



NS Annual report 2022

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This annual report is an English translation of the annual report prepared on 22 February 2023. In case of any discrepancies or possible differences in interpretation between the English translation and the annual report prepared on 22 February 2023, the latter prevail. The original Dutch version of the annual report is available at the chamber of commerce.

Reading guide

The NS Annual Report consists of a management report and the financial statements. Besides the foreword, the management report comprises the sections Trends and developments, and strategy, Our activities and performance in the Netherlands, Our activities and performance abroad, and Our impact. In addition, you will find information about NS Group, including the Report by the Supervisory Board, Risk Management and Dialogue with our Stakeholders.

Sustainable mobility

Based on five themes, NS demonstrates how it contributes to sustainable mobility in the Netherlands. If applicable, there is a little icon at the beginning of each chapter showing the theme to which the performance has contributed.







	Topic	Explanation
	Sustainable mobility	The result of the following sustainable pillars
	Zero-emission enterprise	Energy consumption for facilities and traction zero-emission in 2040.
	Circular enterprise	By 2030, we will have achieved circular procurement, maximised material (re)use and eliminated waste from offices, workplaces and trains.
	Green enterprise	In 2050, NS will contribute positively to biodiversity, health, climate change and adaptation.
	For everyone	NS will have a suitable range of accessible chain services by 2040, and a fully accessible train journey by 2045.
	By everyone	NS is and remains a reflection of Dutch society.

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NS ten-year summary

About NS

In brief



Travel assistance introduced at 27 additional stations

89% of all NS stations now offer this service



New generation of double-decker trains

60 new trains ordered from train manufacturer CAF



More incidents involving aggression: +29,7%

NS control centre received 4,693 reports of passengers



More Eurostar services

Frequency increased from 2 to 4 daily services



960,000 train journeys every working day

(2021: 528,707)



Large-scale station renovation projects completed

Zwolle and Gouda modernised



5.4 million rides by public transport bicycles

(2021: 3.4 million)



Train travel is becoming greener

CO2 emissions further reduced: 0.6 kilotonne



19,040 employees in the Netherlands

(2021: 18,897)



Recruitment of new employees in full swing

350 new main guards and 487 new train drivers hired



Revenue of € 3.055 million

(2021: € 2,252 million)
Excluding government contributions related to COVID-19



Investments totalling € 450 million

(2021: € 554 million)



Underlying result € -304 million

(2021: € -952 million)



Abellio UK

Management buy-out initiated

Foreword by the CEO

2022 was a problematic and difficult year, both for our passengers and our employees. After the COVID-19 pandemic, we were confronted with incidents on the rails, problems in our timetable and - like other sectors in the Netherlands - severe staff shortages. It was not until 2022 that things largely stabilised once again. Despite these adverse events, we are confident about the future and the major role for NS in keeping the Netherlands accessible in a sustainable manner.

And we should bear in mind that the Netherlands was still in lockdown during the first few months of 2022 - with far-reaching consequences for NS. Fewer passengers, fewer peak-hour trains, very quiet stations and a host of restrictions, including face masks and social distancing rules. When the pandemic finally subsided, it was everybody's guess what passengers were going to do, NS was facing a major financial challenge, and shortages in the labour market made themselves felt even sooner than expected. Despite clear signs by the end of 2021 that the number of main guards was becoming insufficient, actual shortages had not yet been registered. We expected to be able to solve the problem, without realising that we actually had to scale down the timetable. When train frequencies began to increase after the lockdown period, the gap between the available number of employees and the numbers actually required grew rapidly, driven in part by persistently high sickness absence rates due to COVID-19 infections. Labour shortages meant it was more difficult to find new colleagues, while the number of people moving on within or actually leaving NS only increased. As we were unprepared for that situation, we were overtaken by developments. We tried to compensate for that by making adjustments on a daily basis, for example by cancelling train services. Before long, however, it proved impossible to schedule trains and staff when and where they were needed. On some routes, peak-hour trains were too short, which necessarily resulted in overcrowding. An ever-shrinking group of colleagues found themselves under ever higher levels of work pressure. This, and the cumulative effects of a major IT failure (3 April), a high-impact incident involving a high-voltage cable in the province of Flevoland, several accidents and regional labour disputes and strikes, meant that the company was under considerable pressure for a prolonged period of time. Passengers and employees alike suffered the negative effects of that.

We have failed our passengers

Scaling down the timetable

My colleague Bert Groenewegen, who was Acting CEO at the time, visited many employee offices in that period. These talks with colleagues made him understand that measures had to be taken. Due to the variety of interests involved and the resulting dilemmas, my colleagues on the Executive Board made some choices that were hotly debated. While everybody was eager to keep the trains running for our passengers, we were also aware of the enormous pressure on our colleagues. Added to that was the fact that following the COVID-19 pandemic, we witnessed an increase in incidents involving aggression both in our trains and at the stations. This felt like a red line that was crossed: treating our colleagues like that is simply unacceptable. In this complex situation, the Executive Board had no choice but to defend and protect its employees. This resulted in the decision to scale down the timetable from September 2022. The choice was right, but it was not a pleasant message for

our passengers. As we scaled down the timetable, we resumed our structural recruitment efforts and introduced measures to alleviate the burden on our people. We relaxed our selection criteria and accelerated the recruitment process to attract as many candidates as possible. However, it took a while for these measures to produce visible effects. As a result, it was not until the last weeks of the year that the situation finally began to stabilise.

The past year's events brought home to us, the Executive Board, how important it is to listen to our colleagues. While NS employees do not expect us to be able to solve every problem, they do wish to be heard and for their interests to be taken into account in the decisions we make.

Persistent financial challenge

Over much of 2022, the need to overcome operational challenges took priority over our financial performance. We have now left the COVID-19 crisis behind us, but passenger numbers are still below the level required to balance our books. The increase in energy prices and the soaring inflation rate have not made things any easier. We are nevertheless making every effort to keep train fares affordable, so that rail travel remains available for as many people as possible. For example, this is why train fares only rose by an average of 4.3%, compared with an inflation rate of 10%. NS has been pursuing a cost-savings programme worth €1.4 billion since 2020. At the same time, however, we need to continue investing on behalf of our passengers. We ordered 60 new Intercity trains in 2022 to accommodate the anticipated growth in passenger numbers. We also invested in digitalisation and IT, in innovation and in our employees. Conditions on the labour market and the increasing numbers of people moving up within NS or leaving the company made us decide to further increase our recruitment and training efforts. Negotiations on a new CLA with the trade unions resulted in agreement on a pay rise of 8.45% - a record high for NS.

// *We are now in a position to start building a new balance*

Driving trains across the border and in foreign countries

The non-domestic operations of Abellio should promote the interests of Dutch passengers. In that context, Abellio UK was no longer of strategic interest to NS. This is why the operations of this subsidiary will probably be transferred to the current management board of Abellio UK, via a management buy-out, in the first half of 2023. ScotRail's operations were discontinued and transferred to a public entity on 31 March 2022. In Germany, the restructuring project for NS subsidiary Abellio Germany is almost complete. Since the first half of 2022, Abellio components have been fully operational as part of NS. In Germany, Abellio will continue to operate a limited number of franchises, in Lower Saxony and in central Germany.

In addition, we have retained our ambition to carry out cross-border operations. We want to add more destinations in the east. For destinations within a 700-kilometre radius, the train is becoming ever more attractive as an alternative to travel by car. Passenger numbers reflect this trend, with the train being quite popular among international travellers, especially during the summer period.

Staying on course towards the future

Since October we have 'passed the curve'. We now have a basis for more robust and more predictable operations. Passengers should be able to rely on NS as they did before. While we still expect a major increase in passenger numbers in the period up to 2030, travel patterns and behaviours will be different. For our timetable to be effective, it should be adapted accordingly. This does not necessarily concern service frequencies; it may also concern train lengths or train departure times. Things will be different from what they were. This is inevitable, if NS is to become a crucial part of the solution to a range of challenges that society is facing - including the mobility agenda, the climate agenda and the need to ensure accessibility for a million new houses. This is why we will retain our focus on further improving our services, our stations and our sustainability and circularity performance. Needless to add, we will do so in close partnership with ProRail. Our collaboration on the Station Agenda is already proving successful, as reflected in a further rise in passenger appreciation ratings for our stations last year.

Proud

Even though I joined NS only relatively recently, I have already seen how proud my colleagues are of NS and how devoted they are to the company. This has generated the resilience and ongoing commitment that enabled us to weather the storms of the past year. On behalf of the Executive Board, I would like to sincerely thank all our employees for this. I am also grateful to the employee representation bodies, the Supervisory Board and our shareholder for their dedication and for the trust that they have shown in us.

On behalf of the Executive Board,

Wouter Koolmees
Chair and CEO



Dilemmas

NS is regularly faced with dilemmas, both in its daily operations and in developing its plans for the future. We believe it is important that we share those dilemmas with the outside world. This enables us to give people in the Netherlands an idea of the considerations leading up to our decisions in 2022. In the section below we highlight three important dilemmas that NS was faced with in 2022.

Satisfied passengers or satisfied employees?

Many sectors of the Dutch economy have experienced staff shortages, NS included. We still have a large number of vacancies for a range of positions, including main guards, train drivers, Safety & Service staff and IT staff. These shortages began to affect our operation in the spring of 2022. In the period leading up to that, NS underestimated the severity of the shortages and failed to adjust the timetable accordingly in time. By asking for an extra effort from our colleagues, we were able to avoid the impact for passengers for some time and continue running the timetable as scheduled. However, the combination of staff shortages and high levels of sickness absence meant that the pressure on our people continued to increase. It became more and more difficult for them even to take a single day off. At the same time, passenger numbers began to rise again. After two years of COVID-19 and practically empty trains, of course we welcomed this development. But it also increasingly confronted us with a dilemma: should we run fewer and shorter trains to relieve some of the pressure on our people, or maintain the timetable to welcome as many passengers as possible back on our trains? We decided to alleviate the pressure on our colleagues and to launch a reduced yet predictable timetable for our passengers in the autumn. We designed that new timetable with due regard for the 20% fall in passenger numbers compared with the period before COVID-19 and the new travel patterns that have emerged since then. In this way we manage to unite the objectives of satisfied employees and satisfied passengers.



Economise, or invest in the future?

Due to the COVID-19 pandemic, we carried far fewer passengers in 2020 and 2021 than we did in the preceding years. This signified a very severe financial blow for NS, with billions of euros in lost revenues. Passenger numbers began to pick up again in 2022, but are still a good 20% lower than in 2019. Fewer passengers means lower income. At the same time, costs increased in 2022, due in part to a high inflation rate. This means that NS is now facing a considerable financial challenge. The Netherlands Institute for Transport Policy Analysis and others expect a sharp rise in passenger numbers over the next few years. Our current rolling stock cannot offer the required seating capacity and is partly obsolete. And newly ordered trains take some time before they are actually available. This meant we were facing a choice: are we going to set aside funds to improve our financial position or are we going to invest in the future now by purchasing new trains? We chose to do both, economise and invest, and purchased 60 new double-decker trains in late 2022. This is how we live up to our reputation as a socially relevant company and ensure the Netherlands remains accessible in the years to come. At the same time, throughout 2022 we remained alert to opportunities to further reduce our costs and increase our income.



More stops or faster travel?

NS always wants to take passengers to their destinations in as little time as possible. Intermediate stops increase the total travel time. This is why Intercity trains do not call at all intermediate stations, allowing passengers to travel a lot faster. At the same time, however, in addition to serving passengers in the big cities we also want to keep less densely populated areas easily accessible. That means we also have to serve smaller stations, providing a convenient service for passengers in smaller communities. One example of this dilemma - more stops or faster travel - involved an Intercity service in the province of North-Holland. The extra peak-hour Intercity trains from Enkhuizen to Amsterdam did not call at Purmerend. Effective February 2023, however, they will. The closure of three non-actively protected level crossings (NABOs) means that trains can now travel faster. As a result, the additional stop at Purmerend will only slightly increase travel times for passengers from Enkhuizen and Hoorn, while enhancing the connections from Purmerend and surrounding towns and cities to Amsterdam and the rest of the country. NS is also confronting this dilemma in its approach to keeping the province of Zeeland accessible. In that case, however, local residents wanted a faster connection with the Randstad conurbation. Now there is one fast Intercity service an hour between Vlissingen and Amsterdam without intermediate stops at small stations, and another Intercity train that does call at those stations.



The profile of NS



During Children's Book Week, NS guards, train drivers and safety and service employees read to primary school children throughout the Netherlands.

NS provides a broad range of services that go beyond train services. Each and every day, some 32,000 colleagues in the Netherlands and abroad are fully committed to providing the best possible passenger services. Together with our partners in public transport, we continuously work to further improve our service and performance levels.

NS in the Netherlands and Europe

Ever since NS was founded – in 1837, as NV Hollandsche IJzeren Spoorweg-Maatschappij (HIJSM) – we have been contributing to mobility and progress in the Netherlands. The company still plays a very significant social role in its domestic market. Since 2002, NS subsidiary Abellio has provided rail transport in parts of the United Kingdom and bus services in London. NS expects to terminate these operations in the first half of 2023 and has already obtained the requisite approvals. We have provided regional rail transport in Germany since 2009. In addition, we provide international rail connections through our partners Thalys, Eurostar, Deutsche Bahn, ÖBB, SBB and NMBS.

Our organisation

NS consists of several business units, including NS Operations (approximately 12,900 staff, on average, in 2022), Commerce & Development (approx. 700) and NS Stations (approx. 2,900 including retail), plus central departments such as HR, Finance and IT (approx. 2,300). Abroad, NS has operations with Abellio UK (approx. 12,200 staff) and Abellio Germany (approx. 1,000).

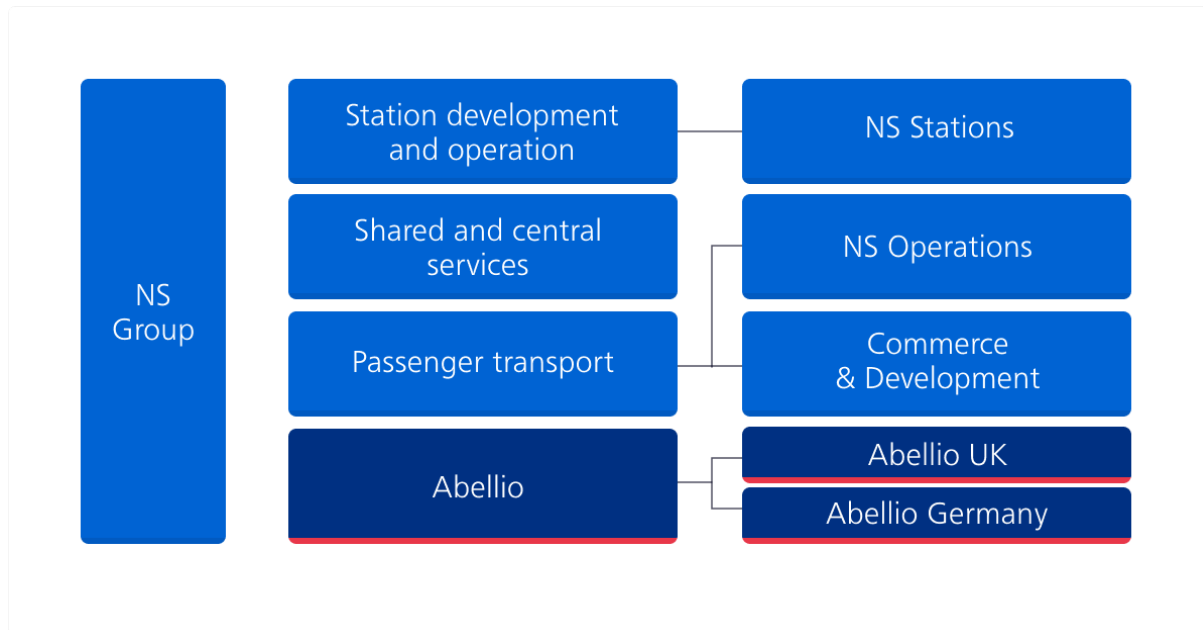
NS Operations is responsible for rail transport on the Dutch main rail network, including HSL South and the Alphen-Gouda franchise. This is where the colleagues work who enable our trains to travel from A to B in the Netherlands and across the border. They include train drivers, guards, mechanics, and safety and service staff, as well as the colleagues who, behind the screens, help implement our timetables and manage operations during unexpected events.

Commerce & Development is a unit where colleagues design new timetables, think up train formulas, run the Customer Service department, launch marketing campaigns, carry out strategic innovative projects and make the company more sustainable. Commerce & Development is also responsible for ticket and season ticket sales and for NS International. In addition, it conducts appreciation surveys among passengers and identifies areas for improvement.

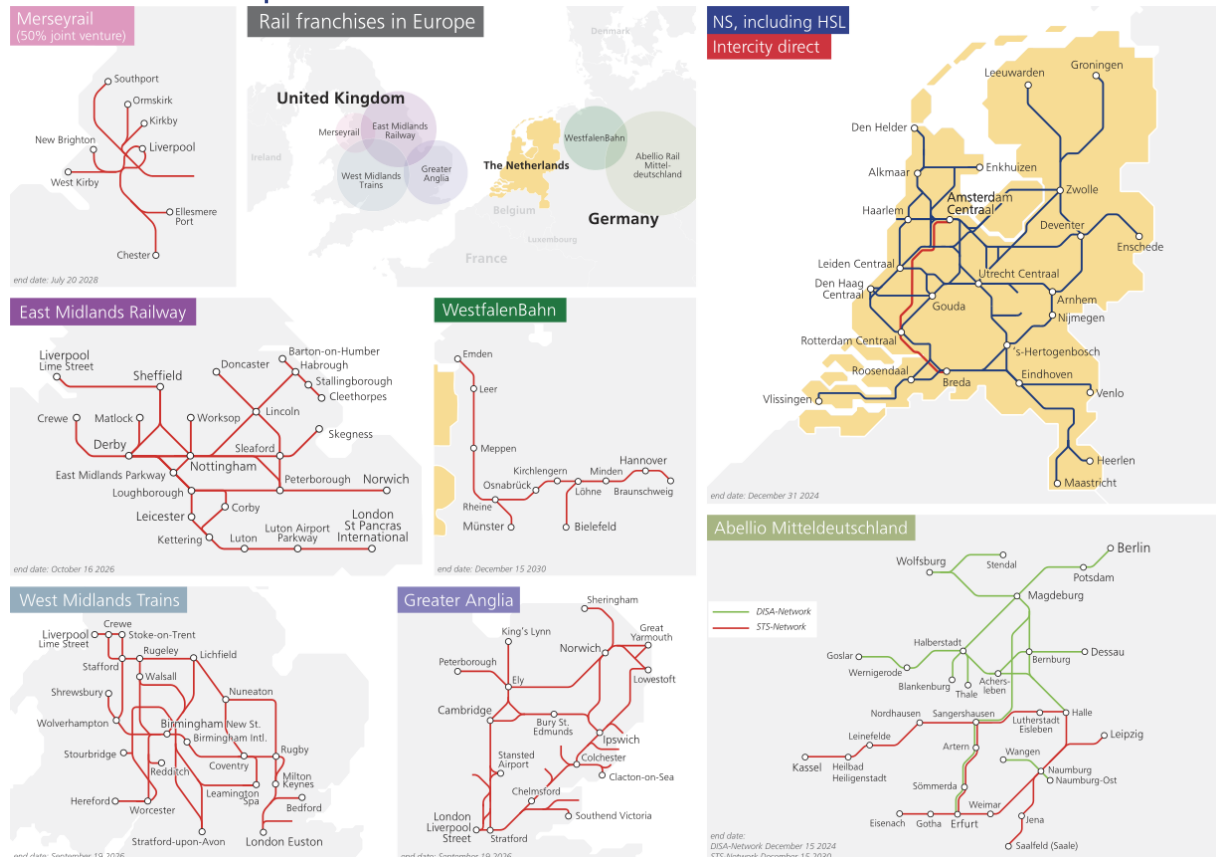
NS Stations works on a high-quality network of 394 large and smaller stations and promotes area development initiatives around the stations. Together with ProRail, public authorities and carriers, NS Stations aims to make passenger journeys and the time spent in and around stations as convenient and pleasurable as possible. Stations are hubs for various forms of mobility, including public transport bicycles (OV-fiets) and bicycle parking. In recent years, NS Stations has worked with ProRail and various municipalities to renovate large and small stations, with a focus on the need to ensure that stations offer a welcoming environment and are 'clean, intact and safe'. In collaboration with local authorities, citizens and social entrepreneurs, we seek effective integration of our facilities in the station environment. All activities are designed to improve the passenger experience of the station and the journey.

