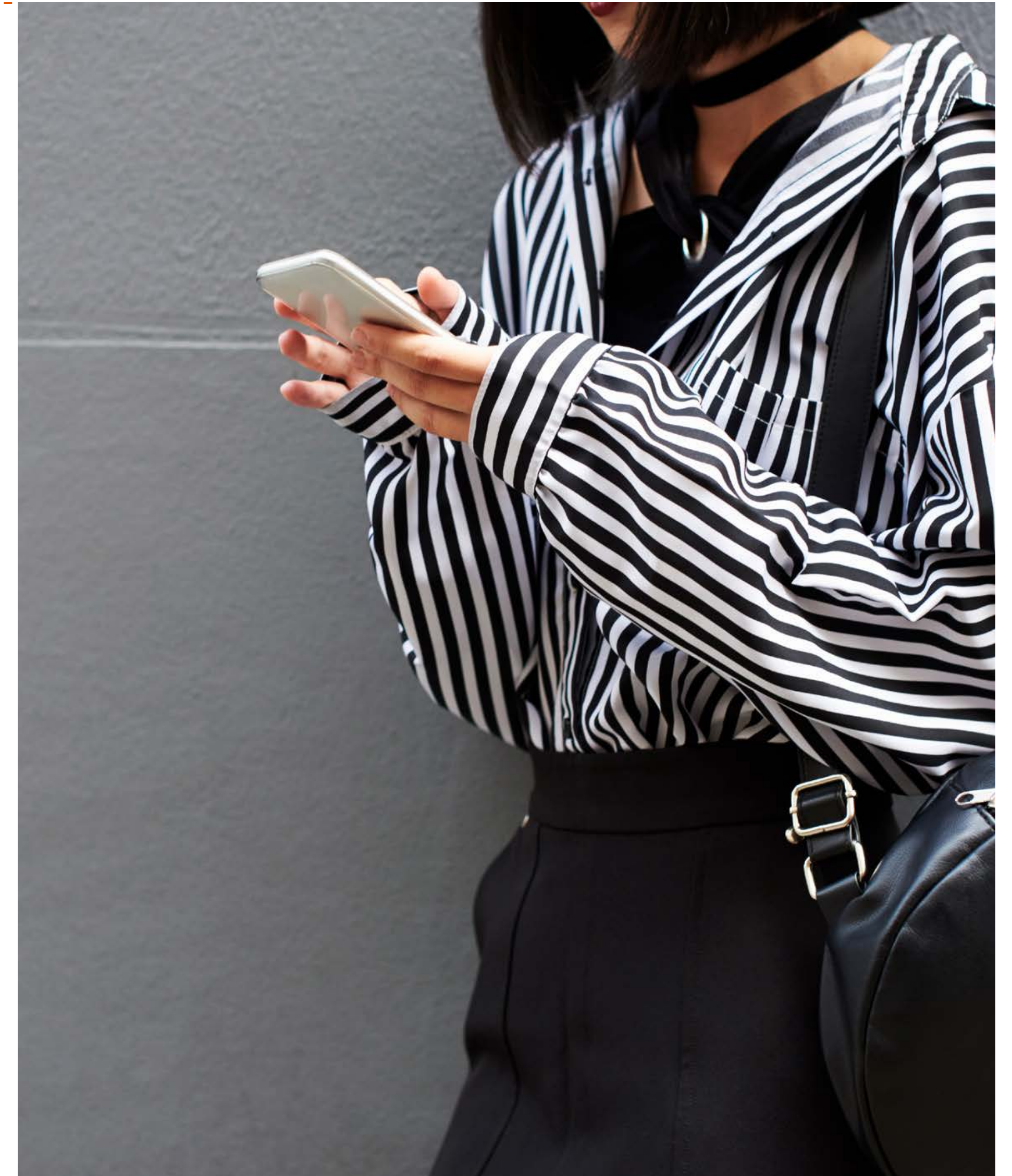
OP Financial Group's Application Programming Interface (API) products assist in combining and automating the company's financial management and business operations for banking services. Various sizes of companies, from small businesses to listed companies and globally operating international corporations, have already enhanced their operations by means of API solutions offered by the OP Financial Group's Corporate Banking business segment since 2019. During 2022, the number of customers using the API solutions multiplied compared with the previous year.

The product family of the Corporate Banking business segment's payment transactions API solutions enables real-time payouts, using account transaction data, quick payment clearing and the return of incorrect payments. In addition to financial manage-

ment, APIs help connect banking data to production and enterprise resource planning systems.

In 2022, OP Financial Group introduced service provider authorisation for API solutions and an API product that makes clearing payments quicker. These new products have accelerated the implementations of API services.

Real-time operations and customisable services are beneficial to the company and its customer as the financial management processes become quicker, and the payment transactions are connected as part of the order and delivery chain or other business processes. OP Financial Group develops API solutions in a customer-focused way, and there are currently features on the way for real-time monitoring of international payments, for example.



# Cybersecurity and data protection

We protect our operations and customers' and other stakeholders' data by maintaining a strong digital infrastructure, data security and cyber preparedness. Our task also extends to the level of the financial sector and, more broadly the whole of society.

OP Financial Group is a significant part of the Finnish finance system, and its resistance to service interruptions is fundamental from the perspective of the operation of society. There were changes in the cybersecurity environment in 2022 due to the changed security situation in Europe.

The cyber and data security operations were very successful in 2022, and the number of attacks on OP Financial Group did not increase significantly from the previous year. During the year, there were no data breaches in or successful attacks on OP Financial Group's core systems.

During the year, there were two denial of service attacks that caused interruptions to the functioning of the op.fi website and to logins in the online bank. Customer data and OP Financial Group's business and core systems were still protected in all situations.



Each OP Financial Group's employees is ready to identify threats and report on them.

## Multi-layered management and securing model

The management and response model for coping with cyber threats and attacks is based on multi-layered capabilities protecting operations and data, and active digital monitoring. OP Financial Group has common, well practised operating models for threat-related preparation, protection,

OP Financial Group's data security management



detection and deviation response. Management of cyber and data security risks and regulatory compliance is based on a model of three defensive fronts. The first defensive front comprises business operations, the second operations of managing risks and ensuring regulatory compliance independent from business functions, and the third internal audit.

OP Financial Group's data security management and governance are concentrated in its central cooperative, OP Cooperative. They are the responsibility of the Chief Information Security Officer (CISO), who reports to the Group CIO, EVP Development & Technologies (CIO) and Chief Risk Officer (CRO), who are members of the OP Financial Group's Executive Management Team.

Specialists and developers of various areas in the data security competence centre work together from the planning stage onwards to ensure that digital security is realised. In managing cybersecurity, OP Financial Group complies with the ICT risk management guidelines and regulations of the European Banking Authority EBA among others. For further information, please visit [OP Financial Group's security management](#).

### Cyber preparedness enhanced

2022 emphasised preparedness for risks brought by the change in the European security situation. When updating the risk assessment, it was observed that OP Financial Group had sufficient preparedness for responding to cyber threats in the new situation.

In addition to internal measures, we raised our state of preparedness by increasing cooperation with the authorities and the industry at the national and international levels. We strengthened data sharing and the common maintenance of the situational overview.

An analysis of successful defence against attacks and vulnerabilities has shown that OP Financial Group has a good reaction speed and strong preventative capabilities, combining expertise, processes and technologies.

### Preparation and drills

OP Financial Group is continuously improving its preparedness and ability to identify risks, deviations and new threats at the earliest possible stage. The OP Financial Group's employees' and customers' ability to identify and prevent cyberattacks and phishing and to report them is improved by active communication.