Abellio UK operates rail and bus franchises in the United Kingdom (Greater Anglia, Merseyrail, ScotRail, West Midlands, East Midlands, Abellio Bus). NS will probably transfer the franchises to the management of Abellio UK towards the end of February 2023. **Abellio Germany** exclusively operates rail franchises in regional rail markets in Lower Saxony, Sachsen-Anhalt and Thüringen. At the end of 2022, Abellio Germany operated three franchises in eight regions.

Organisation chart












Rail franchises in Europe



Our trains

NS invests in the purchase, overhaul and upgrading of trains. Proven technology, sustainability and convenience for passengers have the highest priority.

	Number of train units as at 31 December 2022	Number of sections/coaches	Seating capacity
Sprinter trains:			
 SLT	131	648	34,412
 SNG	194	669	35,089
 FLIRT (excl. TAG)	58	199	11,990
Intercity trains:			
 ICRmh (Traxx)	35	273	22,075
 VIRM	176	860	88,683
 ICMm	118	397	29,882
 DDZ	49	238	23,135
 ICNG (inflow in 2023)	0 (National)	0	79 trains ordered
	0 (International)	0	20 trains ordered
 New double-decker (CAF) (inflow in 2028)	0	0	60 trains ordered
Total	761	3,284	245,266

New generation of double-decker trains

In December 2022, NS and Spanish train manufacturer CAF signed a contract for the supply of 60 new trains. The trains concerned are a combination of single-decker and double-decker coaches. Offering both high capacity and high accessibility, these trains are suitable for speeds of up to 160 km/h. The basic order comprises 30 train sets of 4 coaches each, and 30 train sets of 6 coaches each, with a total capacity of over 30,000 seats. In addition, NS has the option to further increase the number of trains in future. The new trains will replace older models such as the DDZ and will meet the need for higher-capacity trains. The first new trains are expected to become operational in 2028.

New Generation Intercity

NS Proefbedrijf launched the New Generation Intercity (ICNG) in 2022. Before incorporating these new Intercity trains into our timetable in phases, we subject them to trial runs covering many kilometres to test their reliability and functionality. The trial also involves training for the first groups of guards, train managers, mechanics and drivers.

COVID-19 and supply issues due to the war in Ukraine had a significant impact on the development and realisation of the ICNG. This also caused admissions and training programmes to start later. In addition, findings from the testing programme showed that software updates were necessary. All of this meant that our ambition in 2021 to allow the first passengers to board in December 2022 had become infeasible. NS still expects to be able to realise the full roll-out of the ICNG on the high-speed link between Amsterdam and Breda in 2023. The Human Environment and Transport Inspectorate (ILT) officially approved the ICNG for use in the Dutch railway network at the end of December 2022. In that same year, admission testing with ICNG Belgium was completed and requests for admission were submitted in the Netherlands and in Belgium.

Sprinter trains

In early 2023, CAF supplied the last batch from a total of 206 new Sprinter trains. This was slightly later than scheduled, due to a delay in the supply of a number of bogies. The new Sprinters are energy-efficient and ensure a comfortable journey for passengers featuring a transparent, open and attractive design, WiFi, wheelchair-accessible toilets, wall sockets, USB connection ports, sustainable leather upholstered seats, sections designated for bicycles and a floor-level entrance.

New call for tenders for Sprinter trains

In 2022, NS launched a European call for tenders for the purchase of Sprinter trains. NS needs the new trains to accommodate the expected growth in passenger numbers and prevent a shortage of rolling stock in future. NS is looking for a comfortable and easily accessible train that can be used as a Sprinter: fast acceleration and deceleration, and suitable for speeds of up to 160 km/h. We are also examining options to use the new Sprinters as Intercity trains on a limited number of routes. This will help us to create flexibility in the way we deploy our rolling stock, which will also reduce purchasing costs. We expect to be able to welcome the first passengers in our new Sprinter trains from the end of 2027.

Upgrading Intercity trains

After upgrading 80 double-decker train sets (VIRMm1, comprising 415 coaches), in 2021 we launched a project to upgrade 44 double-decker trains of the VIRM2/3 model. This involves 242 coaches with a total of 24,500 seats. By the end of 2022, we had upgraded 24 train sets comprising 116 coaches. From 2026, all 51 VIRM4 double-deck train sets will be upgraded.

Trends, developments and strategy

Trends and developments



During the Week against Loneliness, nine stations are illuminated with messages of hope.

This chapter describes the demographic, economic, socio-cultural, ecological, technological and political developments that influence NS. For our response to these developments, see the chapter entitled [Our strategy](#).

Labour market shortages

The Dutch labour market has been exceptionally tight for more than a year. Shortages peaked in the summer of 2022, with 143 vacancies for every 100 job seekers. Many companies and organisations, including NS, had not anticipated the extent of the problem. Since then, staff shortages have decreased somewhat - but not in all sectors. In healthcare, transport and education the shortages actually slightly worsened in the second half of the year. This had major consequences for NS. During 2022, the shortage of main guards and train drivers, combined with persistently high levels of work pressure and sickness absence, made it necessary for us to scale down the timetable. Despite the huge effort we made to minimise the impact of the shortages on our passengers and colleagues, they did suffer considerable inconvenience. In 2023 we will continue to do everything we can to reduce staff shortages.

Economic developments and rising prices

Several inflation rate records were broken over the past year. In September 2022, the inflation rate even reached 14.5%. In 2022, negotiated wages increased by an average of 3.2% relative to 2021. This was the largest rise since 2008, but inflation rates were much higher and difficult to compensate in full for most companies. Prices of raw materials and energy also increased considerably, driven by the war in Ukraine.

These economic developments could potentially jeopardise the affordability of our passenger products. On average, train fares in 2023 are already up 4.3% compared with 2022. The price of separate tickets has gone up by 5.5%, while the price of season tickets for unlimited travel across the country or on specific routes has fallen by 2.4%. In addition, contraction of the economy as a whole could result in fewer passengers.

The impact of COVID-19 on travel patterns and finances

After the end of the lockdown in April 2022, the Netherlands 'reopened'. However, many of the effects of the pandemic have proved to be permanent, including its impact on how people travel. While we have seen passengers return to our trains, their numbers are smaller than before and their travel patterns have also changed. While passenger numbers in the weekends have almost returned to pre-COVID figures, on working days we only transport about 75% of the passenger numbers in 2019. NS has noticed that commuters tend to work at the office on Tuesdays and Thursdays and choose to travel during super-peak hours on those days. This means that the challenge of spreading passengers has become even greater than before the crisis.

The COVID-19 crisis has severely hit NS financially as well. In 2020 and 2021, we suffered a significant negative underlying result and we did so again in 2022. Until the end of 2022, these losses were compensated in part by the availability payment we received from the government. In 2023, these payments have been replaced by a transition scheme funded by the Ministry of Infrastructure and Water Management. This scheme provides for a cap on compensation for carriers and, as such, offers less protection than the availability payment scheme. NS is well aware of the possibility that the transition scheme will not cover all our financial losses in 2023, and that we may have to close the year with negative figures.

Contribution of sustainable transport to the climate targets

Despite a range of measures, the efforts under way to reach the Dutch climate targets have so far remained insufficient, as observed in last year's Climate and Energy Foresight Study published by the Netherlands Environmental Assessment Agency. The time available to make the right decisions is running out. If we manage to approximately halve worldwide CO₂ emissions by 2030, we have a chance to limit global warming to 1.5 degrees Celsius.

However, if emissions continue to rise in the next few years, they will set the world on course towards global warming of 3 degrees or more. Given the relatively low CO₂ emissions from sustainable means of transport, it is evident that every effort should be made to make mobility more sustainable. Train travel is part of the solution, and NS is eager to contribute to plans to green the mobility sector.

Population growth, composition of the population and travel behaviour

By 2025, the Dutch population is expected to reach almost 19 million - over 1 million more than in early 2022. Nearly 70% of that growth will take place in municipalities with 100,000 or more inhabitants. This will be accompanied by demographic changes. As the average life expectancy will continue to increase, the share of people over 70 will grow: in 2040, nearly 20% of the population will be at least 70 years old. While the working population is still increasing slightly, it will begin to fall after 2030. These developments will also have an impact on the size and composition of demand for mobility. Urban areas will see an increase in demand, and one of the possible effects of the ageing population is a higher share of social-recreational travel.

The growth of the population has also generated a housing construction challenge: in the period up to and including 2030, we will need to build 100,000 new homes every year to meet housing demand. This housing construction task is accompanied by a mobility challenge, to ensure that all these new homes are easily accessible. To that end, the government has added another €7.5 billion to the Mobility Fund. [A large part of these funds](#) will be spent on improvements to the public transport system.

Developments in the mobility market

Many parties, including the government and new players on the mobility market, have expressed considerable interest in Mobility as a Service (MaaS) and the rise of forms of shared transport (such as e-bikes, bicycles, scooters, cars and perhaps, in future, electric scooters). We are witnessing developments on different fronts: the growing popularity and availability of these forms of transport at the local level, and more and more apps to make them more user-friendly. At the same time, local authorities are aware of the nuisance caused by illegal parking, while private car ownership has hardly decreased and the popularity of shared transport has so far remained modest.

At the international level, too, interest in travelling by rail is increasing. Last year, as a result of the increasing demand for sustainable travel, reinforced by excessive crowding at Amsterdam Airport Schiphol and an ever wider range on offer from tour operators, the number of people who opted for the train on international journeys was higher than before the COVID-19 pandemic.

Technological developments in and around trains

We are also witnessing a multitude of technological innovations in and around trains that have an impact on NS and our partners in the railway sector. [NS permanently evaluates](#) the opportunities offered by six relevant technological developments: artificial intelligence, 3D printing, 5G, sensorics, extended reality and process mining. For example, these developments can potentially accelerate and enrich decision-making processes, while increasing train speeds and accelerating train maintenance work. In addition, ERTMS and Automatic Train Operation (ATO) potentially create scope for even more trains on the already busy Dutch rail network, as well as for shorter travel times and higher levels of safety.

Major threats and opportunities for NS

Current trends and developments offer several major opportunities for NS, but also pose a number of threats. Below is an overview of those we consider the most important:

Opportunities:

- **The urgency of clean and sustainable transport** – The consequences of climate change have shown how important it is to be even more ambitious and take real and meaningful action. We need to make mobility more sustainable: the urgency of that is indisputable. The train is the most sustainable means of transport for long-distance travel. NS wants to be, and is able to be, part of the solution to the climate problem.
- **Investments in public transport and (railway) infrastructure** – The national government has announced [major investments](#) to ensure good connections for the many new houses to be built. This investment programme can bring about huge improvements in the accessibility of public transport. Over the next few years, major housing construction projects will be launched in areas around railway stations. The new residents will all have easy access to the train and other sustainable means of transport.
- **Technological developments in and around trains** - Technology evolves extremely fast. Innovations can improve our services and internal processes to make travel by train even more attractive.

Threats:

- **Labour market shortages** - The number of vacancies exceeds the number of job-seekers in the Netherlands. In this tight labour market, we are facing the dual challenge of finding sufficient numbers of staff to operate our trains *and* retaining our existing people.
- **Change in travel behaviour post-COVID** - Travel patterns have changed since the COVID-19 crisis. People - commuters in particular - are travelling less, and when they do travel it is often on Tuesdays and Thursdays. People are also more likely to perceive trains as (over)crowded. These changes have an impact on our income, force us to focus on costs and are at odds with our ambition to always offer passengers a suitable timetable.
- **Affordability** - High inflation rates and energy prices mean that people have less money to spend, while it is also becoming more expensive for NS to operate our trains. This is making it more difficult to keep train fares affordable.

Our strategy



During the Formula 1 weekend in Zandvoort, NS operates a special timetable, deploying more than 300 extra employees.

'Together, we are making the Netherlands accessible in a sustainable manner – for everyone.' That is the mission of NS, and the compass for our strategy for 2020-2025 and subsequent years. The focus of our strategy is on transitioning NS towards a broadly oriented mobility company.

With our trains and stations serving as the backbone of our business, we aim to ensure a smooth and comfortable door-to-door journey for all our passengers. Our stations are mobility and liveability hubs, and with our NS App we offer our passengers an attractive, personalised and user-friendly tool to assist them throughout the process, from planning and booking the journey to paying the fare. The success of this transition depends on our effective collaboration with the Ministry of Infrastructure and Water Management, ProRail, other carriers, non-central authorities and other partners.

Major challenges

Our mission and our strategy are our guides in everything we do as an organisation. Due to unforeseen circumstances, however, public transport has come under pressure in recent years. Our strategy had prepared us for growth in passenger numbers; it had *not* prepared us for falling passenger numbers, nor for a dramatic increase in energy prices, soaring inflation, persistent pressure on our operational performance, falling work satisfaction and vitality rates, and a structural shortage of employees. The cumulative effect of these developments means that we have to work fast to get the basics in order again. Our longer-term perspective remains focused on a broad range of world-class mobility services - but in this new context.

Getting the basics in order

In the years ahead, we will tackle these challenges to ensure optimum service for all our passengers. In doing so, we will prioritise efforts to improve work satisfaction rates among our colleagues, reduce staff shortages and design and realise a timetable to match the changing needs of our passengers.

Robust services

We aim to offer reliable and predictable train services that are perfectly attuned to passenger needs. NS employees have an eye for passengers and their needs, provide the services that passengers expect and are available where they can contribute most. We intend to use passenger data and technology to further improve our services and personal safety.

A proud and healthy workforce

During the COVID-19 period we made significant demands on our people. The workload weighed increasingly heavily on an ever smaller group. We want all NS employees to be proud of their work and of NS, to be able to contribute all their talents and skills and to feel happier in their jobs. We want to attract and retain high-quality professionals and ensure we have enough of them to offer an excellent passenger product.

Smart strategies for attracting passengers to trains and stations

Using relevant products we intend to respond as effectively as possible to new passenger needs and travel patterns. Agreements to spread passenger numbers, new products and services and dynamic pricing will help us attract more passengers and encourage them to travel outside peak hours.

A financially healthy organisation

We want to be able to offer affordable journeys for everyone. At the same time, we wish to be a financially healthy business with sufficient scope for investment to continue serving the public interest.



Ready for the future

In addition to preparing for short-term challenges, we will continue to work towards our ambitions for the longer term, guided by our central mission: 'Together, we are making the Netherlands accessible in a sustainable manner – for everyone'.

Improving the national and international railway networks

In collaboration with our partners we strive to further improve the railway network. This ambition does not stop at the national border. By contributing to an improved booking system and increasing the frequencies of services to metropolitan areas abroad, we will help the train become the preferred and most logical option for distances of up to 700 kilometres.

Developing a broad range of mobility options

The NS App for passengers provides access to our range of door-to-door travel options across the Netherlands. It serves as a one-stop shop where passengers can plan, book and pay for their journey. As a broad-based mobility company, we keep the Netherlands accessible in a sustainable manner by also selling supplementary mobility services, such as our own public transport bicycle system and our partners' services.

Stations as sustainable mobility hubs and pleasant places to stay

Together with ProRail, we invest in our stations to develop them into sustainable mobility hubs that contribute to a pleasant environment. Our stations are open and welcoming locations where passengers end or start their train journey or change trains effortlessly, and where they like to go to enjoy excellent facilities such as our own retail formulas and our Station Living Rooms (StationsHuiskamers).

Innovation, digitalisation and data-driven operations

We use data to improve processes and make sure we take the right decisions. Our use of data is based on an improved, cyber-secure and affordable IT and data infrastructure. To that end, NS is upgrading existing IT systems and phasing out or replacing obsolete ones in time. In addition, we want to use technologies such as virtual reality and AI for the benefit of our colleagues and to improve the travel experience of our passengers.

Increasing the socio-economic impact of NS

NS is an essential player in the Dutch approach to combating climate change. The more travellers opt for the train, the more CO₂ emissions the country will be able to avoid. In addition, we are [making our own chain more sustainable](#) by adopting zero-emission, green and circular business practices wherever this is possible. However, our impact extends much further than the climate. We aspire to be a company of and for the Netherlands as a whole: a business that reflects all parts of society, where everybody feels at home and nobody feels excluded.

Main rail network franchise from 2025

NS's franchise for operating the main rail network expires at the end of 2024. The Ministry of Infrastructure and Water Management intends to award the main rail network franchise to NS under a private contract effective 2025. The Ministry formulated the Schedule of Requirements for that contract in the first half of 2022, which contains a more detailed description of the objectives first formulated in the policy intention from 2021. Like several other parties in the consultation process, including other carriers, ProRail, ACM and consumer associations, NS received the provisional Schedule of Requirements for consultation purposes in June. NS responded and tested the consultation version with a focus on feasibility and financial impact. At the Ministry's request, in the subsequent phase NS shared additional information on several themes.

The franchise and the parliamentary process

The Lower House of the Dutch Parliament discussed the Schedule of Requirements in the autumn of 2022. In the subsequent phase, political parties submitted a total of 48 motions. For example, the Lower House has voted that the main rail network franchise should be awarded to NS. There is no political support for a study on more competition on the main rail network. The Lower House also wants international connections, and the management of bicycle parking facilities, to remain part of the franchise (with NS). In December 2022, the Minister for the Environment informed the Lower House about her plans to respond to the motions. Several aspects, including train fares and international rail connections, will be the subject of further studies or decision-making. Since the discussion of the Schedule of Requirements in the Lower House, NS and the Ministry of Infrastructure and Water Management have engaged in further consultations with each other on key aspects such as agreements on KPIs, risk management and funding.

Market analysis yes or no?

On several occasions in 2022, the European Commission made critical comments about the direct award of the main rail network franchise to NS. According to the Commission, the Dutch government should conduct a market analysis prior to awarding the franchise. The Minister for the Environment has pointed out, however, in the Lower House and elsewhere, that such a market analysis is not necessary. NS's own position on this matter remains unchanged: the existing legal framework permits a direct award.

International connections

The possible inclusion of international connections in the new franchise for the main rail network is the subject of important decisions yet to be made. For NS, the inclusion of international routes in the franchise is the best way to ensure a broad range of destinations for passengers. The Lower House appears to share this view, considering the motions advocating full inclusion in the franchise of all existing international connections.

Financial challenges ahead

The financial situation of NS is a key point for attention in connection with the new franchise. We are facing a number of major challenges and high-impact developments that have introduced uncertainties in the financial and economic contexts in which NS operates. For example, passenger numbers are still relatively low and commuters in particular travel by train less frequently. At the same time, due to high inflation rates and the rise in energy prices, our costs have increased sharply and have become much less predictable. In this difficult context, NS is expected to safeguard the continuity of transport and to continue investing in new rolling stock, for example. We expect that these uncertainties will continue during the new franchise period. NS is currently in consultation with the Ministry of Infrastructure and Water Management on this issue.

Billions worth of investments in public transport

At the end of 2022, the government announced its plans for substantial investments in nationwide accessibility through the Multi-annual Programme for Infrastructure, Space and Transport (BO MIRT). NS welcomes these plans. The billions worth of investments in Oude Lijn and Zuidasdok, for example, and in the rail infrastructure in the Eindhoven area, will help us to keep the Netherlands accessible in a sustainable manner and connect new housing estates to the public transport system. Below we will focus on some plans of particular importance to NS and its passengers.

The Eindhoven hub

In the years to come, some 62,000 houses will be built and 72,000 additional jobs are expected to be generated in and around the city of Eindhoven. These figures present a context in which sustainable public transport is indispensable. This calls for investments in mobility and public transport, for instance in increasing railway capacity and developing mobility hubs at the stations.

Oude Lijn

Up to 170,000 new houses will be built along the railway section between Dordrecht and Leiden (Oude Lijn), making it an even more crucial artery for the province of South-Holland than it already is. Recent years have already seen a sharp increase in the number of trains there, and frequencies will increase further going forward. Ultimately, it is NS's ambition to offer a CitySprinter service every five minutes. The €1.5 billion investment will make it possible to expand the number of railway tracks between Delft and Schiedam to four and upgrade several station areas along Oude Lijn. Four new stations will be built near new construction sites (Rijswijk Buiten, Schiedam Kethel, Rotterdam Van Nelle and Dordrecht Leerpark). The events station near the De Kuip football stadium will be transformed into a station for daily use, called Stadionpark.

Zuidasdok and extension of the North-South Line

Renovation of Amsterdam-Zuid station is essential if the Netherlands is to realise its national and international rail ambitions. Thanks to a government contribution of €4.1 billion and contributions from various parties totalling €1.3 billion, the Zuidasdok renovation project can go ahead. This is good news, also for many scheduled or completed infrastructure projects elsewhere in the Netherlands, including a faster train connection to the north of the country. The Zuidasdok project also includes the construction of a multi-modal station that serves trains, the underground, trams and buses. In the longer term, the North-South Line will be extended to Amsterdam Airport Schiphol and to Hoofddorp, freeing up space in the Schiphol Tunnel for Intercity trains. The Ringlijn underground will be rerouted to ensure high-quality connections for new housing estates.

Sustainable accessibility for Groningen-Assen and Zwolle

The government has pledged €242 million for ensuring accessibility of new housing estates in the Groningen-Assen region. These plans include the construction of a new station on the former Suikerunie industrial premises. In Zwolle, the railway zone and the station are the beneficiaries of investments. Zwolle has strong connections with other major cities in the Netherlands, and the railway zone is a key development hub for the city of Zwolle and its environs.

How NS adds value to society

Each year, NS provides sustainable mobility to millions of passengers in the Netherlands. In doing so, we contribute to the accessibility and economic development of cities and regions, and to the country's climate goals. In our annual report, we report on the subjects that our internal and external stakeholders feel to be relevant and that enable us to create value for Dutch society. We use our material relevance analysis for this purpose. The value creation model, based on guidelines issued by the International Integrated Reporting Council (IIRC), determines the structure of our report. The model identifies the social, economic and environmental resources we use, how we add value to them and which topics our stakeholders believe are important ('of material relevance') for our organisation.

Input

To make our business model work as effectively as possible, we depend on key inputs such as people, trains and technology. As a carrier, we would not for instance be able to function without our people and their knowledge. But other inputs are important too, such as energy (e.g. from wind) for powering our trains.

Business model

The main foundation of the value creation model is our business model. Our mission, objectives and underlying core activities serve as the input for our [strategy](#).

Output

The activities in our business model have a variety of internal and external outcomes. These include our financial results, for example. In the Netherlands, we facilitated nearly 1 million train journeys every working day in 2022, on average, while by far the majority of our trains ran on time. We strive to optimise our employee satisfaction scores.

Our impact

We want to make a considerable impact on our environment, given the fact that sustainable mobility can generate huge economic and social benefits for the Netherlands. At the same time, however, we also have an ecological footprint, as we use space and raw materials. In addition, travelling takes time. If we are to continue facilitating travel in future and keep the Netherlands mobile, it is important for us to understand the effects of our business model on society and to keep using that knowledge as a control parameter. We know, for instance, that the social costs of a train journey are lower than those of a trip by car or plane. We can improve our social return by increasing the share of rail travel in overall mobility growth. For further explanation, see the chapter [Our impact on the Netherlands](#).

How NS adds value to society

Input

Income



Trains & stations



Internal & external knowledge



Employees



Dialogue with partners & stakeholders



Raw materials & energy



IT, materials & offices



Experiences of Abellio



Business model



Strategy

Together, we are making the Netherlands accessible in a sustainable manner – for everyone

Main objectives

- Getting the basics in order
- Ready for the future

Other

- Compliance
- Corporate governance
- Risks

Output

Customer satisfaction



Innovations



Performance of MRN and HSL South



Door-to-door journey



Stations and their environment



Travelling and working in safety



Attractive and inclusive employer



International connections



Financial performance



Sustainable performance



Impact in NL

Sustainable mobility and travel time



Environment (emissions, land, waste, water, noise)



Safety



Health benefits from more active lifestyle



Training, staff employability & diversity



Expenditure



Contributions to Paris Agreement on Climate Change, UN Convention on the Rights of Persons with Disabilities and UN Sustainable Development Goals



External environment

Our activities and
achievements in the
Netherlands

Notes to the franchise indicators



Young artists decorate Groningen station with the aim of making the station more attractive during renovations.

NS uses a range of indicators to measure the quality of its services on the main rail network and the high-speed line. In 2022, as in previous years, a safe travel and work environment was an important control parameter for NS.

In February, social distancing rules were lifted and on 23 March the government lifted the mask mandate in public transport. In April 2022, Dutch society reopened. In the last few months of the year, punctuality was impacted by a temporary speed restriction on the high-speed line. As in 2021, due to COVID-19, performance figures for 2022 are different from normal levels and cannot be meaningfully compared with those for other years. For instance, passenger numbers were much lower.

Performance indicators

Performance	Realisation in 2022	Realisation in 2021	Minimum value for 2022
Overall customer satisfaction score for main rail network*	-	7.9	7.3
Overall customer satisfaction HSL-South services*	-	7.9	7.2
Customer satisfaction with social safety*	-	8.1	7.7
Punctuality for passengers (with a 5-minute margin) on the main rail network	91.6%	94.4%	88.9%
Punctuality for passengers (with a 15-minute margin) on the main rail network	97.3%	98.1%	96.7%
Punctuality for passengers (with a 5-minute margin) on HSL South	82.0%	89.2%	82.1%
Quality of connections to other carriers	95.5%	96.5%	94.0%
Seat availability at peak times (main rail network)	96.6%	99.6%	94.3%
Seat availability at peak times (HSL South)	98.0%	99.9%	91.2%
Number of crowded trains at peak times per working week	51	4	110
User-friendly travel information	81.7%	79.9%	65.0%

* Since 2021, we have measured general customer satisfaction levels using the Public Transport Customer Barometer (OVKB). The figure for 2022 will be published on the CROW website at the end of February 2023.

Main rail network franchise for 2015-2024

The State Secretary for Infrastructure and Water Management awarded the rail transport franchise for the main rail network to NS in December 2014. The franchise runs from 1 January 2015 for a term of ten years. NS prepares an annual transport plan for the year ahead. In that plan, we link our aims and objectives to specific actions and performance indicators for the coming year. The definitions of the KPIs and the descriptions of the measurement and calculation methods used can be found in the 2022 [Transport Franchise Definitions \(in Dutch\)](#).

Customer satisfaction



NS marks out various trail runs between train stations. Participants jog through the countryside with the focus mainly on the experience and less on speed.

To provide a high-quality passenger experience, three core needs of passengers must be satisfied: planning control, the freedom to make their own choices, and a feeling of being appreciated. We meet these core needs by providing high-value and personalised services.

Our sustainable spearheads

Sustainable mobility



For everyone



Customer satisfaction with the main rail network and the high-speed line

Since 2021, we have measured general customer satisfaction levels using the Public Transport Customer Barometer (OVKB). Due to the anti-COVID-19 measures in place, in 2021 OVKB surveys in the trains were only held in the last quarter of the year. In 2022, a total of four surveys were held covering the last three quarters of the year. The figure for 2022 will be published on the [CROW](#) website at the end of February 2023.

IT failure

A major IT failure impacting multiple crucial systems occurred on 3 April 2022. This was followed by a rupture in the overhead contact wires at Hoofddorp, which meant that remedial measures were no longer possible and we were forced to shut down train traffic from midday. For the rest of the day there were practically no trains. We are aware that this situation caused severe inconvenience to all our passengers. They had to wait for a long time before it became clear that the disruption was not going to end any time soon and they should arrange alternative transport themselves. But the situation was also quite frustrating for our employees. This is why NS apologised to all passengers and NS colleagues. To ensure lessons are learnt and prevent similar situations in the future, NS commissioned three independent parties to investigate the incident. We have decided to adopt all the recommendations resulting from this investigation: to make a back-up plan to ensure minimum alternative transport capacity, to examine the option of a shuttle system and to improve specific IT systems.

Customer service and social media interaction

In 2022, 77% of customers awarded NS Customer Service a mark of 7 or higher (out of 10). This is less than the score in 2021. In 2022, as passenger numbers increased so did the number of contacts per channel. In addition, major disruptions in train services and industrial action in the Netherlands and abroad resulted in additional pressure on capacity at Customer Service. We introduced self-service solutions, such as a money-back arrangement in the event of delay, and are currently expanding these.

Number of contacts per month	Social media	Email	Chat	Telephone
	43,317	21,611	64,022	174,166

Money back in the event of delay

In 2022, NS gave passengers their money back in the event of delays and reimbursed the costs of alternative transport, taxi fares and hotel accommodation. Examples of occasions when NS provided such compensation were the IT failure and railway strikes.

In total, NS awarded 184,996 claims for a refund due to delay in 2022 (totalling €2.2 million). Compensation for alternative transport, taxi fares and hotel accommodation was granted 32,293 times (totalling €3.2 million)

Accessibility

NS is committed to continuous efforts to make train travel more accessible for people with a disability. In 2022, pressure on our operational performance also affected NS Travel Assistance services, reducing the travel options for passengers with a disability. NS then launched a major effort to improve this service, as reflected in the following developments:

- The introduction of the 2023 timetable, in December 2022, was accompanied by the launch of NS Travel Assistance at an additional 27 stations. This means that 89% of all NS stations now offer NS travel assistance services.
- Together with people with a minor mental impairment and their representatives, we finalised a package of resources designed specifically for this group of passengers. We simplified information services and are working on a tool to enable people to practice travel situations.
- We conducted a pilot study on informing passengers about major disruptions on the displays inside the trains. The tested solution proved technically infeasible; the study into alternative solutions is ongoing.
- In 2022, we phased in 23 SNG-type train sets. The Sprinters feature retractable steps, wheelchair-accessible toilets and tactile information for the visually impaired.

Innovations

In order to be and remain relevant for Dutch society, we are working hard to optimise our performance both on aspects that are important today and on demands that will be made of us in the future.

Innovation involves NS as a whole

Rather than an end in and of itself, innovation is a means that will help us realise our ambitions and implement our strategy. As we are innovating, we are also confronting major challenges, such as implementing timetable adjustments, improving our performance for customers, facilitating the energy transition and dealing with shortages on the labour market. The perception of NS as an innovative company achieved a score of 54.2 in 2022 ([RepTrak](#)). But innovations can also make work more agreeable and pleasant. This is why we will continue to invest in innovation, in all our business units. Below are some examples of major innovations that contribute to the [strategic themes of NS](#).

Smart ways of attracting passengers to trains and stations

- Passengers want to be able to travel safely, fast and conveniently, with as little delay and hassle as possible. This is why we are keen to prevent overcrowding on our station platforms whenever we can. In this connection, it is important for NS to know how many passengers a platform can process in a safe and efficient manner. Last year, an NS colleague received a doctorate at Delft University of Technology for research into the passenger processing capacity of platforms. We used a public transport smart card data model and pedestrian sensors at the stations as part of the study. We used the research results for various purposes, including careful consideration of optimal platform width in the context of the renovation project for Amsterdam Centraal that has started recently.

- The need for effective management of passenger flows and safety at our platforms prompted NS to develop a method that enables us to predict levels of crowding in real time. In the longer term, this will help NS to spread passengers more effectively across the available platform space. We now have a better tool to organise platform processes (waiting, boarding and alighting), passengers enjoy a higher level of comfort and safety remains guaranteed as passenger numbers increase.

Developing a broad range of mobility options

- Our customers increasingly expect us to provide seamless door-to-door journeys. In response, in the context of the OV Payment programme NS and several partners ran a pilot with new payment methods for public transport. The new system enables passengers to check-in and check-out using a debit card based on the contactless EMV technology of Mastercard and VISA, and will be rolled out nationwide in 2023.
- Passengers need a mobility app that offers them the best and most personalised range of options to choose from. To meet that need, we further developed and expanded our travel planner. Passengers can now also use it to plan a journey with other modes of public transport, including bicycles. In addition, passengers can find and book shared electric scooters via the NS App.
- NS initiated a pilot at 3 stations, with a total of 90 electric public transport bikes. The purpose of this pilot is to find out if the electric public transport bicycle meets our passengers' wishes and is a valuable supplement to the regular bikes. The fourth pilot site went live in Maastricht on 13 January 2023.

Digitalisation and data-driven operations

- Optimal deployment and maintenance of trains means we minimise the risk that passengers can find no place to sit in our trains. By developing a new decision support system, we can more effectively respond to the constantly changing circumstances in which we implement our timetable. The new system incorporates data on the current logistical situation, scheduled and unscheduled train maintenance and the expected numbers of passengers.
- As another example of the smart deployment of people and resources, NS launched a new working method for inspections. NS has embarked on a project to develop and test a system for the digitalisation of certain types of inspection. We take photos of passing trains at two fixed locations in the infrastructure. We use the images for inspections of pantographs and wheelsets. The high-resolution images and the possibility to zoom in on specific components increases the quality of inspections. We also examine opportunities to move work from night-time to day-time hours. This type of innovation increases work satisfaction rates among our colleagues and helps to reduce staff shortages.
- Parallel to the installation of portals and human interpretation of the images, NS and train manufacturer CAF are developing an algorithm to ensure that colleagues are shown precisely those train components that are most likely to have abnormalities.
- In order to be able to respond to the increasing speed of change in the world around us, we have to remain agile and keep developing ourselves. We do so by, for example, experimenting with and applying a range of technologies.
- Data-driven working methods come with a risk of data leaks, so they should be accompanied by measures to protect our customers' privacy. NS attaches great importance to ensuring the highest level of care and [protection](#) in processing the personal data of its customers and business relations.
- Over the past year, the use of artificial intelligence helped NS to improve its passenger forecasts, recognise graffiti, enhance the rolling stock scheduling system and personalise marketing activities.

- Various industries regard 3D printing as a promising new technology. In 2022, NS invested in seeking collaboration with a range of partners, such as universities of applied sciences, suppliers and research institutes, and in applications for materials such as metal in 3D printing. By doing so, we are laying the foundations for our contribution to a more sustainable world in which we only produce what we need (stock reduction) and become less dependent on external production chains (reduction of transport and CO₂ emissions). Finally, we started a pilot with a system that enables us to scan large numbers of items used in the train maintenance process, in order to create 3D models of those items and ultimately print them and apply them in our trains based on a standard defined process.
- NS is examining possibilities to use augmented reality glasses in train maintenance work. Mechanics on the Flirt TAG did a test with remote support using such glasses. The mechanic on site can use both hands while an experienced colleague monitors the procedure from a distance and gives instructions that pop up the mechanic's display.
- NS is increasingly using process mining techniques to identify, monitor, audit and improve business processes. These techniques can be used, for example, to accelerate and enhance processes (automation). This enables us to deploy people and rolling stock more efficiently, which saves costs. Last year we achieved the first promising results in maintenance, specifically at the service desk and the production line for wheelset revision.
- The use of sensors (in trains, tracks, workshops, at the stations) to collect data (images, temperature, vibrations, noise etc.) is essential for our performance. We use this data for a variety of purposes, such as ensuring that trains can be deployed safely, preventing unscheduled outages and monitoring real time train data. Over the past year, we found that real-time monitoring and image recognition are becoming more and more important, so we have made this one of our key focus areas. One example is the Automatic Train Operation (ATO) programme, in which we examine the potential significance of automated train driving for railway capacity, operational processes, safety and sustainability. We are studying this in collaboration with the railway sector and train drivers. For example, last year we set up a remote operations centre in Zwolle from where train drivers can run automated train driving tests in shunting processes. The trains are controlled from Zwolle to perform shunting processes in the De Vork shunting yard near Groningen. This improves our insight into the interplay between people (train drivers) and machines (ATO). Within the context of ATO technology we are also studying the development of a remote operator unit to perform remote shunting operations with empty trains. In this situation, a single train driver is able to perform shunting operations with multiple trains from a central remote location. This will increase the availability of train drivers for deployment on regular scheduled trains.
- Crucially, all the technologies described above involve the exchange of (large amounts of) data. At present this mainly concerns data transmitted via cables and wireless 4G connections. The technical possibilities offered by 5G present a new type of connectivity. This is regarded as the driving force behind business process innovation and further digitalisation of the Netherlands. NS is studying the potential opportunities that 5G offers, for instance in connection with remote shunting.

Innovating with others

NS wants to make the Netherlands accessible for all in a sustainable manner, but cannot do so on its own. This is why we are partnering with many other actors, including research universities and universities of applied sciences, as well as other players in the railway sector, such as ProRail and DB. To maximise our impact, combine our strengths and learn from each other, we are also participating in various programmes that aim to accelerate innovations:

- NS, together with ProRail, has been a core member of Europe's Rail Joint Undertaking, a European research and innovation programme, since 2021. This partnership, run by the European Commission and the European railway sector, provides grants to stimulate innovation in the railway network. Its purpose is to improve the interconnectivity of the various European rail systems, facilitate rail transport capacity growth after 2030 and make rail transport a more affordable and attractive proposition. European collaboration is essential to further improve the railway network.
- The *Stichting Kickstart AI* foundation was set up to accelerate the adoption of artificial intelligence (AI) in the Netherlands. The partners in this initiative - AholdDelhaize, KLM, ING and NS - are convinced that AI is going to have a significant influence on our daily lives and that it can potentially make a positive contribution to society. The foundation focuses on promoting education and research in the field of AI, developing and implementing intercompany *challenges* and enhancing awareness of AI, for example via a nationwide AI course.
- NS believes it is important to take inspiration from the latest trends, to conduct early-stage experiments and to collaborate with start-ups. Our participation in SHIFT helps us to pursue those aims. Investment fund SHIFT Invest is an important tool to help accelerate innovations within NS. Since its incorporation, we have invested in eight start-ups and introduced ten start-ups to various business units. We have partnered with two start-ups for the purpose of launching a pilot project next year.

Performance on the main rail network and the high-speed line



Refugee residents from Ukraine travel for free to their destination in the Netherlands. Their passport is a valid ticket.

Solid performance is the basis for customer satisfaction and healthy financial results. Crucially, these enable us to keep train fares affordable and to make the necessary investments to accommodate the growth in mobility.

Our sustainable spearheads

Sustainable mobility



For everyone



Punctuality

Punctuality for passengers (with a 5 minute margin) on the main rail network was 91.6% in 2022 (2021: 94.4%). Punctuality for passengers (with a 15 minute margin) on the main rail network was 97.3% in 2022 (2021: 98.1%). Trains were less punctual than in 2021, due to a combination of circumstances. First and foremost, from May to August staff shortages resulted in higher train cancellation numbers. This means that passengers more often had to wait for the next train, with an adverse effect on train punctuality for 2022. After the summer we adapted the timetable to ensure we had enough staff to implement it, resulting in fewer train cancellations. We also shortened our trains, because longer trains require more staff. The timetable adjustments and shorter trains meant that trains became more crowded, resulting in longer stops at stations because when passenger numbers increase, it takes longer for them to get on and off the trains. Punctuality rates decreased as a result. This effect was strongest during off-peak hours as the relative increase in crowding levels was strongest off-peak. Nevertheless, punctuality for passengers was higher during off-peak hours than during peak hours.

Other factors with a negative impact on punctuality were train cancellations due to industrial action in August and September, and damage due to high winds in January, February and May. As a result of an incident involving a high-voltage cable in the province of Flevoland, no trains could be run on the section between Lelystad and Dronten from 2 September to 10 December. The replacement bus services that were offered were less punctual than the trains, due in part to fluctuations in traffic intensity.

Punctuality for passengers on the high-speed line

Performance indicator	Realisation in 2022	Realisation in 2021	Minimum value for 2022
Punctuality for passengers (with a 5-minute margin) on the main rail network	91.6%	94.4%	88.9%
Punctuality for passengers (with a 15-minute margin) on the main rail network	97.3%	98.1%	96.7%
Punctuality for passengers (with a 5-minute margin) on HSL South	82.0%	89.2%	82.1%

Punctuality for passengers (with a 5 minute margin) on the high-speed line registered 82.0% (2021: 89.2%). Punctuality levels on the high-speed line were high at the beginning of the year. However, in the second quarter stopping times at the stations increased due to higher passenger numbers. At the same time, [international train traffic](#) increased, resulting in railway capacity issues, and train services on the high-speed line were confronted with staff shortages. The ad hoc scale-down of our timetable led to a substantial number of unscheduled cancellations. In the course of the third quarter we gradually implemented an adjusted timetable for the longer term, which helped to reduce ad hoc cancellations. The scaled-down operations did however continue to cause higher levels of crowding at the platforms, resulting in longer stops and more delays than usual.

In the last few months of the year, punctuality was adversely impacted by a temporary speed restriction near the town of Rijpwetering as a result of infrastructure issues. The speed restriction meant that trains on this section of the high-speed line could only run at 40 km/h

from 28 October, and 80 km/h from 7 November, compared with the regular train speed of 160 km/h (up to 300 km/h for international trains). Due to the impact of this temporary speed restriction on punctuality, performance on the high-speed line in 2022 was under the lower limit. We are in consultation on this issue with the Ministry of Infrastructure and Water Management and ProRail.

The speed restriction will remain in force in 2023 in connection with safety inspections carried out by ProRail on similar structures.

Seat availability

This indicator presents the chance that a passenger has a seat throughout the journey if he or she boards at peak times. In 2022, seat availability on the main rail network at peak times was 96.6% (2021: 99.6%). After two coronavirus crisis years with seat availability scores of practically 100% due to a combination of very low passenger numbers and a fairly limited reduction of the timetable, most passengers returned in the spring of 2022. In response, we scaled up the timetable. However, from May 2022 staff shortages forced us to operate fewer and shorter trains, resulting in less transport capacity. In September, peak-hour seat availability was relatively low (91.2%) due to ad hoc train cancellations and shorter trains combined with increasing passenger numbers. We implemented an adjusted timetable from October and improved our train deployment planning, thus creating the space needed to operate longer trains during peak times. Due to these measures, seat availability climbed to more than 95% in Q4, which is more than 1% in excess of the level in the autumn of 2019. The long-term adjustment has been optimised in our timetable for 2023.