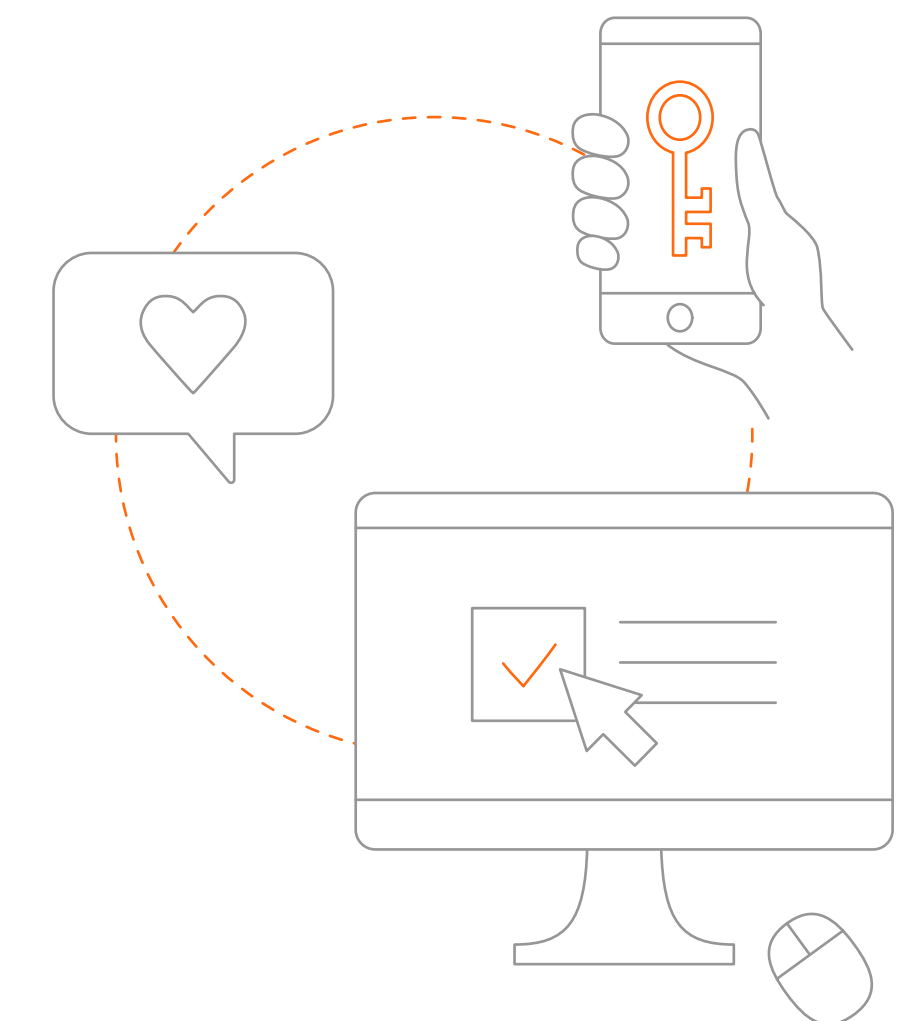
We continuously enhance our monitoring and reaction capabilities and test them regularly. Effective defence against cyber threats demands immediate detection and the initiation of counter measures. Both internal and external experts are used in ensuring our capabilities as well as in assessing the timeliness and extent of our cyber security strategy.

We further expanded drills related to cybersecurity and increased the involvement of business units in the drills. In addition to internal drills, we took part in joint cybersecurity exercises such as Taisto 2022, organised by the Finnish Digital and Population Data Services Agency, and TIETO 2022, tailored for the financial sector by the National Emergency Supply Agency and the National Cyber Security Centre. Dozens of teams and hundreds of OP Financial Group employees, in the cybersecurity chain, participate in drills on an annual basis.

The financing and insurance sector is committed to precautionary measures in the event of emergency conditions alongside the authorities and other business sectors. As a member of Finance Finland, OP Financial Group promotes cybersecurity and preparedness cooperation through the security of supply organisation, the National Cyber Security Centre of the Finnish Transport and Communications Agency Traficom, and the sector's European agencies.



The protection in a challenging digital security environment was successful.





## Realisation of data protection

Data protection is performed in OP Financial Group with the support of its policies, guidelines and strong data protection organisation (Data Protection Centre of Excellence). Each business segment is responsible for the high data protection level of their own operations and development projects. OP Financial Group's data protection control models cover businesses' development, procurement, marketing and service production processes.

Data protection is part of each OP Financial Group employee's daily competence and work. The common data protection culture creates strong and multi-layered protection and enables rapid response to changes. Data protection is enacted and developed extensively at all operational levels on the basis of the agile method. The data protection organisation, business activities, risk management and control engage in highly intensive cooperation.

### Education

The competences, knowledge, skills and attitudes of each OP Financial Group's employee play a key role in ensuring that data protection and personal data are processed appropriately. OP Financial Group's data protection communications and training have aimed to provide each employee with the competences needed in their duties.

In 2022, we organised an internal Data Protection Day, and various aspects of data protection were discussed in monthly meetings. Data protection training was reviewed and tailored for various duties. In 2022, topical training sessions were arranged, particularly on the international transfer of and counterparty reports on the latest official guidelines.

As well as training on data protection in general, employees have been offered customer service, business development, employment, analytics, financial artificial intelligence, communications, marketing and sales-related data protection training.