Staff shortages also left their mark on peak-hour seat availability on the high-speed line: 98.0% (2021: 99.9%). The second quarter saw a temporary fall in the frequency of peak-hour trains on the high-speed line (three per hour). This explains the relatively low seat availability figure for this period, despite the lower passenger numbers. In the second half of the year, the KPI score improved despite the return of peak-hour passengers, after NS had increased peak-hour capacity on the busiest high-speed section between Amsterdam Airport Schiphol and Rotterdam from three to five peak-hour trains per hour. This meant that most passengers were able to find a seat even at peak times.

Number of crowded peak-hour trains per working week

This indicator measures the number of weekly peak-hour trains in which all seats are occupied and four passengers per square metre are standing on the balconies. The figure for 2022 was 51 (2021: 4). In early 2022, hardly any peak-hour trains qualified as crowded. However, the gradual increase in passenger numbers at peak times and worsening staff shortages meant that the number of crowded peak-hour trains increased. In September we were not yet able to address those staff shortages effectively, given that the passenger numbers varied strongly from train to train. On Tuesdays and Thursdays in particular, relatively large numbers of trains qualified as crowded. We improved our timetable and our train deployment planning in October, thus creating the space needed to operate longer trains during peak times.

For the rest, crowded trains occurred particularly in connection with incidents involving trains that were crowded already. Think of unanticipated passenger flows and operational problems such as disrupted train services, and resulting deviations from regular train deployment levels.

Performance indicator	Realisation in 2022	Realisation in 2021	Minimum value for 2022
Seat availability at peak times (main rail network)	96.6%	99.6%	94.3%
Seat availability on HSL at peak time	98.0%	99.9%	91.2%
Number of crowded trains at peak times per working week	51	4	110

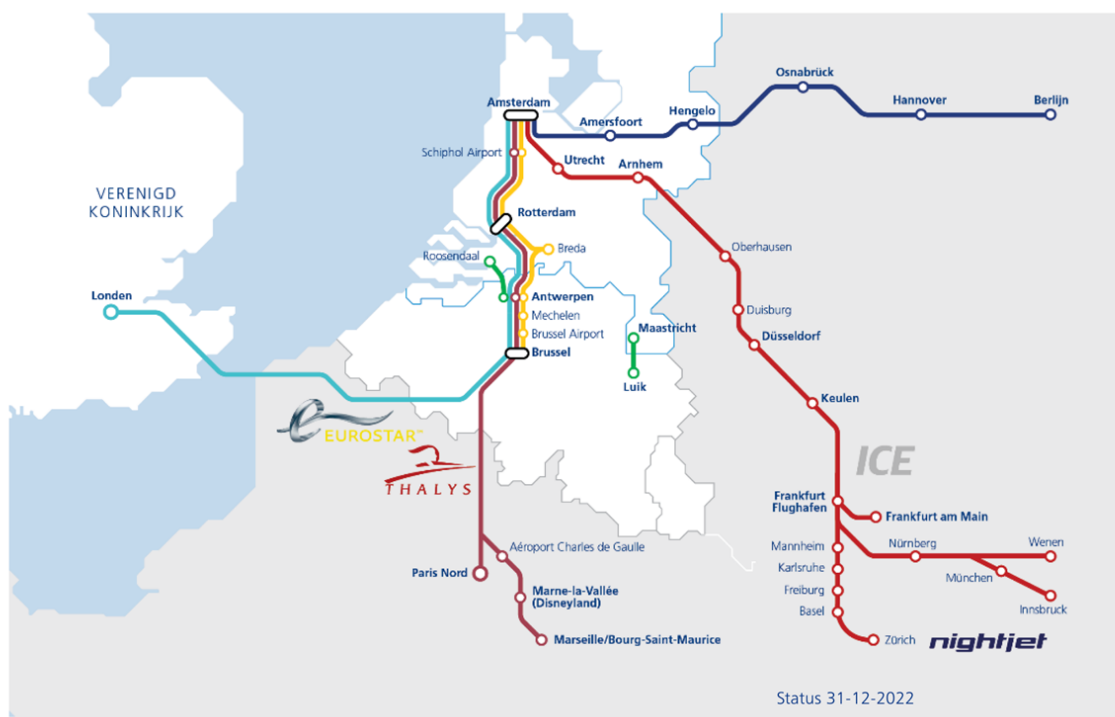
User-friendly travel information

NS wants to give passengers more control over their door-to-door journey and more freedom of choice, irrespective of the means of transport or the carrier. High-quality travel information plays a key role in this, especially when an unexpected event, such as a disruption or withdrawal, changes the scheduled course of the journey. Travel information has to be correct and up to date, so that passengers can make better choices both before and during their journey. Every year, NS sends millions of travel advice messages about rail travel, works on the tracks and disruptions. 'User-friendly travel information' is a performance indicator we use to show the extent to which passengers have been provided with correct and timely information about platform changes, delays and train cancellations, and whether they received timely advice on alternative routes in the case of serious delays. In 2022, the score for this indicator was 81.7% (2021: 79.9%).

In May we adapted the journey information display at our stations. They now also show how long the trains are and in which direction they will be travelling. This helps passengers find out where along the platform the train will stop, which speeds up the boarding process. In addition, the displays also indicate the number of minutes left before departure. Passengers can now see at a glance whether they need to hurry to catch their train. We have also enhanced the method we use to predict the extent of delay in the arrival of a train. This has further improved the accuracy of delay forecasts on the information displays. Scheduled adaptations to the timetable have improved our performance on the KPI for 'User-friendly travel information'.

Performance indicator	Realisation in 2022	Realisation in 2021	Minimum value for 2022
User-friendly travel information	81.7%	79.9%	65.0%

International connections



Maximum number of international rail connections per day

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> ● Eurostar Amsterdam – London (4x) ● Eurostar London – Amsterdam (4x) | <ul style="list-style-type: none"> ● IC Amsterdam – Brussels (16x) ● IC Brussels – Amsterdam (16x) | <ul style="list-style-type: none"> ● ICE Amsterdam – Frankfurt (6x) ● ICE Frankfurt – Amsterdam (7x) |
| <ul style="list-style-type: none"> ● Thalys Amsterdam – Paris (12x) ● Thalys Paris – Amsterdam (13x) | <ul style="list-style-type: none"> ● RGOV Roosendaal – Essen (17x) ● RGOV Essen – Roosendaal (17x) | <ul style="list-style-type: none"> ● ICE Amsterdam – Basel (1x) ● ICE Basel – Amsterdam (1x) |
| <ul style="list-style-type: none"> ● Thalys Amsterdam – Brussels (15x) ● Thalys Brussels – Amsterdam (16x) | <ul style="list-style-type: none"> ● RGOV Maastricht – Liège (18x) ● RGOV Liège – Maastricht (18x) | <ul style="list-style-type: none"> ● NightJet Amsterdam – Vienna/Innsbruck (1x) ● Nightjet Vienna/Innsbruck – Amsterdam (1x) |
| <ul style="list-style-type: none"> ● IC Amsterdam – Berlin (7x) ● IC Berlin – Amsterdam (7x) | | <ul style="list-style-type: none"> ● NightJet Amsterdam – Zürich (1x) ● Nightjet Zürich – Amsterdam (1x) |

Our aim is to make the train the logical preferred option for distances of up to approx. 700 km and the night train the obvious sustainable option for journeys in excess of 700 km. This benefits both the environment and the economy, as trains produce relatively low carbon emissions per passenger. Furthermore, high levels of accessibility by rail stimulate investments in the Netherlands, thereby creating an attractive climate for businesses. We are working to achieve those ambitions by making it easier for passengers to choose the train for international journeys, by providing fast connections for Dutch passengers to high-speed rail networks in neighbouring countries, by increasing frequencies and reducing travel times, and by adding new destinations.

In cross-border train services, NS International has partnered with NMBS, Deutsche Bahn, ÖBB, SBB, Thalys and Eurostar, connecting the Netherlands with major cities and regions in Belgium, Germany, France, Austria, the United Kingdom and Switzerland.

Increase in international journeys

More and more people attach great importance to sustainable travel. The popularity of the train for international journeys increased once again last summer. Ticket sales in 2022 were 6% higher relative to 2019. A range of developments, including renewed enthusiasm for travel in general after COVID-19, luggage issues at Amsterdam Airport Schiphol and especially affordable rates on some routes resulted in high levels of crowding in our trains. This also exposed our vulnerability: despite the commitment of our staff, we did not always manage to offer our passengers the service they are entitled to expect from us. We must improve information services for passengers in the event of disruptions and our ability to process large numbers of passengers. We joined forces with partner carriers in the autumn of 2022 and have been working hard to solve these issues.

Making international travel easier

European railway organisation CER has listed required improvements for international passengers in the CER Ticketing Roadmap. The focus is on improving the customer experience in planning and booking international journeys by train, and the quality of information services during the journey. These aspects still leave much to be desired. As such, the carriers within CER, including NS, have assumed their responsibility to contribute to the targets set out in the European Green Deal. For example, NS passengers can change their Thalys reservation online and receive up-to-date, personalised travel information. In the event of a delay in excess of 60 minutes, passengers are offered alternative travel options.

The Ticketing Roadmap also provides for the possibility to extend the booking period to at least 6 months and up to 12 months where possible. NS ran a pilot project for this purpose in 2021 and 2022, involving Eurostar and IC Brussels. One result is that the booking period for both is now 9 months, following an extension in April. As regards other train services, this will only work if our partner carriers abroad extend their own booking periods at the same time.

Connection to high-speed networks

In 2022, Eurostar, the high-speed link between Amsterdam, Rotterdam, Brussels and London, increased its frequency from two to four trains a day. In addition, with the Ministry of Infrastructure and Water Management and ProRail we signed a declaration of intent, in 2022, which provides for the relocation, as of 2025, of the UK terminal at Amsterdam CS (where Eurostar passengers undergo passport and security checks) to the Amstelpassage. This will allow approximately 600 rail passengers to board each train to London, compared with only 200 in the present arrangement.

In late 2022, together with Eurostar, NS submitted a proposal to DG Move of the European Commission for a pilot project to create better and faster railway connection between the Netherlands and the United Kingdom. This is part of our efforts to persuade air passengers to and from London to opt for the train. The EU pilot involves improvements such as more trains, faster routing, short stops in Brussels, reducing the travel time to 3 hours and 45 minutes, and streamlining passport control procedures.

In 2022, Thalys trains on the high-speed line between Brussels and Paris returned to their pre-COVID-19 frequency of up to 15 per day to Brussels and 12 per day to Paris.

Increasing frequencies and travel speed

Since 2021, NS has performed various tests with the ICNG, which is suitable for Belgium. We will continue these tests in 2023 as we seek to increase the frequency and reduce travel times of services to Belgium, and replace our existing IC Brussels rolling stock.

By 2030, Germany and the Netherlands aim for a 30-minute reduction of the travel time between Amsterdam and Berlin with the IC Berlin. This will be possible if we use trains that do not require a locomotive change-over, and if we drive faster, adopt a modified timetable in both countries and make infrastructural adjustments. NS has leased Vectron locomotives, which can be operated both in the Netherlands and in Germany and can be deployed until DB's ICE-L train is available for use on the Amsterdam-Berlin route.

Night trains

Throughout 2022, NS operated two daily night trains with its partners. During their first year of operation, the Nightjet Vienna/Innsbruck and the Nightjet Zürich each transported approximately 100,000 passengers. Punctuality was under pressure though, particularly as a result of works on the tracks in Germany.

New destinations

NS International has added several new destinations to its booking module. For instance, since December 2022 we offer a connection from the Netherlands to Barcelona with a single stop (in Paris), and we have added destinations in the Czech Republic and Sweden.

Action Agenda for Train and Aviation

The Action Agenda for Train and Aviation was launched in 2020. The Ministry of Infrastructure and Water Management, Amsterdam Airport Schiphol, ProRail, KLM and NS aim to promote international rail as the preferred option for medium-distance travel (up to 700 kilometres). The Agenda is also intended to further improve the position of international rail travel as an attractive alternative to air travel to six high-priority destinations: Brussels, Paris, London, Düsseldorf, Frankfurt and Berlin. This will create more space for sustainable mobility to grow. Since 2022 KLM, in collaboration with NS and Thalys, has offered an integrated train-plane ticket from Brussels via Schiphol to other destinations worldwide. As a result, KLM terminated its scheduled return flight between Amsterdam and Brussels in 2022. The parties' ambition is to also replace the remaining KLM flights between Amsterdam and Brussels by train services.

Withdrawal from service

NS withdrew an average of 17.3% of its trains for maintenance, repairs and refurbishment on any given day in 2022 (2021: 20.0%). NS is increasingly having to withdraw trains as a result of defects and the associated logistics issues. The DDZ trains are a case in point: they are also being modified following a complete standstill period, and fitted with an enhanced braking system and bogie monitoring system. The supply of new parts has been delayed. Even so, we are working on further lowering the withdrawal percentage in order to increase the number of seats for passengers. For example, to that end we are putting the last inactive DDZ trains back into service, applying a smarter maintenance approach and a system for the flexible deployment of mechanics who go to the trains for maintenance or repairs.

Collaboration in the context of scheduled and unscheduled withdrawals

Over the past year, COVID-19, the lack of raw materials due to the war in Ukraine, and high energy prices also affected works on the tracks. Some of the work could not be carried out, or only in a way different than planned. In addition, the possibilities to use buses to replace trains during works were limited. In order to maintain a reliable and safe timetable, NS had intensive contacts with ProRail and other stakeholders, resulting in collaboration such as for the works in the areas of Hoogenveen and Ede, and intensive collaboration after the accident with a high-voltage power cable between Lelystad and Dronten.

ProRail is also engaged in a major track replacement and maintenance project which, if the policy remains unchanged, will result in further inconvenience. NS believes it is extremely important for the costs and benefits of all parties involved to be carefully weighed - including inconvenience for passengers and the consequences for the transport franchise. We also undertook the following actions in 2022:

- Ensured timely information for passengers
- Contributed to the Work on the Tracks to Prepare for the Future programme
- Drew up and coordinated scenarios for large-scale works in the Schiphol Tunnel starting in 2023 and several other major withdrawals in 2024 and 2025
- Participated in the Transport and Master Plan consultation to manage the impact of maintenance and repair works in collaboration with passenger and goods carriers.
- Tightened agreements with bus suppliers in response to the shortage of buses during works by ProRail in the Meppel area between 7 and 23 May. Despite the fact that NS had asked for replacement buses in advance, as agreed, at the very last moment the bus suppliers proved unable to provide the requested number of buses due to a lack of bus drivers. Bus services were cancelled, and passengers were confronted with long queues or had to make a detour to arrive at their destination. Under the new agreements, the bus suppliers will inform NS at an early stage whether they are able to provide the number of buses required. If they are not, NS will have time to communicate alternatives to passengers.

Timetable for 2022-2023

The regular 2023 timetable, which was launched in December 2022, has enabled us to reduce the risk of last-minute train cancellations, increase the number of seats where necessary and give colleagues more space to take leave and reduce their workload. For example, under the new timetable one third of all trains have been extended. Trains are longer in particular during the busy weekends, accounting for an additional 85,000 seats. We have added 13,000 seats on working days, which works out at 4.4% more seating capacity during peak hours. The ten-minute train will return on the route from Eindhoven to Utrecht and Amsterdam from Monday to Thursday. Trains on a number of less busy routes will be fewer and shorter. Average seat availability will increase. However, on some routes trains can still be crowded, also in 2023.

Door-to-door journey



1,523 enthusiastic dancers together set a new world record for the largest group salsa, on the station square of Rotterdam Central Station.

Passengers usually set out by bicycle, sometimes on foot, or by car or another form of public transport. The end station is seldom their final destination. We want to offer passengers facilities that meet their need for a seamless and reliable door-to-door journey, in cooperation with our partners.

Our sustainable spearheads

Sustainable mobility



Green enterprise



Quality of NS connections to other carriers

In 2022, the score for the quality of NS connections to other carriers was 95.5% (2021: 96.5%). This performance indicator is strongly related to the arrival punctuality of NS trains and has the same developments and causes as the KPI [Punctuality for passengers](#).

	Realisation in 2022	Realisation in 2021	Minimum value for 2022
Quality of connections to other carriers	95.5%	96.5%	94.0%

Travelling without barriers

In order to keep rail travel a convenient and attractive option, we are investing in seamless door-to-door journeys.

Bicycle parking

39% (2021: 39%) of rail passengers cycle to the station. We offer supervised parking facilities for 199,800 bicycles (2021: 196,400), unsupervised facilities for more than 305,000 (2021: ditto) and 11,400 bicycle lockers at stations (2021: ditto). In collaboration with municipalities and the Ministry of Infrastructure and Water Management, ProRail and NS Stations are developing facilities where passengers can park their bikes easily and without hassle. For example, we offer free bicycle parking for the first 24 hours in 81 facilities (2021: 77), direct passengers to free parking spaces digitally, enable passengers to check in and out using their OV-chipkaart and have a uniform recognisable bicycle parking house style. In 2022, we opened new bicycle parking facilities at Almere Centrum station (2,750 spaces in the Landdrostdreef facility and 650 in the Busplein facility).

New check-in and check-out zone

In 2022, we continued work on the construction of new check-in and check-out zones in our supervised bicycle parking facilities, in the Landdrostdreef facility at Almere Centrum, the Stationsplein facility at Zwolle station and at Tilburg Noordzijde. Due to delays in the completion of stations, several other zones we realised later than scheduled. The special bicycle tag or the OV-chipkaart allow passengers to check in and check out automatically and park their bicycles faster and with less hassle. Staff at the parking facility also have more time to serve passengers. In 2023, we intend to introduce this system at twelve more locations. All bicycle parking facilities at Amsterdam Centraal and Gouda Noordzijde will be provided with the new check-in and check-out zone. The bicycle tags for Amsterdam Centraal were developed in collaboration with the municipality of Amsterdam, and passengers can also use them in two municipal bicycle parking facilities.

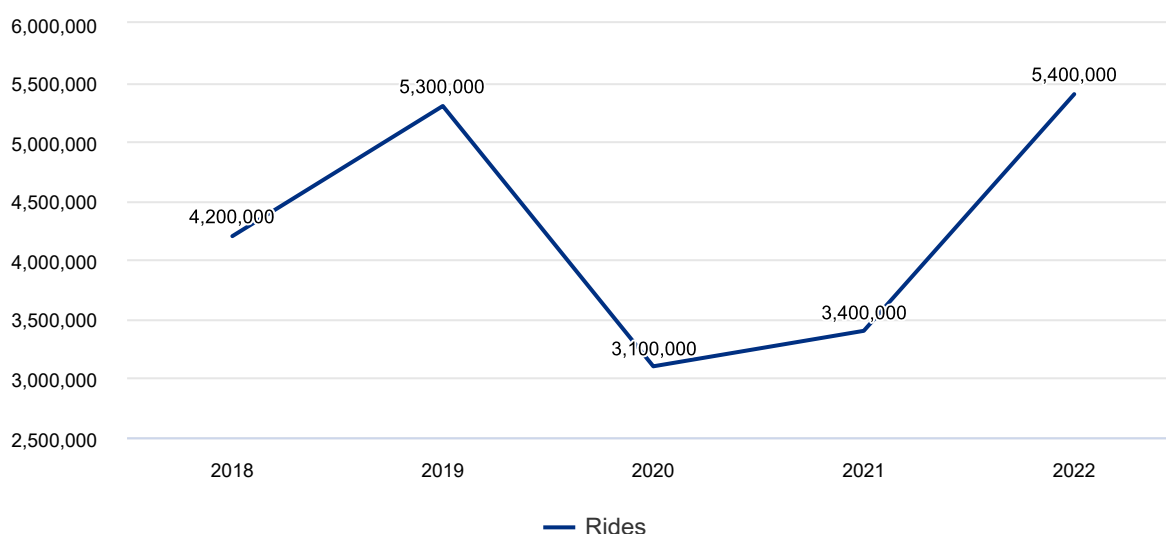
Fiets & Service

Fiets & Service is a service format for bicycle repairs, parts and accessories. There are 33 Fiets & Service repair points in all (2021: 32) at 29 stations. In 2022, we opened one new shop, at Almere Centrum station.

OV-fiets

In 2022, passengers made 5.4 million rides (2021: 3.4 million) on public transport bicycles (OV-fiets). This exceeds the figure for 2019 and is the highest number ever for the OV-fiets concept. In all, 21,500 public transport bicycles are available at 291 locations throughout the country. The customer satisfaction score for OV-fiets was 8.0 in 2022 (2021: 8.1).

In recent years, we have developed a new OV-fiets smart lock that is opened using the OV-chipkaart; at that moment, the rent starts, without the intervention of an NS employee. Based on initial feedback, we further improved the smart lock in 2022 and launched it at 29 stations (compared with 2 stations in 2021). We expect the roll-out of the new OV-fiets smart lock to be completed in early 2024.



Last year, we finalised the tendering procedure for new unstaffed OV-fiets distribution points. Their roll-out will begin in 2023 and is expected to last until 2025. The tendering procedure for the fourth-generation OV-fiets is still ongoing, and is scheduled for completion in 2023.

In 2022, we launched a pilot with electric public transport bicycles (OV-ebike) in Driebergen, Arnhem and Groningen, with Maastricht following in January 2023. The pilot involves a fleet of 30 OV-ebikes at each of these stations for a period of one year. NS is running this pilot to find out whether ebikes are a valuable and feasible addition to our OV-fiets concept.

Car parking

P+R zones at railways stations are an important link in our door-to-door journey proposition. In 2022, we introduced number plate parking at all 53 regulated (paid) P+R locations, while also upgrading the locations themselves. Passengers can now enter the zone using the latest technology and pay by number plate recognition when they leave.

We are also running a pilot with counter cameras at seven unregulated (free) P+R locations in the province of Utrecht to be able to inform passengers about the number of available parking spaces via the website. In addition, we have launched a park first, pay later pilot at regulated P+R locations for a select group of passengers with an NS Flex season ticket. This option will become available for all NS Flex customers in 2023.

Ease of payment in public transport

NS is participating in the OV payment programme launched by the NOVB (National Public Transport Council). The 'OVpay' programme was set up to offer easier and additional payment options for public transport passengers. In future, passengers will be able to check in and check out using their bank cards, credit cards, smartphones, smartwatches, etc. as well as their regular OV-chipkaart (public transport smart card). We are developing various different payment methods and testing them with passengers.

Travelling using a bank card or OV-chipkaart

From August through December 2022, over 3,000 passengers participated in a pilot to test our new 'travel by bank card' method. Overall, passengers were positive about this new option, although the pilot also highlighted the need for some technical improvements. The 'travel by bank card' option was launched nationwide at the end of January 2023.

NS is also involved in the technical development of the new OV-chipkaart on passengers' mobile phones. This has proved to be more complicated than expected. The technical development process took more time and was dependent on other parties, including banks, Google and Apple. Moreover, installing this mobile OV-chipkaart on a mobile phone failed to meet our standards in terms of user-friendliness. After some adaptations, the new method will be tested among customers by mid-2023.

Rail travel using GPS

Rail travel using GPS allows passengers to check in and check out using their mobile phones. They use a special NS app to start and end the train journey. The GPS identifies and registers the carriers that passengers use during their journey. When we piloted this system last year, we discovered that our customers' experiences with this payment method were not yet good enough. The app did not work properly and was not always able to quote the correct fare. For these reasons we have decided to postpone this new payment method and to reconsider it with other public transport providers at some later point in time.

Stations and their environment



There is room for social initiatives at various stations. Schin op Geul station houses the smallest railway museum in the Netherlands.

Stations are crucial hubs in sustainable mobility networks and in the urban development challenge; as such, they are a pillar of NS's strategy.

Our sustainable spearheads

Zero-emission enterprise



Green enterprise



For everyone



We want stations and station areas to be safe and meaningful centres of activity in society. High-quality stations, their surroundings and facilities are important components of the public transport system in the Netherlands. They help us persuade passengers to travel by train.

In 2022, as in previous years, NS contributed to the development and realisation of renovation and new construction projects for various stations in collaboration with ProRail, and teamed up with partners in area development projects. Together we are continually improving the quality of (basic) facilities and services at our stations in the Netherlands. In this context, NS Stations works for all passenger transport providers in the Netherlands. NS supports daily operations at all stations in the country by keeping them clean, intact and safe. In part, we are commissioned to do so by ProRail. In addition, we focus on the provision of services (such as bicycle and car parking, toilets and waiting areas/facilities) and commercial operation (rental of retail spaces and operating our own retail facilities). In doing so, we focus on the facilities that make the time passengers spend on our trains and at our stations more enjoyable, commensurate with the size of the station and the number of passengers.

Passengers' questions about their journey to and from the station evolve. Stations increasingly serve as key transport hubs, which is due in part to the rise of shared mobility options and the introduction of new providers and service concepts. NS has close ties of collaboration with its partners; after all, if we are to provide maximum convenience in the door-to-door journey, effective coordination among all parties involved is essential.

Sustainable real estate

Energy label C

NS wants its real estate to be sustainable. This is why we have made every effort in recent years to upgrade all the leased offices that we own to energy label C or higher. As such, on 1 January 2023 we were in compliance with the relevant statutory requirements for offices. On top of that, when a building is up for renovation it is our ambition to move on to energy label A, if technically and financially feasible. This is our first step towards 'Paris proof' real estate, our ambition for 2050.

With the last renovation projects under way (in Amersfoort, Loppersum and Utrecht), as of 1 January 2023 all our leased offices have either been upgraded to or are in the process of achieving energy label C.

Lease of former KPN building in Eindhoven

NS has found a new lessee for the former KPN building next to Eindhoven CS: Microtuin, which will use the building to create work spaces and accommodate creative businesses, studios, cafés and restaurants and the like. The property, with a floor area of around 23,000 m², will be turned into a meeting place with cultural and social functions within the 'Hub XL'. The Eindhoven city council intends to transform the entire station area into a zone with a mix of residential, work, social and recreational functions.

Stations undergoing renovations

In 2022, together with ProRail and municipalities we put several renovated stations into operation. Stations opened in 2022 include

- Zwolle: the monumental station building has been renovated and restored to its former glory. In particular, in 2022 the main hall of the station was redecorated and transformed into a pleasant space for people to wait for their train, work or meet others. The double doors that replace the old windows in the hall now offer a great view of the square in front of the station (Stationsplein).
- Gouda station has also received a major upgrade. After a three-year renovation project, the city now boasts a redeveloped station area to the south of the station (city centre side). The main hall has been redecorated, three new bicycle parking facilities have been built plus a completely new bus station. The new station square and the redesigned public space now provide a splendid entrance to the city centre and the railway station. This is the result of a joint effort by the municipality of Gouda, ProRail, NS, the province of South-Holland, local residents, the district team and companies.

At the end of 2022, renovation work was still in full swing at the stations of Amsterdam Centraal (including the relocation of the Eurostar terminal), Amsterdam Zuid, Den Haag HS, Tiel, Groningen, Ede-Wageningen, Holten, Kampen, Naarden-Bussum, Almere Centrum and Roermond.

Development of station areas

By developing station areas we are stimulating the use of public transport and reducing pressure on other infrastructure. The focus in station area development is on urban functions such as living, working, recreation and education. As co-owners of the stations, we are involved in area development projects at Amsterdam Zuidas and at various stations along the Oude Lijn between Dordrecht and Den Haag Centraal. By making its own land available, NS is contributing to the major sustainability and housing construction challenges facing the Netherlands. Some current projects:

- The Cartesius Triangle in Utrecht is being redeveloped into an urban district with 2,850 homes. The monumental CAB building serves as the 'living room' of this city district and its surroundings (offering some 25,000 m² of facilities).
- A project for the Tweede Daalsedijk district in Utrecht includes the construction of 1,000 homes.
- The EKP-Noord site in the railway zone of Den Bosch will be transformed into a dynamic and creative district combining residential, work and educational functions, including the School of Art & Design and more than 800 homes. This is a collaborative project of the municipality, PostNL, NS Stations and property developer SDK.
- The Wagenwerkplaats in Amersfoort is a city district that offers a mix of residential and work functions, cultural venues and events. It is a long and narrow piece of land between the railway and the Soesterkwartier district. Next to the complex of nationally listed buildings (covering a total of 7,700 m²), the area offers space for approximately 1,100 new houses here as well as some 18,500 m² for newly built mixed facilities.
- NS and the municipality of Zwolle are redeveloping Zwolle Spoorzone into a new station area with 80,000 m² for houses and 100,000 m² for offices, education, culture and cafés/restaurants.
- Nieuwe Kern, a district between Duivendrecht station, the Johan Cruijff Arena, the A2 motorway and Amstel Business Park, is being redeveloped into an area accommodating 5,000 homes, 250,000 m² of businesses, cafés/restaurants and offices, and a large city park.

- To the east of Laan van NOI in The Hague, NS and the municipalities of The Hague and Voorburg are developing an area of 50,000-70,000 m² with mixed functions.

Building over the tracks

Building over and alongside the tracks near the station helps cities grow while remaining accessible in a sustainable manner. For Den Haag Centraal we completed a spatial study, together with the municipality and ProRail, to identify opportunities for a more efficient use of the space above the tracks and adjacent to the station for the purposes of quality improvement, densification of real estate and attractive connections with other parts of the city.

The station experience

A railway station is an important link in a passenger's journey from door to door. Hence, it is important for NS to ensure that passengers experience the station as a pleasant environment. In 2022, once again passengers were satisfied with our stations, as reflected in an average score of 7.3 (the same as in 2021). The score for the 54 larger stations (where more than 10,000 passengers get on and off the trains every working day) was even higher, at 7.4 (2021: 7.4). Passengers were also satisfied with the smaller stations, however, awarding an average score of 7.1 (2021: 7.1).

Station facilities and services

Again in 2022, we invested in facilities to enhance the passenger experience at our smaller stations, such as toilet facilities and improved parking facilities for cars and bicycles. We are looking for suitable solutions for vacant premises at the stations to improve the atmosphere and personal safety while retaining the distinctive character of the property concerned and taking proper care of our heritage.

Tendering procedure for media screens

In 2022, NS launched a tender for media screens at the stations. NS Stations itself has exploited the screens since 2019, but a commercial party will take over with effect from 2023. The contract has been definitively awarded to Global Media & Entertainment.

Lessees at the station

After the difficult COVID-19 period, passenger numbers began to pick up in the first quarter of 2022, which also resulted in higher revenues for retail at our stations. In fact, those revenues have now reached their highest level since the beginning of the COVID-19 pandemic. Despite challenges such as shortages on the labour market and rising energy prices, lessees awarded an average score of 7.5 for the business climate at our stations (2022 Lessee Satisfaction Survey) (2021: 7.8). Over the past year we entered into 47 new contracts with lessees at our stations.

Social and local engagement

NS Stations and ProRail are both eager to promote social initiatives at the stations. The website www.oponsstation.nl offers more information for parties with such initiatives. Nine initiatives were launched at NS stations over the past year. One of those is Samenreis, in which we offer monthly sessions in collaboration with the De Wilg Utrecht foundation to help people with a minor mental disability find their way at the smaller stations in Utrecht and take them on a trip by train. Since October, the station of Kapelle-Biezelinge has served

as the home base of Taalpunt Kapelle, where volunteers provide language classes in the station's former waiting room. In that same month, the GoudBoek bookshop opened its doors at Winschoten station. This is a new, creative bookshop where people work as part of the WerkPro daytime activities programme. See www.oponsstation.nl (in Dutch) for a selection of initiatives.

Retail at the station

New and adapted formulas

In 2022, new AH to go outlets were opened at the stations of Almere Centrum and Gouda. In addition, eight AH to go outlets were upgraded to the latest retail format. Thirteen Kiosk shops were transformed (two into a Station Living Room and eleven into Kiosk 2.0 outlets). The Julia's outlets at Amsterdam Zuid and in the West Tunnel of Amsterdam Centraal station have been modernised.

Responsible range of products

NS Stations aims to make it easier for customers to make responsible food choices. We do so, for example, by offering more products regarded as healthier choices and by expanding the share of vegetable products. Since late 2022, Julia's has offered its full range of sauces in a vegetarian version.

Collaboration with our partners

In 2020, the government decided that the roles, responsibilities and ownership arrangements regarding the stations will remain unchanged. In 2022, ProRail and NS Stations ratified their renewed collaboration initiative in a public-public partnership arrangement, and they will continue their joint efforts in the development, realisation and management of world-class stations.

As part of the Toekomstbeeld OV 2040 (Vision for the Future of Public Transport up to 2040), in 2022 we jointly adopted and published the Action Agenda for Public Transport Hubs. This agenda was drawn up to streamline our collaboration in tackling the development challenges at and around public transport hubs, including railway stations.

The declaration of intent for the Station Agenda was signed in February 2023. Drawn up in collaboration with ProRail, NS Stations and other stakeholders, the Station Agenda is the vision document for all stations covering the period up to 2040. It describes the governance, management and funding mechanisms for stations. It is accompanied by an Implementation Agenda with performance agreements on passenger satisfaction, accessibility and personal safety.

Travelling and working in safety



Rainbow bracelets and love locks are handed out at Zwolle station during the Zwolle Pride Festival.



Personal safety

NS attaches great importance to a safe travel and work environment where passengers feel happy and employees are able to perform to the best of their ability. We have taken a range of measures to enhance personal safety perception, prevent incidents or enable NS and its safety partners to respond effectively to incidents. For example, in July 2022 we introduced live monitoring via cameras in our trains if circumstances so require. In addition, since 2021 we have worked together with mental healthcare services and Hulpkaart Nederland to address and assist people with mental health issues. Since September 2022, a special app has helped NS employees reduce the time it takes to impose a fine. This prevents potential escalation of the situation. We assume our responsibility at NS, but we really need our partners to make things work. This is why we cooperate closely with the police and municipalities, with other carriers and other parties. To mention one example, we have made so-called safety arrangements with our partners to carry out joint actions to increase the level of safety.

In 2022, NS received a €10 million subsidy from the Ministry of Infrastructure and Water Management to improve personal safety over the next five years. This was an extension of a previous subsidy granted in 2015. We use the subsidy for extra capacity of Safety & Security personnel at locations and times when safety risks are relatively high. In late 2022, NS started a temporary hiring programme for special enforcement officers in response to a capacity problem.

Performance indicator	Realisation in 2022	Realisation in 2021	Minimum value for 2022
Customer satisfaction with social safety	not yet known	8.1	7.7

Changing society

Safety levels in our trains and our stations are closely linked to trends in society at large. The COVID-19 measures were dropped at the beginning of 2022, but other problems and feelings of uncertainty in society were on the rise. These include confrontation and polarisation in society, and problems with nationals from safe countries at asylum seekers' centres. Police statistics also show an increase in the number of young people who carry weapons and the number of incidents involving people with mental health issues. In an attempt to prevent aggression among people unable to produce a valid ticket, NS increasingly ran special campaigns involving checks in and outside the stations. This has helped to prevent conflict and escalation in the station or on our trains. At some stations, since 2022 we have deployed hosts who have refugee status themselves, in collaboration with the Central Agency for the Reception of Asylum Seekers (COA). These hosts speak the same language as refugees and can help them check in, buy a ticket and find their way. At the same time, we were confronted with severe labour market shortages last year. As a result, the extra capacity of security staff and other personnel was under pressure. Moreover, passengers had to get used to more frequent ticket inspections after the coronavirus pandemic. Unfortunately, all these developments resulted in higher levels of nuisance and aggression at and around our stations. To address the staff shortages, since 2022 NS has hired extra security personnel who are deployed during events and the like.

Safe transport during events

After the COVID-19 measures, the number of events bounced back in the form of festivals and concerts, and audiences returned to football matches. We carefully monitor the risks associated with the transport of the large groups of passengers travelling to and from those events. We coordinate our measures with other parties involved, the principle always being that safe transport of people is only possible if all the risks are sufficiently under control. In some exceptional situations around the Bijlmer Arena and the Nijmegen Goffert stadium last year, we had to conclude that safe passenger transport was no longer possible. We were quick to consult with the parties and event organisers involved, at various levels, so as to get a clear view of what is and is not feasible at event venues on busy days. This enabled us to offer our passengers a clear perspective.

Reporting nuisance or unsafe situations via WhatsApp or text message

In 2022, we used public media and posters in our trains to highlight the possibility for passengers to contact the NS control centre via Whatsapp when they feel unsafe in our trains or to report nuisance. Passengers used this low-threshold and discrete reporting option 4,693 times (2021: 2,548). This represents 5.7% of the total number of such reports received by the NS control centre (up 84% compared with 2021). Measures including an up-to-date overview of incoming reports and active camera surveillance enable us to deploy security staff where their presence is most helpful.

Incidents involving aggression

Every single incident involving aggression has a considerable impact on the people who witness it. That is why NS encourages staff to report all such incidents. In all, 965 incidents of category A physical and verbal aggression (the most serious type) against staff were reported in the past year - 29.7% more than in 2021 (744). Ticket inspections in our trains are the most frequent cause of incidents, increasing from 127 incidents in 2021 to 188 in 2022. Ticket inspections at the station led to aggression in 122 cases in 2022 (99 in 2021). Last year, NS colleagues carried out 29.3% more ticket inspections than in 2021.

The incidents involved some form of threat (349), and physical violence was recorded in 256 incidents. There were also cases of aggressive resistance (154), spitting (181), threatening with a weapon (13) and indecent assault (12). In 311 category A incidents, ticket inspection was the direct cause of the aggression (2021: 226).

The number of category A incidents involving aggression on our trains increased: from 243 in 2021 to 355 in 2022 (+46%). The number of incidents in this category at the stations increased by 22% (to 605, compared with 496 in 2021). Of our uniformed staff, 936 were involved in some form of physical aggression (2021: 755).

The number of cases involving injury increased by 18%: in 2022, 220 injuries as a result of aggression against staff were recorded (2021: 186). These were mostly minor injuries (86%). In 198 cases, this involved uniformed NS staff (2021: 172), of whom 131 were Safety & Service staff (2021: 123).

Occupational safety

NS reports on all types of occupational accidents involving injury expressed in the number of lost-time accidents per 1 million hours worked: the Total Recordable Rate (TRR). The TRR for 2022 was 4.0 (2021: 4.0).

In response to the result for 2021, we took several measures last year. For instance, we investigated all relevant TRR accidents and analysed 90% of all accidents involving stumbling. We also launched an improvement campaign for our yards and updated our risk analyses for such locations. Despite these improvement measures, we failed to achieve our target for 2022, a TRR of 3.4. We have therefore proposed further improvement measures in our annual plan for 2023. For example, we are making a conscious choice to focus on the risks with the highest priority. This is why we expect to achieve better results this year. In addition, we have developed an improvement strategy to reduce psychosocial work pressures.

NS scheme for Chromium-6

The results of the RIVM study into the use of Chromium-6 in NS workshops during the period from 1970 through 2020 were published in November 2022. Colleagues and former colleagues may have come into contact with Chromium-6 during maintenance and repair activities for trains. NS has offered its sincere apologies to all colleagues and former colleagues who fell ill or are worried they might fall ill as a result. In 2022, NS provided a compensation scheme for colleagues and former colleagues who fell ill as a result of working with Chromium-6. The (amount of the) compensation depends on the medical injury of the claimant, the activities performed and the duration of exposure. If applicable, surviving dependants may apply for a surviving dependant's benefit. Possible exposure to Chromium-6 may cause people to worry about their health even if they are not actually ill. We help our colleagues address such concerns.

The scheme has been open to our colleagues since it took effect in late November. They can contact the Independent Information Desk for Chromium-6 Issues if they have any questions. NS has also consulted about its scheme with trade unions FNV, VVMC and CNV, and has incorporated their suggestions in it. The unions support NS's scheme. By the end of 2022, a total of 231 applications had been submitted.

About Chromium-6

Back in 2015, NS asked RIVM to start a study after old layers of paint and coatings of some components of some NS trains had been found to contain Chromium-6. Chromium-6 is a metal that is used to fight corrosion, for example. When sanding painted surfaces, the dust that is released may contain Chromium-6 particles. So if you inhale the dust, this may damage your health.

Recommendations of the Independent Committee

NS established an Independent Committee to safeguard the reliability and impartiality of the study. Based on the results of the RIVM study, this committee made some recommendations for NS. One of those recommendations was to set up a simple and practical compensation scheme. NS adopted the committee's recommendations. There is a special [website \(in Dutch\)](#) with information about the scheme for current and former colleagues.

Colleagues are now sufficiently protected

Old layers of paint and coatings on parts of some trains may still contain Chromium-6. NS commissioned an external party to study the way in which we worked with Chromium-6 in 2022. The results of that study have shown that the level of exposure to Chromium-6 is currently low to negligible. According to the researchers, the current working methods mean that employees are now sufficiently protected. For example, separate spaces are available nowadays for activities such as welding, sanding and grinding. In addition, modern workshops have effective exhaust systems, employees have access to personal protective equipment and receive regular training.