### Communications

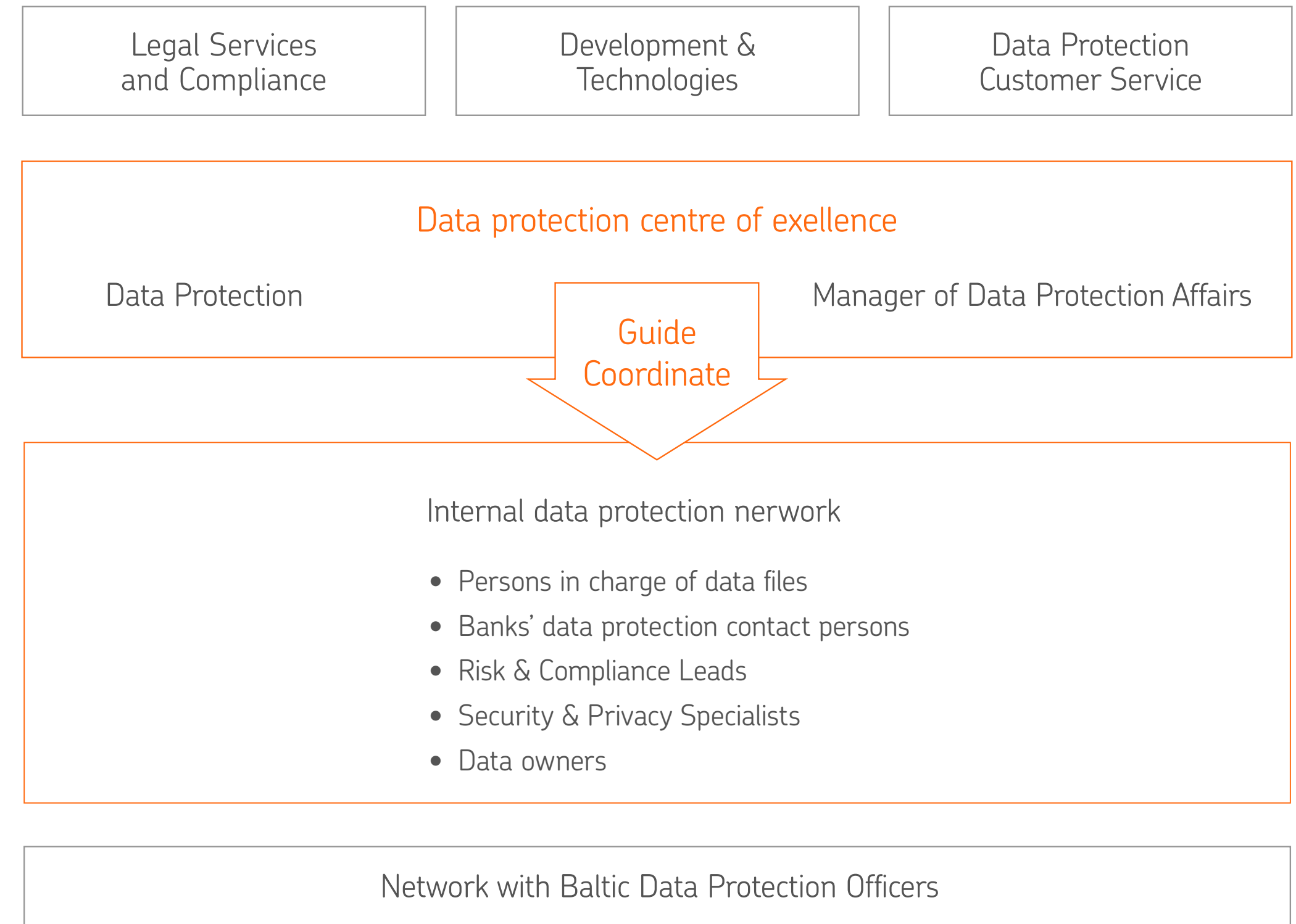
OP Financial Group communicates on data protection and security in its customer communication channels, on op.fi, and at a general level, in its data balance sheet. Customers can view open and transparent information on the processing and life cycle of personal data at OP Financial Group in the op.fi website. Customer Service has a separate team that handles customers' requests and questions related to personal data processing.

Customers can also review and manage the most important data related to their customer relationship themselves in the My Profile service.

Employees can use a data protection portal in the intranet, which provides operational and planning instructions for various purposes, as well as general information.