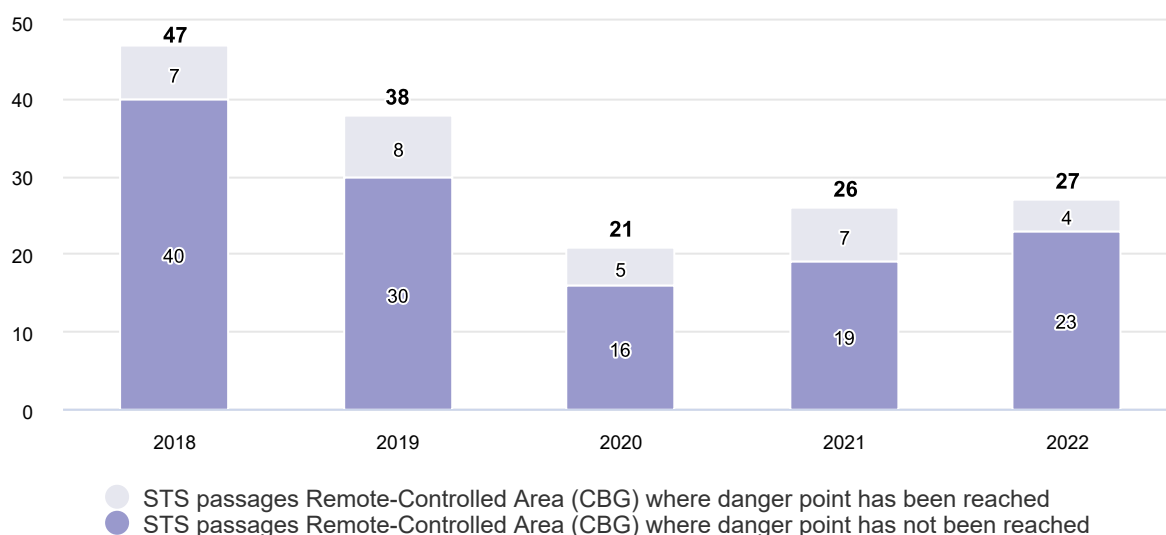
Railway safety

In 2022 there were 100 railway safety incidents and 4 accidents, which, among other things, involved passengers sustaining injuries when they fell while getting on or off a train. To further improve railway safety, we have taken various measures including those listed below.

Signals passed at danger (SPAD)

In 2022, a total of 27 SPAD (signal passed at danger) incidents were registered. In 4 of these cases the train reached a 'danger point': a point where the SPAD could actually result in a collision, a crash or a derailment. In 3 cases the danger point that was reached was a switch and in 1 case it was a level crossing that was still open. The number of times a danger point was reached was lower than in the preceding years. NS aims to reduce the number of SPAD incidents where a danger point is reached to zero. In contrast to practice in recent years, we only report SPAD incidents that occur on centrally controlled tracks. These are the tracks in between and around stations, where signal operation and line occupancy are controlled from a single central location. Last year we also reported statistics for the tracks on holding yards and shunting yards. We no longer do so because the risk at those locations is much lower due to various factors, including the speed limit of 40 km/h, causing the figures for those types of tracks to be less relevant.

Over the past few years, NS has introduced a range of measures to prevent SPAD incidents, including a stricter braking criterion (technical enforcement of more powerful braking when approaching a red signal), ORBIT (a system that warns drivers when they are approaching a red signal too fast) and TimTim/RTA (route information). NS monitors all SPAD incidents in order to learn from them by establishing their causes and identify further measures to prevent them.



Non-actively protected level crossings (NABOs)

The investigation into the accident near Hooghalen in 2020 has revealed that in certain conditions, heavy or long vehicles do not have enough time to cross a non-actively protected level crossing (NABO). This is why NS continues to call for all such level crossings to be removed. We are in consultation about this issue with parties including the Ministry of Infrastructure and Water Management, and ProRail. Of the total of 30 identified NABOs that present an elevated risk, 25 have been removed. One more is scheduled to be removed in the future, and 2 more will be protected. No action was required for 1 NABO because a further study revealed that it poses no extra high risk, and for another one a solution has yet to be found.

Safety is an integral part of major changes

When implementing innovations, renovations and changes NS always maps out the risks involved for railway safety, and takes and monitors control measures. Key risks in terms of railway safety are person under train collisions, accidents on a level crossing, other types of collisions, transfers (passengers being squeezed or falling between a train and a platform), fire or smoke, and derailment. In the context of major changes, safety and the human factors discipline are included in the development process from an integrated perspective. This will help to reduce costs and lead times. One example is the programme for ERTMS, which NS also worked on in 2022. Human factors experts assess the impact of such programmes on the safety of the transport system, to help us identify the best way to make sure the safety level at least remains equal. The human factors method has now also been adopted within the ERMT programme. In addition, we have launched a study to establish the extent to which train drivers are able to remember specific ERTMS knowledge when they are not actually using the system. Other examples of projects and programmes with an integrated safety perspective include Automatic Train Operation (ATO), the Technically Controlled Departure Process (TGV) and requirements for new rolling stock.

ORBIT

The ORBIT system warns train drivers when they are approaching a red signal at too high a speed. As such, the system can prevent signal passed at danger (SPAD) incidents. Intercity trains have been equipped with ORBIT since mid-2018. In 2021, we finalised the installation of ORBIT in the last rolling stock series: Flirt and SNG. This means that all Intercity and Sprinter trains on the main rail network now have ORBIT. Data from ORBIT provides insight into the braking behaviour of our train drivers, meaning it can also be used to further improve that behaviour. In 2022 we explored the possibility of using ORBIT data to identify high-risk signals, such as signals in unsuitable locations (just behind a curve) or signals that train drivers automatically expect to be at clear, for instance.

Adapting the braking criterion

Back in 2017, NS decided in principle to impose a stricter braking criterion for IC rolling stock. By late 2022, all type VIRM, ICM and DDZ Intercity trains had been converted. The Traxx locomotives were excluded, because leased locomotives can only be adapted to a limited extent and Traxx will no longer be used once the introduction of the ICNG has been completed. In addition, in 2020 we decided to also apply a stricter braking criterion for our Sprinter trains. All Sprinter trains were likewise converted, therefore, in 2022, which means the project was completed successfully.

STM ATB

In 2022, the Ministry of Infrastructure and Water Management, NS and ProRail discussed the issue of an added functionality in STM ATB (Specific Transmission Module - Automatic Train Protection), a solution that uses transponders between the rails to gather and transmit train data. This technical solution substantially improves rail safety at relatively low costs. Once it is introduced, it will be impossible for a train to pass an SPAD at high speed. The addition of this functionality is of huge importance to NS in its efforts to curb safety risks as much as possible. This is why NS decided, in consultation with ProRail, to install STM ATB with added functionality in its own rolling stock that is provided with ERTMS and to commission ProRail to install the transponders in the tracks. Other carriers can also opt for this STM ATB with added functionality.

Safety culture

NS strives for a pro-active safety culture in which colleagues make a collective effort to create a safe working environment. We do so by listening to each other, being open about safety levels and being aware of the risks involved in our work and our working environment. In the safety culture measurement from 2021 we achieved a higher score than in the previous measurement in 2018. This means we have come closer to our goal of a pro-active safety culture. We had formulated two spearheads for 2022:

- Conversations with management during safety rounds on the shop floor. In these talks we consult employees to find out why, in certain situations, safety rules are not complied with and then address the obstacles or issues identified.
- Speed up the processing of reports of unsafe situations through a management focus on timely completion and the feedback of results to employees.

The results of the safety culture measurement have been discussed with all sections and departments of our organisation. Teams have agreed on action plans aimed at further strengthening the safety culture among their own people in 2022.

Cybersecurity

In order to fend off increasing cyber challenges, NS is continuing its efforts to improve the cybersecurity of its IT (information technology) and OT (operational technology) systems. We are conducting company-wide risk analyses of IT and OT processes and of high-risk incidents. Based on a new cybersecurity roadmap, we took further technological risk-mitigating measures in 2022, such as a vulnerability scan and cloud security measures. We respond to current threats, such as ransomware and supply chain attacks. In addition, we invested in company-wide measures to raise cybersecurity awareness, continued our long-term investments in our fixed team of cybersecurity experts, and expanded that team.

Networks and Information Systems (Security) Act (WBNI)

In late 2021, NS was designated as a 'provider of essential services' under the Networks and Information Systems (Security) Act (WBNI). NS now ensures compliance with its duty of care and duty to report pursuant to the WBNI, based in part on the Cybersecurity Management System (CSMS). We use that same CSMS to provide our business customers with assurance regarding the measures we have taken. In late 2022, NS obtained its ISO 27001 information security certification for business service processes in connection with the NS Business Card.

Sector-wide information sharing

NS takes part in national and international initiatives to improve cybersecurity in the railway sector. 2022 saw the establishment of the ISAC (Information Sharing en Analysis Centre) for the Dutch railway system. NS, other businesses in its sector and the National Cyber Security Centre use the ISAC to share information about current threats and any lessons learnt.

Security

Protecting properties and resources

NS aims to ensure that properties and premises are well protected against damage, vandalism and unauthorised access. In 2022, NS continued its work to protect properties and create a safe working environment for all its employees. For example, in 2022 we established two Security Control Centres (SCCs) in Utrecht and Amsterdam to protect our properties including workshops, offices, holding yards, privately owned parts of stations, and rolling stock. We are strengthening protection at more and more locations, for example by installing alarm systems, camera surveillance, remote access control facilities, alarm processing and the

deployment of mobile security staff from the SCCs. All of this has enabled us to use our existing security systems and security staff more effectively. Furthermore, in 2022 we launched a project to identify and inspect security risks at NS sites from an organisational, constructional and electronic security perspective.

We will continue our commitment to preventing and combating graffiti on our rolling stock, buildings and premises. We have a data-controlled strategy for this including the use of mobile security staff, specially trained dogs, sensors, cameras and collaboration with partners in the chain, the police and judicial authorities.

Terrorism and extreme violence

The threat level in the Netherlands was quite high in 2022. We were alert to the risks of terrorism and other forms of serious and extreme violence. Incidents involving suspected firearms or suspicious behaviour continued to impact our services in 2022, due in part to the occasional large-scale deployment of police. For example, Leiden Centraal station and all tracks were evacuated and all train traffic was suspended in response to a report about a person carrying a firearm.

We then consulted with the sector, the NCTV and the national police force about incorporating existing agreements concerning terrorism in the Crucial Rail programme in order to safeguard their continuity. We also conducted more security drills and inspections at our stations and in our trains in 2022.

Eurostar

In order to run the Eurostar, we have to meet the requirements set by the Channel Tunnel Authority. At Amsterdam Centraal and Rotterdam Centraal we use advanced security devices to perform security checks of all passengers and their baggage and our employees. In view of the upcoming conversion of Amsterdam's Amstelpassage into a Eurostar terminal and the expected growth in passengers, we are further stepping up security measures in the coming period.

Attractive and inclusive employer



Asylum permit holders work at NS Train Modernisation as apprentice mechanics. At the same time, they do a vocational training programme with extra language lessons, so that they can work as an independent mechanic in the future.

Crucially, NS needs proud and healthy employees to put its strategy into practice. The Netherlands reopened after the coronavirus crisis from April 2022. NS was soon confronted with severe labour shortages and high levels of sickness absence. We were slow to anticipate this, and were forced to scale down our timetable. The impact on our employees was considerable. CLA negotiations resulted in industrial action. Amid all these developments, we continued our efforts to promote the level of professionalism and the development and inflow of talented employees.

Our sustainable spearheads

For everyone



By everyone



Our employees

- Number of employees in the Netherlands at year-end 2022: 19,040 (17,089 FTE) (2021: 18,897 and 17,071 respectively).
- Share of women: 31% (2021: 31%)
- 70% were full-time employees (male/female ratio: 81%/19%) and 30% were part-time employees (male/female ratio: 41%/59%) (2021 full-time and part-time: 71% and 29%)
- 88.5% on an open-ended contract (men 70%, women 30%) and 11.5% in a temporary contract (men 60.3%, women 39.7%) (2021: 91% open-ended, 9% temporary)
- Average age: 44 (2021: 45)
- 6.4% are temporary workers or hired professionals (2021: 5.3%), especially in IT, technology and office jobs.
- Inflow of new colleagues: 3,394, of whom 2,737 were internal employees
- Outflow: 3,123 colleagues, of whom 2,567 were internal employees
- Internal advancement to another position: 1,565 colleagues (9.6%). 2,887 employees left NS.
- Vacancies filled: 5,162. As on 31 December, 1,922 job vacancies had not yet been filled.
- 72% of employees rated their work at NS with a mark of 7 (out of 10) or higher

NS as an employer

Being a good employer is one of NS's strategic spearheads. We want to be a good employer for all our people, irrespective of whether they are on a permanent or flexible contract. We offer them a competitive terms of employment package. We strive for equality in all respects - as is reflected, for instance, in the equal payment we offer men and women, in our proactive diversity policy, and in the many long-term participatory jobs and great opportunities we offer for asylum permit holders. NS is one of the largest and most popular employers in the Netherlands, and we are working hard to ensure we retain that position. Every year, Intelligence Group publishes a list of the most popular employers in the Netherlands: NS came in 12th in 2022 (in 2021: 14th).

Recruitment

NS had a large number of vacancies in 2022: 3,628 at vocational education level and 3,420 at higher professional or university education level. We received 50,938 letters of application and found suitable candidates for 5,162 positions. Of these, 68% are new colleagues; the others are existing colleagues from elsewhere within the organisation. We offered placements for 29 trainees and the hiring desk recruited 640 external professionals for assignments.

Due to shortages on the labour market and higher levels of sickness absence, NS was confronted with increasing shortages of employees, including train guards, train drivers, Safety & Service officers and retail staff. To fill all vacancies we staged recruitment campaigns in the mass media and offered internal awards for those who introduced new colleagues. We also launched a new recruitment website and lowered the threshold for applicants. Last year, thanks to these actions we managed to attract 350 main guards, 487 train drivers, 119 Safety & Service officers and 1,721 retail staff.

Diversity and inclusiveness

NS believes it is essential to work with a rich diversity of people and views in terms of age, experience, background, gender, sexual orientation and character. We offer a business environment in which everybody is welcome. At NS, we ensure equal opportunities for all employees to develop their talents to the full, as part of our effort to create an open, safe and inclusive environment. We strive to reflect society at all levels; to that end we encourage programmes to attract and retain female employees, people with a migration background and employees with occupational disabilities. We also expect our suppliers to support these goals, as reflected in our [Supplier Code of Conduct \(in Dutch\)](#).

Women at the top

At year-end 2022, women comprised 37% of the senior management at NS (2021: 36%). At that moment, 50% of the members of the Supervisory Board were female and the Executive Board had one female member (20%). As such, with respect to its Executive Board, NS does not comply with Article 5.2.3 of the National Government Participations Policy Memorandum (*Nota Deelnemingenbeleid Rijksoverheid 2022*). According to that policy, women should make up at least one third of the Executive Board. NS is aware of this imbalance and intends to redress it as soon as possible so that it will eventually comply once again with the requirement.

Equal pay

A study in 2022 demonstrated once again that there is no pay gap between men and women at NS. In the study, we made sure to take factors such as the number of contact hours and age into account.

Staff with occupational disabilities

In 2022, NS had 170 employees with an occupational disability in what are known as participatory jobs (2020: 131). Of these employees, 142 were still in employment at the end of December. Due to shortages on the labour market and COVID-19 restrictions it proved a real challenge to attract sufficient numbers of new colleagues with an occupational disability. At the end of 2022, 6 job vacancies for this target group had not yet been filled. We train internal employees and managers in providing guidance for colleagues with an occupational disability. We also offer the latter career guidance sessions, workshops and training programmes to help them build their careers within NS or elsewhere.

Staff with a migration background

In 2022, we continued our efforts to promote the inflow and internal advancement of staff with a migration background. For example, we staged a new labour market campaign with role models and offered mentoring programmes with the Agora Network and the ECHO Foundation, which are both organisations in the field of diversity. In addition, we continued the roll-out of methods that enable anonymous job applications and ensure unprejudiced selection, and organised special workshops to raise awareness.

In 2022, we also launched a new technical work-study programme at vocational education level for 15 asylum permit holders, as part of the Zaanstraat project at our maintenance centre in Haarlem. We offer employees a learning track, support in specialist terminology, workplace guidance and development opportunities. RefugeeWork is a new initiative in which we offer extra opportunities for people with a refugee background in our retail formulas.

In 2022, 12 asylum permit holders were offered a job at vocational/higher professional and university level via the UAF foundation. In addition, 10 NS employees acted as mentors for 10 UAF asylum permit holders to help them improve their chances on the labour market. We are also encouraging the intake of migrants in regular job vacancies and traineeships through intensive cooperation with UAF, the Dutch Council for Refugees and municipalities.

NS has had a Diversity in Senior Positions Committee since 2020. Thanks to the work of this committee, we have seen the number of people with a migration background in our senior management increase from 5 to 14, or from 2.2% in 2020 to 6.7% on 1 January 2023. Before we had this committee, the share of this group in senior management never exceeded 3% and very few people with a migration background ever secured a position at this level. Our target is to appoint at least five new employees with a migration background in a senior position every year.

Learning at NS

NS encourages employees to keep developing themselves, and to keep learning. After all, the world around us is changing all the time. In 2022, NS invested over €8.5 million in training programmes and other educational interventions. Employees can learn and develop themselves within their current jobs or in other contexts. We train new employees at our own Learning Centre or facilitate their training via our Regional Training Centre (ROC) partners. It is important for NS to be able to train its own employees, including IT staff. We also ensure that our colleagues remain up to date by practising their professional skills and offering new knowledge. At our new Development Station, colleagues work on their own personal development, individually or in groups, for example by attending workshops.

Focus on professional expertise

In 2022, we developed a new learning pathway for junior train drivers, which has made it possible to double the inflow of drivers. We are also developing a training programme to enable the deployment of office staff and temporary workers as part-time colleagues on our trains.

In 2022, 21 new students embarked on their main guard training programme in Amersfoort, at vocational level, and NS employed 6 graduates who had completed it. Approximately 49 train drivers joined in 2022 through the Regional Training Centres in Amsterdam and Twente and STC. In addition, over 200 vocational education students did their work placements at NS as part of their train driver training programme. Internally, 159 main guards, 293 train drivers and 42 Safety & Service officers successfully completed their basic training. We are training 468 new colleagues for a job at NS Customer Service.

Rolling stock technology and TechniekFabriek

TechniekFabriek ('the technology factory') is our own technical vocational programme for current and prospective train mechanics. In 2022, 18 first-year students and 17 second-year students were doing a two-year apprenticeship in mechatronics. Last year, 17 students from TechniekFabriek moved on to a job within NS after obtaining their diploma. We also launched a training programme for lateral entry staff in 2022, enabling us to retrain engineers with a background outside mechatronics to become NS mechanics. This training programme is open to both employees on a permanent contract and temporary workers.

Retail training

NS runs its own vocational programme known as Stations Retail. This tailored programme trains employees in combining speed and quality of service, which is essential in view of the fact that passengers generally spend little time at the station. In 2022, 24 employees were doing a Principal Seller (9) or Retail Manager (15) vocational programme.

Careers

NS enables its employees to control their own careers. For example, 66 main guards moved on to become train drivers in 2022. In 2022, 403 colleagues completed a career orientation programme (2021: 357). Employees can turn to this platform for services including career guidance, a self-scan of their skills and a CV check. In 2022, we ran a pilot with programmes to retrain employees for high-opportunity professions (healthcare, education, engineering and IT), supporting colleagues who are interested in a career move. We also joined the *Academische werkplaats*, an initiative of Tilburg University to unite science and practice in career counselling. In addition, in 2022 we concluded a career coaching pilot for retail staff and converted it into a permanent programme.

Preventing redundancies

In the event of organisational developments that have consequences for staff, NS ensures they receive guidance from an early stage in finding new employment within or outside NS. We do this to prevent redundancies. These employees come under the anticipatory job mobility measure and are entitled to benefit from the Social Plan.

In 2022, 51 employees came under the anticipatory job mobility measure. 33% of redundant employees covered by the employment guarantee found another job at NS or elsewhere within the period in which they received guidance.

Employee participation and industrial relations

In 2022, consultations with employee representatives and trade unions - in addition to regular consultations and regular procedures for advice and approval - were dominated by several major societal themes, such as labour market issues and the exceptionally high inflation rate. We also discussed several themes that are specific to NS:

Franchise

NS held periodic consultations with the Central Works Council on the process towards a new transport franchise for the main rail network from 2025 and comprehensive regulation of the rail market.

Capacity

Employee participation bodies, trade unions and NS discussed temporary measures taken in response to capacity issues. The objective is to reduce work pressure and prevent any further adjustments to the timetable. NS also consulted with the employee participation bodies and trade unions about a temporary alternative deployment model for main guards. Among other things, this involves the deployment of security officers to provide double staffing in our trains.