### Disclosure of data

OP Financial Group's customers' personal data may be disclosed to the authorities, including the Finnish Tax Administration or the Finnish Financial Supervisory Authority, only within the limits permitted by law. By law, information under the Act on the Bank and Payment Accounts Monitoring System (Laki pankki- ja maksutilien valvontajärjestelmästä, only



in Finnish) may be disclosed to the competent authorities such as the police, the enforcement authority and Customs.

Additionally, personal data can be disclosed within the limits defined by regulation inside OP Financial Group, to collaborators, dispute settlement organs, international payment instrument, such as credit card, providers, debt collection agencies, and credit information register holders.

Appropriate agreements on personal data processing are concluded with suppliers that process such data on behalf of controllers under OP Financial Group. These suppliers provide, for example, information system services. If data is transferred outside the EU or EEA, the transfer is done using the European Commission's standard contractual clauses or some other transfer mechanism in accordance with legislation.

### Data protection organisation

OP Financial Group's data protection operating model combines cross-Group data protection management and capability development with efficient, operationally integrated data-protection processes.

The Data Protection Centre of Excellence provides data protection expert services and coordinates personal data processing on a centralised basis for the Group. It also takes charge of interpreting data protection legislation, draws up guidelines and per-

forms data Protection Impact Assessments (DPIAs) of personal data processing. The Centre of Excellence maintains an overview of the Group's personal data processing and reports on data protection risks in accordance with the management system.

### Protection of customer data and the rights of data subjects

OP Financial Group takes the protection of its customers' data and data security seriously. Our operations meet local regulatory requirements in all countries in which we operate. We ensure the confidentiality, correctness and usability of data through careful data processing and by using several mutually complementary protection methods.

We protect personal data with appropriate technical and organisational safeguards. Such methods include proactive and reactive risk management and the use of firewalls, encryption techniques, secure data centres, and access management and safety systems. We also make use of security planning, grant and supervise user rights in a controlled manner, ensure the competencies of personnel who process personal data, and choose our subcontractors carefully.

OP Financial Group stores the data necessary for customer relationships throughout each relationship, after which the retention period depends on the type and use of data. OP complies with statutory obligations concerning the storage of data. The manner and extent of data collection are described in the Privacy Notices.

### Data protection deviations

OP Financial Group reacts immediately to personal data breaches and other data protection deviations defined in legislation. All data security breaches are centrally processed. The need to notify the authorities and the affected data subjects of such breaches is also assessed immediately.

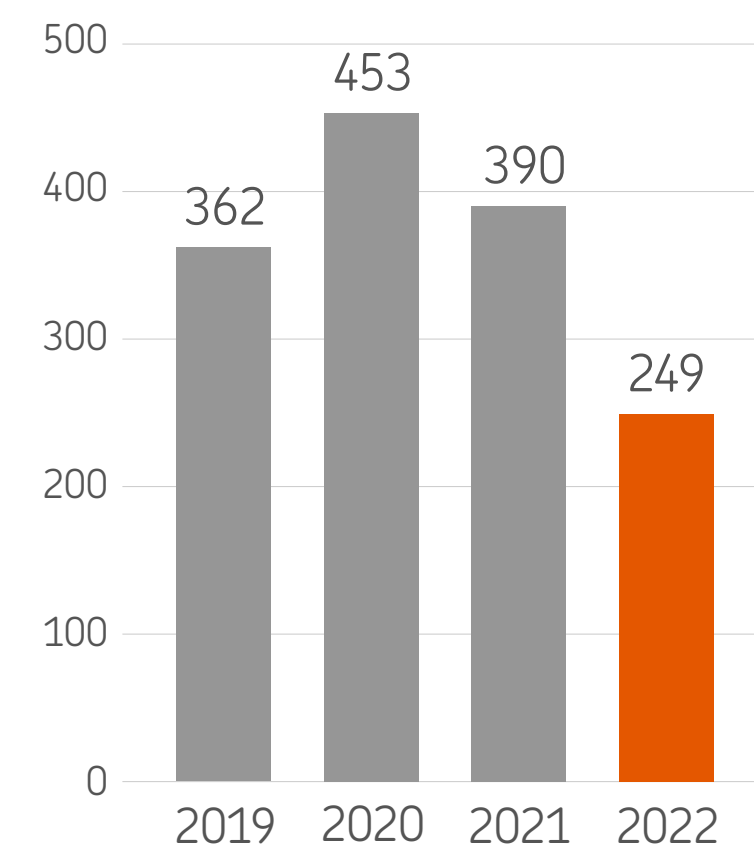
OP Financial Group received 14 substantiated customer complaints concerning the processing of personal

data or breaches of privacy protection in 2022. The total was calculated by counting only one complaint wherever several complaints were filed concerning a single event (for example, a mailing error).

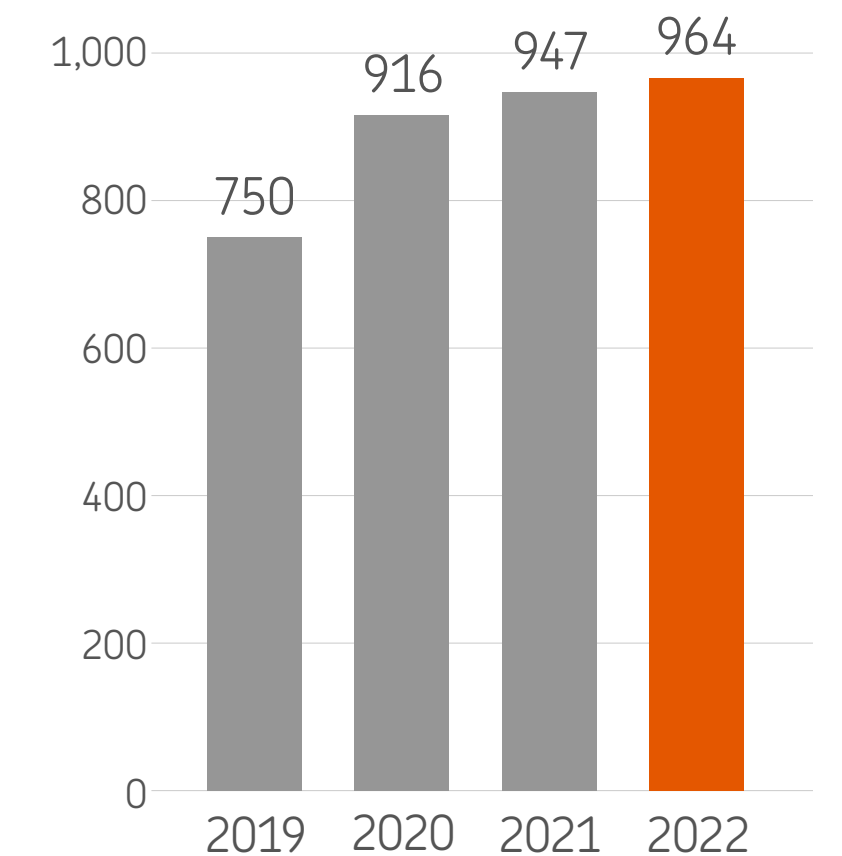
In 2022, OP Financial Group's internal controls identified 964 cases that could be classified as personal data breaches under the GDPR. This figure includes breaches attributable to human error that are unlikely to compromise the rights and freedoms of natural persons.

### Requests for access to own personal data

In financing and insurance operations



### Data security breaches identified in OP Financial Group



# Data balance sheet and key indicators

## OP Financial Group's Data Balance Sheet 2022

	<b>Data assets</b> Data assets	<b>Data capital</b> Data capital
<b>Definition</b>	<b>OP Financial Group's services, products and processes produced by means of data capital</b>	<b>Proprietary and external data available to OP Financial Group</b>
<b>Objective</b>	Management of customer benefit and the business value of data	Management of the quantity, quality and usability of data, and risk management
<b>Operating models</b>	Customer and business processes	Data quality management and correction process Data governance
	Analysis, decision-making and risk management processes Operating models for data protection and data security	
<b>Services for customers</b> (examples)	<p><b>General service channels</b> Online and mobile services Customer service and counselling</p> <p><b>Services for corporate customers</b> OP Corporate Hub API services Real-time payment services OP Multi-bank Service OP Lasku OP Financing</p> <p><b>Services for private customers</b> My profile My financial balance Digital home loan service OP Lasku OP Financing OP Investment Partner OP Multi-bank Service Where should you invest right now? Product recommendation machines Opotti chatbot and digital assistant Viljo chatbot Digital assistants</p>	<p><b>Own data capital</b> Counterparty data Product data Contract data HR data Organisational data Internal reference data Transaction data Risk management data Financial data Document archives</p> <p>OP Financial Group employees' human capital</p>
<b>Internal services</b>	<p>Marketing and sales services 360° customer insight services Data quality engine Market information services Business intelligence services Financial reporting services</p> <p>People analytics services Credit Engine Data protection and data security services Cybersecurity services Home's collateral value determination service Ruuvalli Identification services for suspected fraud and money laundering ESG tool</p>	<p><b>External data capital</b> Market data Operating environment data External reference data ESG data</p>
<b>Ecosystem and operating environment services</b>	Interconnected API services Regulatory data services and reporting Reporting to central bank	