A new CLA

In May 2022, NS started consultations with the trade unions on a new CLA. Again, key topics for discussion included high work pressure, the high inflation rate and labour market shortages. In August and September 2022, NS employees did not work on six days following an appeal by the unions. When NS and the unions resumed their negotiations, they ultimately agreed on a new CLA following the union members' approval. The new CLA contains important agreements on a range of issues, such as wage developments relative to inflation rates, pension accrual, inclusiveness and work pressure.

Message from the Central Works Council

The Central Works Council saw the number of challenges confronting NS increase in 2022. The aftermath of the COVID-19 pandemic, changing travel behaviours and the increasing popularity of working from home are just some of the factors that caused NS to carry fewer passengers than it would have wished. The situation is very serious, and gave cause for the deputy Chair and CEO to emphasise his concerns in a speech to all colleagues. Everybody understood the message.

The Dutch population is ageing, and NS is feeling the effects of that. Combined with the impact of the pandemic, this has resulted in shortages on the labour market and a large number of vacancies at NS. One of those vacancies was for the position of CEO; fortunately, after a highly appreciated temporary deputy chairmanship by the CFO, we managed to find a suitable candidate in the short term.

Likewise, the results of the employee perception survey reflect the impact of the staff shortages and high levels of sickness absence. Not surprisingly, reducing work pressure is one of the key challenges for the period ahead. 2022 was a busy year with lots of dossiers - from the purchase of new rolling stock to policy documents on employee vitality and diversity.

With a view to the future, NS also embarked on the process towards a new main rail network franchise. This should ensure, among other things, that all the above challenges will ultimately bring satisfactory results.

The employee participation bodies are confident that we will be able to complete this task successfully, in collaboration with all parties involved.

On behalf of the Central Works Council,
Bas Kuperus, chair

Work perception

Employee perception survey

The biannual employee perception survey, held in 2022, was completed by over 11,000 colleagues (60%). Their signal was clear: I like working for NS, but in a number of respects things are not as I want them to be. 71% of our employees gave a mark of 7 or higher (out of 10) for working for NS.

Many colleagues indicated that they feel welcome and at home with NS. 72% of the respondents said they felt their work was meaningful. Points of concern included work pressure, undesirable behaviour (perceived and experienced), leadership and personal development. Managers in all departments discuss the survey results generically with their people. Together we will decide what we will continue doing, and what we are going to do differently. We aim for a tailored approach, with the teams themselves taking the initiative. In this way, we will establish the specific requirements for each team and the things they need to improve work satisfaction scores.

Listening non-stop

Since late 2021, NS has conducted monthly work perception surveys under the title 'Continu luisteren' (Listening non-stop). The results show us how employees perceive their work, allowing us to intervene more quickly if required. 'Continu luisteren' supplements the employee perception survey, which is held once every two years.

A robust organisation, and absenteeism

Despite the many measures taken in recent years, the robustness and deployability of our colleagues in some business units are less than satisfactory, resulting in high levels of sickness absence. The sickness absence rate at NS was 8.5% in 2022 (2021: 6.9%).

At all business units, robustness and sickness absence are priorities on the agenda and discussed periodically in management team consultations and meetings between the board and employee representation bodies. The managers of departments with particularly high sickness absence rates have implemented a targeted strategy and extra support measures.

Joint approach

'Zo blijven wij samen vitaal' (This is how we remain robust together) is the title of a management decision from May 2022. Board and employee representatives have set up a joint approach to make NS a more robust organisation, with a focus on the sustained deployability of our people, lower levels of sickness absence and faster recovery rates after sickness absence. The approach is aimed at strengthening the existing measures and using them more effectively, clever use of 'proven strategies' (from within NS or from elsewhere) to reduce sickness absence, and an environment where new ideas of employees and managers can be tested quickly. In 2022, our main focus was on making our employees feel proud and healthy. We asked them for their own ideas about what it takes for an organisation to be 'robust'. From the more than fifty ideas submitted, we selected a number of particularly promising ones, such as part-time reintegration services for personnel in work schedules, a single desk for all HR-related questions, and specific wishes with regard to furniture.

Leadership at NS

NS is always on the move and is facing huge challenges, both in the short term and in the longer term. Our leaders play a crucial role in ensuring that NS will overcome both today's challenges and those associated with its transition towards a sustainable mobility business. Every year, the members of the Executive Board and senior managers are challenged in a series of meetings on current topics and strategic themes. This helps to strengthen the connection between the managers and the departmental targets. In addition, the managers use the new approaches and insights gained in their own teams.

Leadership development

NS offers a range of internal programmes to help our people advance smoothly through the various layers of management. Via the Trainee Programme, NS has for years maintained a regular supply of talented people in disciplines crucial to the company: IT, technology, procurement and operational management. In addition, we have launched a new programme, Talent Sprinter, to promote both vertical and horizontal advancement.

Organisational culture, integrity and compliance

Corporate culture

NS aspires to be an organisation characterised by an open and safe corporate culture where professional integrity is a matter of course. We attach great importance to result-oriented working practices that are consistent with the norms and values to which we have committed ourselves. We approach risks and issues surrounding integrity and compliance in a controlled and balanced manner.

The conduct of NS's employees and the choices they make in their work are crucial to the integrity of the company. We promote a culture of openness and accountability. The NS Code of Conduct serves as the basis for professional behaviour in work situations, for all colleagues. We updated the Code of Conduct in 2022, and added a policy on the use of social media. This is intended to help NS employees make appropriate decisions and conscious choices in a wide range of potentially complex situations. The Code of Conduct is available for all employees via the Intranet.

The Code of Conduct also forms a basis for handling integrity reports and investigations. The code is consistent with the relevant OECD guidelines and with the Dutch Corporate Governance Code. This means that there are also safeguards within NS for the protection of human rights. The code serves as the basis for policies on specific themes, such as conflicts of interests, competition, information protection, the fight against corruption and fraud. In addition, NS pursues a nationwide programme to improve existing social behaviours on the shop floor, which is intended to fight harassment and racism, among other things. The NS Code of Conduct serves as the guiding document for this programme. Additionally, NS has a planning and control system in place that helps to make and keep integrity and compliance risks and issues within the organisation visible and manageable.

Governance and integrity

The operational departments within NS are responsible for ensuring ethical business practices. Our Integrity department supports efforts to encourage desired behaviour, regulatory compliance and observance of the NS Code of Conduct. It develops policies, provides information on those policies, investigates integrity violation reports, analyses trends, offers solicited and unsolicited advice and promotes integrity awareness within NS. Issues are submitted to confidential advisers within NS, if and to the extent permitted by confidentiality rules. To escalate integrity issues, the Integrity department also has a direct line of communication with the chair of the Executive Board and the Supervisory Board. NS has an Integrity Committee, whose members include the Directors of HR, Legal, Security and Risk. This committee assesses new integrity policies and provides advice on integrity issues.

Advice and information for employees

On the Integrity Portal on the intranet, employees can find a wealth of information about integrity and NS's policy in this regard. In addition, employees are welcome to submit concrete issues and dilemmas to the Integrity department. They can ask questions by email or by telephone. The Integrity department advises employees about possible solutions and measures. In 2022, the department answered 297 questions.

Integrity Desk and Regulations for Reporting Integrity Issues

The Regulations for Reporting Integrity Issues (including whistle-blower reporting) guarantee that employees can report actual or suspected irregularities, that NS deals with these reports carefully and confidentially and that employees will not experience any adverse consequences as a result of having reported an incident. Employees have several options for (anonymously) reporting integrity issues or abuses: via the Integrity Desk on the internal network, via a special app, by email, by telephone or in a one-on-one conversation. An integrity violation report may result in a recommendation to the person who reported the issue, and to the managers involved, on any subsequent steps or measures. It may also be decided to ask NS Security to conduct an independent investigation into the cause of the incident, with NS taking measures based on the outcomes. In 2022, a total of 82 integrity violation reports were received (2021: 75). Of all finalised reports in 2022, 17% were found to be wholly or partially founded.

Employees may seek support from one of NS's confidential advisers if they want to report an

integrity violation (or another issue). This possibility was used 163 times in 2022 (2021: 118). The increase can be attributed to a special communication effort that helped to increase awareness of the possibility to consult a confidential adviser, and to bring attention in society at large to undesirable behaviour. External stakeholders can report issues to NS via a special [desk](#).

Compliance

We are aware that as a state participation we serve as an example to other players, must be transparent on our regulatory compliance and act with integrity at all times. We are keen to ensure, therefore, that we comply with all the applicable laws and regulations and abide by the standards and values in force. In these efforts, NS is bound to an extensive compliance framework that governs compliance with external laws and regulations such as the Railways Act, the Competition Act, the main rail network franchise, NS's obligations under the CLA, the Working Hours Act and the Working Conditions Act. In addition, we apply internal policy frameworks such as the NS Code of Conduct, the procurement regulations and the train drivers' manual.

NS has a compliance management structure in place to ensure that we keep abreast of this multitude of rules, standards and norms and assume our social responsibility. Primary responsibility for compliant working practices rests with the NS business units. They can seek advice from various compliance knowledge centres, such as NS Legal and Quality, Health, Safety & Environment. The Risk & Compliance department supervises this arrangement and reports on its findings to the Executive Board and the Supervisory Board.

These requirements have been translated into performance indicators and norms regarding aspects such as competition, tendering procedures, privacy issues and safety. We also have a dashboard for NS as a whole, covering the key risks and issues regarding compliance (such as critical data leaks or undesirable behaviour) plus an overview of all relevant KPIs. In addition, we provide training courses in all parts of the company to keep our employees' knowledge of laws and regulations up to date.

Privacy

For NS, the need to handle our passengers' and employees' personal data carefully is self-evident. 'Transparent', 'Safe with NS', 'Choice and control' and 'Innovative and open' are the principles governing our work. To safeguard compliance with privacy laws, NS has set up a privacy structure and privacy governance system and maintains a permanent focus on privacy training and awareness, for example through (compulsory) e-learning programmes, training courses and newsletters. Last year we once again appointed 'privacy champions': employees who, in addition to their regular work, answer questions and serve as the eyes and ears of the Privacy Office within their respective business units. Together with the Data Protection Officer and the Privacy Officers, these privacy champions make up the privacy function within NS. This enables us to maintain short lines of communication between the business units and the privacy experts and to create an extensive network for privacy-related knowledge within NS as a whole. In December 2022, there were 92 active privacy champions within NS (2021: 80).

'My NS' incident

Despite NS's careful handling of customer and employee data, incidents cannot always be prevented. One serious incident in 2022 was a 'credential stuffing' attack on customers' My NS accounts. The accounts of these customers were hacked using passwords obtained from outside NS. We informed the customers concerned and reset their passwords. In cases such as these, NS always notifies the supervisory authority and the person concerned. In all cases, data leaks also serve as input for process improvements.

Privacy by design

Effective and careful data processing starts with privacy by design. This means that we recognise the need to protect the privacy of data subjects right from the initial design phase of a product or service. In addition, we conduct frequent data protection impact assessments to identify any risks for the individuals concerned and take measures to control those risks.

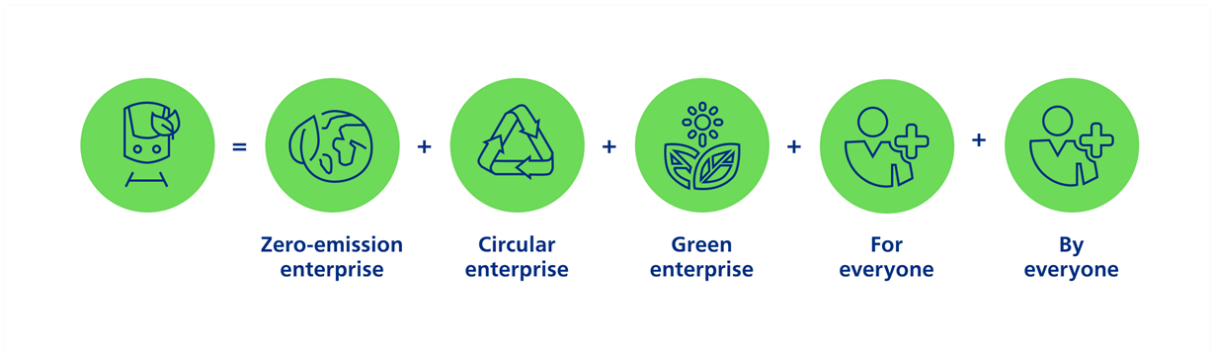
Our sustainability performance



To encourage people to bring a reusable cup, passengers with their own cup receive a discount on a hot drink at various station retailers.

Within the transport sector, public transportation is the evident sustainable choice. NS is - and wishes to remain - the most prominent social provider of sustainable mobility. Our focus is on the contribution of NS to solving the climate problem and, more specifically, to reducing CO₂ emissions. We can enhance our contribution by pursuing a zero-emission, circular and green business strategy. In addition, we are working to make our product truly accessible and make NS a truly diverse and inclusive organisation.

NS also contributes to solutions for several other major challenges in the Netherlands. We need to make choices not only to reduce CO₂ emissions, but also to solve the nitrogen deposition issue, facilitate housing construction, address social inequality and increase the liveability of our cities. Our goal is to contribute to the Paris Climate Agreement and the European Green Deal, UN Convention on the Rights of Persons with Disabilities, and Sustainable Development Goals 9 and 17 of the United Nations. [This document \(in Dutch\)](#) provides further insight into the way in which we calculate our energy consumption, CO₂ emissions and waste disposal volumes.



CO₂ emissions avoided

Our trains have run on 100% green electricity since 2017. As a result, on balance we have reduced our CO₂ emissions from train operations to zero, on an annual basis. Every time a person opts for the train instead of travelling by road or air, they help to avoid CO₂ emissions. Indeed, if every person in the Netherlands decided to travel only by train, this would reduce the average annual CO₂ emissions by 1.5 tonne per individual. This represents more than 20% of CO₂ emission reduction per individual in the Netherlands required by 2030 under the European Climate Law.

A full train between Amsterdam and Utrecht carries up to 1,200 passengers¹

This is equivalent to:

7 aircrafts²



88 regular buses³



863 cars⁴



¹ Number of seats in a double-decker with 12 units

² Based on the most common aircraft at Schiphol (Airbus 320 with 180 seats)

³ Based on number of seats on a regular bus (26)

⁴ Based on 1.39 passengers per car. Average is even lower during peak hours

The train is a more sustainable choice even if other means of transport also transition towards more sustainable fuels. This is due to the low energy and raw material consumption level per passenger kilometre relative to other means of transport, such as cars (including electric cars). However, high average capacity utilisation rates are essential if the train is to maintain its lead.

NS strives for zero-emission, circular and green business practices. While these goals are complementary, sometimes they may also be at odds with each other. For example, when NS wants to build a new roof, do we opt to use recycled materials (circular), to install solar panels or to go for green? Our aim to contribute to the Climate Agreement and the associated targets has made us decide to focus on reducing our CO₂ emissions. So that serves as our guide and basis for all our sustainable choices.

Climate-neutral transport, sustainable enterprise

NS is one of the largest electricity consumers in the Netherlands. We use 93% of that energy for running the trains and 7% for operating our stations, offices and workshops. To ensure climate-neutral rail transport, we purchase as much new green electricity from wind farms for our trains as we consume, over the year as a whole.

In addition, in 2019 NS introduced the climate-neutral operation of replacement bus services. We provide replacement bus services when our trains cannot run on specific track sections or at specific times, for example to due repair works, failures or calamities. Touring car suppliers are able to provide climate-neutral transport by deploying buses that run on renewable fuel from waste and residual flows. In the case of scheduled replacement bus services, we deploy buses of this type where possible. However, they are not always available. In such cases, bus suppliers can still compensate by offering sustainable journeys for other clients within the same calendar year. In this way, NS boosts climate-neutral bus transport both under its own contracts and at other transport providers.

CO₂ emissions

NS needs a lot of energy to run its trains and, for example, to heat its stations and other buildings. The consumption of that energy means that we emit CO₂. Eneco generates sustainable energy in wind farms on behalf of NS. Throughout 2022, Eneco generated as much energy for NS as the amount we consumed to run our trains.

Energy is not always generated at the moments it is consumed. For example, NS will keep its trains running even when there is no wind. At such times, therefore, we need more energy than we generate. Throughout 2022, we needed more energy than we generated at 40% of the time. There are also moments when we generate as much or even more energy than we consume; for example during windy nights with few trains running. Throughout 2022, we generated as much or even more energy than we needed at 60% of the time.

NS uses three methods to calculate its CO₂ emissions:

- *Market-based*: total CO₂ emissions from NS's annual energy consumption minus the energy generated for NS on wind farms. Throughout 2022, we used as much energy to run our trains as we generated, so based on this method our emissions from running our trains were practically zero.
- *Matching*: CO₂ emissions during the hours we consumed more energy than we generated, i.e. at approximately 40% of the time. During those 40% of all hours in 2022, our emissions amounted to 200 kilotonnes (of which 184 kilotonnes for trains and replacement bus services).

- *Location-based*: total CO₂ emissions from the energy NS consumes per year, in a situation in which we do not generate any sustainable energy. This allow for a more meaningful comparison of NS with other organisations in the Netherlands. Based on this calculation method, our total emissions in in 2022 would amount to 495 kilotonnes.

Three scopes

When measuring CO₂ emissions, we distinguish between scope 1, 2 and 3 emissions in accordance with the GHG standard.

Scope 1: emissions that we generate ourselves. We have no scope 1 emissions from our trains, but we do generate scope 1 emissions from our gas-heated buildings.

Scope 2: emissions generated in the production of the energy that NS uses. For example, this concerns the electricity from wind farms that we buy to run our trains and the electricity we buy for our offices and buildings.

Scope 3: emissions generated through the business activities of other organisations, for example through the purchase of trains or building materials for station construction. Scope 3 also covers replacement bus services (since NS does not own the buses).

We report on scope 1 and scope 2 emissions, and on scope 3 emissions from replacement bus services. In 2023 we will identify the total of scope 3 emissions, as part of our commitment under the Science Based Target Initiative signed by NS in 2021.

Total CO₂ emissions of NS

This is the total of all CO₂ emissions from our trains, stations and buildings. Our total CO₂ emissions fell in 2022 relative to preceding years.

Kiloton CO ₂ -uitstoot (totaal)*	2018	2019	2020	2021	2022
Location-based	664	653	573	547	495
Matching	277	269	231	221	200
Market-based	19	13	4	4	4

* Scope 1, 2 and 3 (replacement bus services)

CO₂ emissions from running our trains and from replacement bus services

At NS, we use the term 'energy efficiency of traction' to refer to the energy consumption of trains per passenger-kilometre. The following diagram presents the energy efficiency of traction and the total energy consumption of our trains (including replacement bus services). By purchasing sustainable electricity, we have been able to significantly reduce the CO₂ emissions from running our trains and from replacement bus services in recent years.

Kiloton CO ₂ -uitstoot (vervoer)*	2018	2019	2020	2021	2022
Location-based	615	608	539	515	459
Matching	252	247	216	206	184
Market-based	10	7	0,6	0,5	0,6

* Scope 1, 2 and 3 (replacement bus services)

Emissions from stations and buildings

We are continuing to reduce the energy consumption and the associated CO₂ emissions of our stations and buildings. All the gas we have purchased since 2020 comes from green sources (scope 1), while at some locations we also use district heating (scope 2).

Kilotonnes of CO ₂ emissions (stations and buildings)*	2018	2019	2020	2021	2022
Location-based	49	45	33	31	36
Matching	25	22	15	14	16
Market-based	9	6	3	3	3

* Scope 1 and scope 2

The following table shows our CO₂ emissions per passenger-kilometre. This makes it possible to compare our emissions with those from other types of transport. The table shows that NS has not produced any CO₂ emissions by running trains, on an annual basis, since 2018.