## Key figures

Customers (million customers)	2019	2020	2021	2022
Retail Banking customers	3.3	3.3	3.3	3.3
Corporate Banking customers	0.3	0.3	0.3	0.3
Owner-customers	2.0	2.0	2.0	2.1
Joint banking and insurance customers	1.2	1.3	1.3	1.3

OP Financial Group's service channels	2019	2020	2021	2022	Change
Digital channels NPS	53	54	52	53	+1
Online and mobile services (millions of logins per month, average)					
Op.fi	8.5	5.7	4.4	6.1 <sup>1</sup>	38%
OP-mobile	25.2	33.6	40.1	43.3	8%
OP Business mobile	0.8	1.3	1.7	2.3	35%
Pivo mobile app (visits)	4.4	3.6	3.7	3.6	-3%
OP's user ID and digital services <sup>2</sup> (1,000)					
Private customers	1,937	1,980	2,024	2,190	8%
Branches and telephone services					
Bank branches	352	342	324	297	-8%
Social media					
Followers on Facebook (OP Financial Group and OP cooperative banks)	376,979	442,004	470,609	474,838	1%
Followers on Twitter	42,515	46,591	50,158	52,993	6%
Followers on LinkedIn	43,355	60,188	69,888	78,885	13%
Followers on Instagram	14,953	18,211	26,100	31,544	21%
Followers on YouTube	4,140	6,090	7,811	9,072	16%

<sup>1</sup> The key figure is not comparable as the measurement method has changed in 2022.

<sup>2</sup> The name of the key figure until 2021 was eService agreements.

**Digital services' key figures and ratios**

(1,000, unless otherwise indicated)	2019	2020	2021	2022	Change
Home loan applications processed by the Credit Engine					
Total applications processed automatically	26	57	92	79	-14%
Positive decisions made automatically	9	20	34	29	-15%
Number of reports sent to authorities per month	20	20	20	20	0%
Ratios of the banking services chatbot Opotti					
Message resolution rate	70%	80%	82%	85%	+3 pps
Fully automated chats	40%	44%	54%	63%	+9 pps
Customers giving positive feedback	67%	72%	67%	73%	+6 pps
Fully automated chats of the insurance services chatbot Viljo	50%	50%	58%	61%	+3 pps
Message resolution rate			88%	83%	-5 pps
Customers giving positive feedback			46%	55%	+9 pps
Number of external APIs in production		48	63	64	+1
Data transferred through external APIs, terabytes		563	3,200	3,660	14%
Number of users registered for Siirto payments	666	899	1,055	1,148	9%

For security reasons, OP doesn't publicly report key figures related to anti-fraud and anti-money laundering.

<sup>1</sup> The calculation principle of the key figure has changed since the 2019 report.

Data capital (1,000, unless otherwise indicated)	2019	2020	2021	2022	Change
Data in analytical databases, terabytes	520	766	885	687	-22%
Number of log events collected by centralised log management per month, (billions) <sup>1</sup>	97	165	200	230	15%
Number of electronic documents	520,000	611,000	775,000	715,000	-8%
Digitalisation of agreements in banking services		45%	45%	45%	-
Customer details maintained through the My Profile service	250	947	620	546	-12%

Data capabilities and competence	2019	2020	2021	2022	Change
Employees working in data development and refinement tasks in OP Financial Group's central cooperative	480	606	635	629	-1%
share of the central cooperative's personnel	7%	8%	8%	8%	-
Training courses organised by OP SW Academy		430	424	410	-3%

Data protection and internal control	2019	2020	2021	2022	Change
Number of customer requests for access to personal data processed by financing and insurance operations	362	453	390	249	-36%
Cookie consents, op.fi and OP-mobile		1,985,435	2,255,659	2,431,963	8%
Customer complaints related to personal data processing or privacy protection	11	20	16	14	-13%
Cases categorised as personal data breach	750	916	947	964	3%



OP Cooperative  
Gebhardinaukio 1  
00510 Helsinki  
Finland

[www.op.fi/en](http://www.op.fi/en)