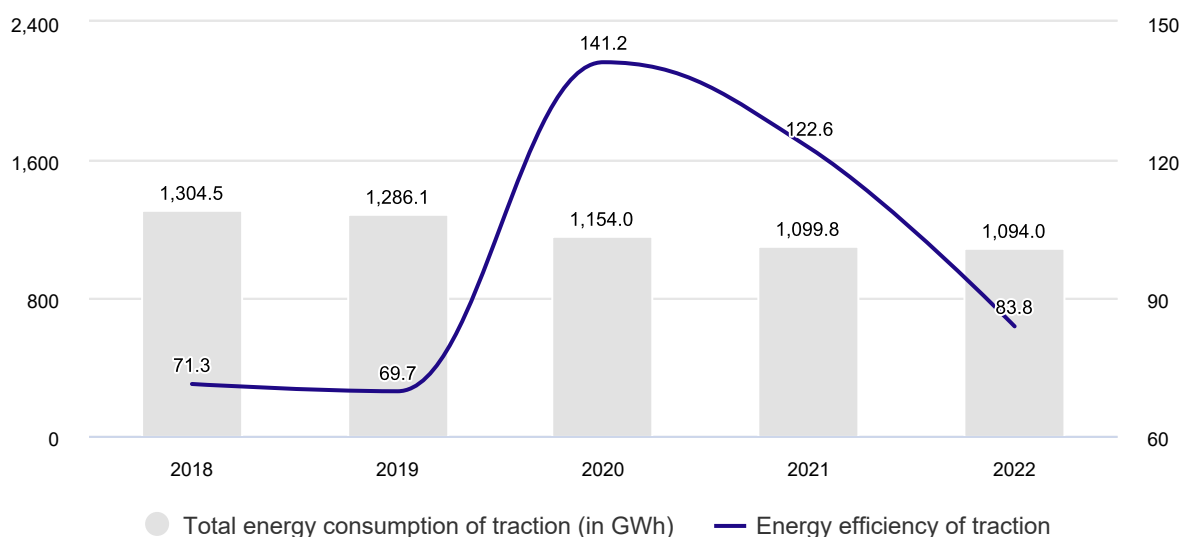
CO ₂ emissions passenger kilometre*	2018	2019	2020	2021	2022
CO ₂ emissions per passenger kilometre (gram)	0	0	0	0	0
Passenger kilometres in the Netherlands (millions)	18,535	18,896	8,258	8,630	13,325

* Scope 1 and scope 2

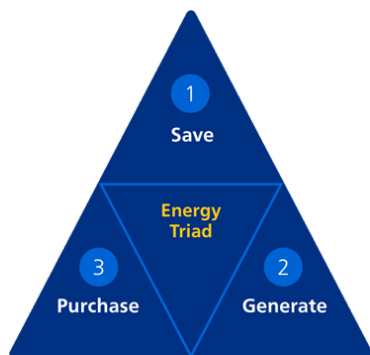
Energy consumption

NS consumes electricity (1,151 GWh), HVO (hydrotreated vegetable oil) diesel (2,0 million litres), heat (21 TJ) and gas (5.4 million m³) for trains, buses, stations, workshops and offices. This works out at a total of 1,230 GWh of energy per year. With our thermal storage system, we generate the equivalent of 21 GWh of heat and cold at six stations.

At NS, we use the term 'energy efficiency of traction' to refer to the energy consumption of our trains per passenger-kilometre. The diagram below presents the energy efficiency of traction plus the total energy consumption of our trains (including replacement bus services). The number of passengers in 2022 was 13.3 billion, up 49% compared with 2021. Hence, we also used far less energy per passenger-kilometre in 2022. In 2022, energy consumption per passenger-kilometre was 83.8 Wh.



Zero-emission enterprise



NS aspires to be a zero-emission company by 2040. We will realise that ambition once we are able to use green energy at any moment without depending on energy from fossil sources - including at times when there is no wind or sunshine. To achieve that, we focus on what is known as the energy triad:

1. Save as much energy as possible
2. Use our own lands and buildings for the sustainable generation of electricity
3. Strive for fossil-free energy purchasing

The Netherlands has set itself the target to achieve a 55% reduction in greenhouse gas emissions by 2050, relative to 1990. This target has been laid down in the European Climate Pact. NS contributes to this target by providing climate-neutral rail transport services and operating on a fully zero-emission basis in the future. In addition to greenhouse gases, rail transport appears to be responsible for relatively large emissions of particulate matter. We are examining ways of reducing those.

Saving energy

In recent years, NS has taken a range of measures to become more energy efficient. To operate our trains as efficiently as possible (traction energy), our drivers and guards have access to various devices such as tablets and smartwatches. At the end of the timetable, they park the trains as efficiently as possible to avoid unnecessary energy consumption.

We also improved our energy efficiency in the facility services area in 2022. In that year we inspected all our approximately 450 buildings and stations and made calculations for potential sustainability measures to reduce energy consumption levels. We will use the outcomes in 2023 to select the most suitable measures for all our real estate. In anticipation of those decisions, in 2022 we installed LED lighting at several maintenance sites and insulated several of our stations. We also replaced a number of air conditioning and air treatment installations by more climate-friendly alternatives. Effective January 2023, NS only leases out office spaces with energy label C or higher (which is a legal requirement). In response to the call by the European Commission for a maximum effort to save energy, at the beginning of 2022 we decided to reduce the heating standard by two degrees, where possible. Likewise, during the summer months we have reduced our cooling standard relative to the outside temperature.

Sustainable generation of energy and 'greening' our real estate

NS uses its buildings and lands for the generation of sustainable energy. In 2022 we completed a pilot project for the construction of a solar carport at a P+R facility. Unfortunately, due to the level of demand on the electricity grid the carport cannot currently be built. We will however use the experience gained during this pilot in other existing and future projects. After a study in 2022, we also qualified several hectares of land as promising for combining the sustainable generation of solar energy and efforts to increase biodiversity.

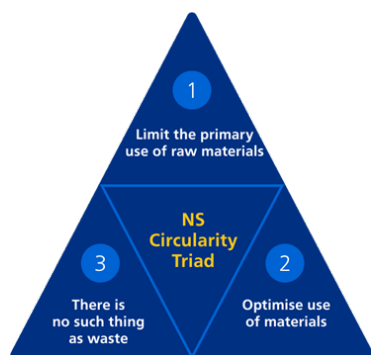
Purchasing zero-emission energy

The electricity that NS uses every year to run its trains is covered by a contract with energy supplier Eneco for the term of the current franchise (until the end of 2024). This was seen as a forward-looking contract at the time, as the electricity concerned had to come from wind farms still to be built ('additionality').

As a back-up arrangement, when there is no wind we operate our trains using the energy mix available at that moment. This includes fossil sources of energy. In the longer term, NS wants to eliminate this fossil back-up. A joint study with Eneco has shown that technologies such as demand-side management, generation management and energy storage can contribute to our zero-emission ambition. This is why NS has now taken steps to further explore those technologies and conduct experiments with them. One example is our participation in research carried out by European sector association Europe's Rail into energy storage and smart energy management in trains and along the tracks.

We purchase as much green power for our buildings as we consume. From 2020 through 2022, the entire volume of gas we consumed was green gas purchased via so-called guarantees of origin. These are certificates to demonstrate that the energy concerned was generated in a renewable way. Last year, NS decided to stop using guarantees of origin to compensate for its gas consumption, from the effective date of its new supply contract (1 January 2023). These certificates have become scarce and expensive. Since demand for green gas exceeds the supply, there is no certainty that the guarantees of origin help to actually make our gas consumption more sustainable. Moreover, compensation using guarantees of origin for gas does not incentivise the market to install more green gas plants. We invest the money not spent on guarantees of origin in measures to accelerate projects that minimise or eliminate gas consumption in our real estate.

Circular enterprise



NS aspires to achieve full circularity in terms of procurement, maximum reuse of materials and zero waste in offices and workshops and from trains. In this way we contribute not only to the Climate Agreement and the European Green deal, but also to SDG12 and SDG13. In addition, NS - in conjunction with ProRail and the Ministry of Infrastructure and Water Management - strives for waste-free stations by 2040.

Limit the use of primary raw materials

Applying circularity principles in design and procurement will enable us to become even smarter in the use of materials and in reducing the use of primary raw materials. In high-impact tendering procedures, we include circularity as a criterion in the selection and award phase. In 2022 we did so, for instance, in tendering procedures for business uniforms, office furniture and dismantling a workshop in Haarlem. NS measures the circularity of the materials it purchases. In 2022 this covered a total of 7,381 tonnes, or 43% (2021: 70%) of all materials we purchased. Of this volume, 78% was circular (2021: 86%). The figures for 2021 have changed compared with those published in the 2021 Annual Report, due to changes in the method NS uses for this purpose. The fall in inflow can be attributed to the effect of a large infrastructure project in 2021 that involved large volumes of circular materials.

In 2022 we laid down our circular purchasing principles in our MVOI (Socially Responsible Procurement and Commissioning) policy. Inflow measurement (analysing and recording the

composition of incoming goods) is now standardised in our purchasing processes and templates, which are available for all suppliers via the NS Procurement website. This year we made the first steps towards automated inflow measurement and enrichment of source data for train-related items with material data. At the beginning of the year, we provided circular purchasing training for NS employees involved in our procurement processes.

We are developing a range of circular products for passengers at our stations in the effort to reduce the use of primary raw materials. For example, we are examining whether single-use packaging is really necessary and only coffee cups with a lid if the passenger specifically asks for one. We also encouraged passengers to opt for reusable cups in a nationwide campaign at our stations in 2022. In that same year, this resulted in a reduction of 178,130 disposable cups at our own formulas Kiosk, Julia's and Stationshuiskamer.

We are making packaging more sustainable by using renewable and recyclable materials, such as salad trays made from 85% recycled PET. We inspire our partners and suppliers to make further steps in the field of responsible retailing by sharing with them our knowledge and experiences about sustainable and circular purchasing during events and supplier days. In collaboration with our logistics partner Lekkerland we are screening the entire chain for opportunities to make it more sustainable. For example, in 2022 new technologies enabled us to reduce the use of wrap foils by 70%.

Optimum use of materials

We take good care of our materials by focusing on effective maintenance and timely repairs so as to extend their service life. For example, we upgrade our 20-year-old double-decker trains so that they can serve for another twenty years. In 2022 we upgraded 13 double-decker trains with a total of 70 type VIRM2/3 coaches. In this way, 99% of each train is given a new lease of life. We also upgrade 85% of 20-year-old train parts in our components workshop and reintegrate them in our trains for another 20 years of service. Of all materials, we put 13% to new uses elsewhere. For example, we found a new use for 1,100 train windows in the construction of the train wheel repair facility in Leidschendam.

In our repair and maintenance work, we strive to extend the life of all train components. For instance, 11% of all train components qualify as 'reuse components'. This means that in the case of a malfunction, these components are repaired or overhauled rather than thrown away. This helps us to prevent the need to buy new products and the accumulation of waste. When a train series is approaching the end of its service life, we identify any components whose life can be extended by reusing them in another series. For example, this year we removed 3,180 train items from our 40-year-old ICMm type Intercity trains and stocked them for reuse in other trains.

There is no such thing as waste

If we have no further use for products and cannot reuse them, we still want to keep them in the cycle as high-value materials. We first try to find a new destination for the product as a whole. If that proves impossible, we find a new destination for separate components. If materials cannot be reused, we separate them for recycling purposes as effectively as possible. In 2022, we appointed a 'material broker' who is available full-time to make sure materials are reused as frequently and effectively as possible.

We work with our partners to find new destinations for obsolete NS materials. For example, old upholstery from our trains is turned into shoes, inner tyres of public transport bicycles are turned into travel bags, and departure time displays are turned in birdboxes. In October of 2022 we opened sixth NS Upcycle Shop at Utrecht Centraal, where we sold collectors' items from trains and NS Upcycle products. This year, our partners collectively sold 3,857 NS Upcycle items. One new feature this year was that visitors to the shop could use train upholstery to make their own pen cases or toilet bags.

For the second year in a row, we found new uses for old or superfluous NS materials via

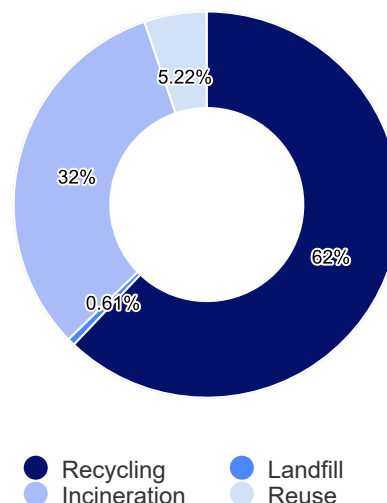
auctions. In total, 392 items (and 45 tonnes of materials) found a new destination in this way. In 2022, moreover, the kaNScentraal foundation sold more than 12 tonnes of collectors' items from our trains to raise funds for disadvantaged children. In addition, in 2022, following a tendering procedure we installed bottle return machines at our five large stations. NS is one of the first organisations in the public domain in the Netherlands to use these machines, which are also technically suitable for returnable cans, following legislation that comes into effect in 2023.

All AH to go outlets are partnering with Too Good To Go to prevent food waste. In this way, approximately 111,500 meals are saved every year. The 35% discount sticker on products with a limited shelf-life has enabled us to prevent 113,000 items from being thrown out with the rubbish.

Outflow results

In 2021, NS stopped reporting on 'waste' and introduced the concept of 'outflow'. This means we report on materials that leave our company. This is in line with the CTI measurement method of the World Business Council of Sustainable Development (WBCSD).

In 2022, a total of 24,540 tonnes of materials left our company (2021: 23,924 tonnes). Of the materials that left our company, 63% were either recycled or reused. Hazardous waste makes up 5% of the total outflow. This year we drew up a plan to increase the percentage of circular outflow from our workshops, for example by examining effective ways to reduce the share of hazardous waste.

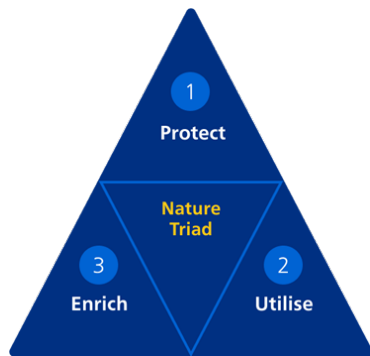


Promoting the sharing and worldwide upscaling of knowledge

We have learnt lessons from the circular modernisation and dismantling of our trains and translated these lessons into specifications for the acquisition of new trains. We used those specifications in our request for tenders for the new New Generation Double-Decker (DDNG) train series. To bring about real change in the market, however, it is important to ensure that other railway businesses also know and apply those lessons. For that reason we are scaling up those specifications at the European level through Eurospec. NS co-chairs the Circular Economy sector group of the international sector association UIC, in which we work with carriers and infrastructure management companies around the world to achieve full circularity of the railway sector by 2035. In 2022 we organised three sector meetings on behalf of UIC Circular Economy. In addition, we staged the first UIC Zero Waste Workshop in Berlin, sharing best practices in measuring and increasing circular inflow in the railway sector.

Last year, UIC presented the International Sustainable Railway Awards in Berlin. NS won the award in the Circular Economy category and came out as 'overall winner' with its project entitled '99% Circular Train Modernisation, on the Road Towards 100% Circular Trains in Europe'.

Green enterprise



Protecting and enriching nature

Together with ProRail, we carefully maintain or replace plants and trees on the 65 hectares of green areas at and around the stations. In 2022 we planted new prairie species, perennials and mixed flower seeds and installed birdboxes and insect hotels at several of our stations. In this way we are contributing to promoting biodiversity.

We did a study on ecological values and ways to protect and enrich nature on NS premises in 2021. In 2022, we used the resulting recommendations in the

realisation of ecological sites at three NS stations (Amersfoort, Wezep and Veenendaal-de Klomp) where we took a range of measures to promote biodiversity. These sites have been under an ecological management regime since mid-2022. In 2023 we will assess several additional sites (qualifying as 'other land') for their potential as biodiversity improvement locations.

Utilising nature

Climate change is confronting us with more extreme weather conditions, such as flooding and extreme heat. Additional green spaces may provide a solution to some of those problems. For example, we can plant trees to avoid heat stress and benefit from natural drainage features ('wadis') and green roofs to catch and absorb rainwater. Measures to date include the planting of five veteran trees at five stations, and realisation of a wadi at Veenendaal-De Klomp station.

NS: a sustainable brand

In 2022, NS came eighth in the 'Monitor Merk & Maatschappij' survey (2021: 6). This means we have achieved our objective of securing our position in the top 10. The weight of sustainability aspects in the choice for public transport has increased slightly. Over two thirds of consumers say this is important or very important to them. As in 2021, half of all consumers say environmental considerations are among the key reasons for them to opt for the train. Three quarters of consumers believe it is important for NS to operate its trains using green energy, and 65% feel that travelling by train is a sustainable option. Even so, when it comes to the perceived sustainability of means of transport, electric cars and e-bikes score higher than the train.

Sustainable procurement

Every year, NS purchases goods and services for an average of 1.2 billion euros. In 2022, we had ties with over 3,000 suppliers in 24 countries. Of our total purchasing volume, we obtain 80% from 124 suppliers; the largest share of that volume (96%) originates from the Netherlands and other countries in Western Europe. At NS, purchased goods and services mainly include staff, financial and facility services, IT, construction, communication, energy, trains, spare parts and transport.

Socially responsible commissioning and purchasing (MVOI)

Since 2022, NS has had a new policy for socially responsible commissioning and purchasing. The purpose of this policy is to make our chain and our services more sustainable. Essentially, the policy is about making sure that more sustainable choices carry weight in actual decision-making. Their weight increases in proportion to their impact on NS's sustainability targets. We have included our CSCP requirements in the procurement governance rules and embedded them in our General Terms and Conditions of Purchase (www.nsprocurement.nl/en/).

Corporate social commissioning and purchasing in tendering procedures

We recognise the importance of corporate social commissioning and purchasing in tendering procedures by including sustainability aspects in the selection and award criteria. Here are some successful examples from 2022:

- In the procurement process for new trains, NS asks for sustainable solutions as standard, such as a heat pump for heating passenger spaces, smart LED lighting, and outside doors closing automatically after all passengers have got on or off the train. In connection with New Generation Double-Decker (DDNG) trains, specific attention is devoted to reducing the weight of the train so that less material is needed to build it and less energy is needed to operate it. Based on experiences in the modernisation of VIRM double-decker trains, we have now, for the first time, asked train suppliers for a 'materials passport'. This provides insight into the origin of the materials used and allows us to monitor the recyclability rates of train components at the end of their economic life. By demanding the materials passport and high recyclability rates, NS is among the front runners in the European railway sector.
- The modernisation of the VIRM's on-board mains installation, which supplies power to all train components, results in energy savings of 0.4% (16.5 GWh) over the remaining life of the train series.
- NS put out to tender the remanufacturing of public transport bicycles that are beyond repair. The resulting bicycles are at least 70% circular, reducing CO₂ emissions by more than 65%. In addition, remanufacturing offers people distanced from the labour market ample opportunity to gain work experience and develop their skills.
- The new supplier of business uniforms produces clothing made from 100% circular raw materials, including organic cotton. About 10% of the employees involved in the production process are people distanced from the labour market.
- One of the award criteria in the tendering procedure for the transport of rolling stock, in 2021, was the availability of zero-emission services. The intention was to use hybrid locomotives with a battery at locations without overhead contact lines from 2022. As 2022 saw significantly fewer train journeys than expected, this project did not go ahead.

Supplier assessments and Code of Conduct

We subject our major suppliers to a Corporate Social Responsibility (CSR) assessment. In Railsponsible, a sector initiative, we agreed to use the Ecovadis standard for this purpose. The assessment covers the supplier's environmental impact, its labour and human rights record, its integrity and sustainable procurement. Since 2018, we have incrementally raised the minimum requirement for suppliers from a score of 35 to 50. We ask suppliers who fail to achieve this score to submit an improvement plan and apply for reassessment.

Through our Code of Conduct, moreover, we communicate to our suppliers the CSR standards and values that we apply to doing business with them. Again, if suppliers fail to comply with the Code we enter into a dialogue with them and ask for an improvement plan. In cases of serious violations, such as corruption, we will terminate the relationship. There have been no reported cases in 2022 of non-compliance or violation of the Code.

SDGs



The SDGs (Sustainable Development Goals) are 17 goals formulated by the United Nations to make the world a better place by 2030. NS contributes to these goals and has included them in its sustainability strategy. We use this strategy to give practical substance to the term 'sustainable', as used in our vision of 'Keeping the Netherlands accessible in a sustainable manner - for everyone.'

We focus on our contribution to solving the climate problem (in particular, by reducing CO₂ emissions) and how we can enlarge that contribution. After all, climate change is one of the greatest challenges of our time - but also an issue where we, as NS, can make a real difference for future generations. Our approach is based on five key focus areas: zero emission, circular and green enterprise, by everyone and for everyone. In addition, we also help solve other major societal challenges, such as social inequality and the housing construction challenge.



In 2022, together with our stakeholders, we identified the SDGs of particular relevance to them that could benefit from additional future contributions by NS. This has resulted in a list of nine SDGs that are relevant for our organisation.

The international railway organisation IUC conducted a benchmark study among its members, in 2022, for their contributions to the SDGs. In all, 36 railway companies, including NS, submitted data for this first Rail Sustainability index (RSi). We achieved the highest possible scores on nearly all SDGs.

NS strategy	Contributes to these sub-goals of the SDGs	Impact on SDG sub-goal is measured by this indicator	How will NS measure its impact?	This is how NS knows its impact on SDG:
Zero-emission Enterprise 	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	7.2.1. Renewable energy share in the total final energy consumption	→ % Matching power consumption with green generation → Number of MWh generated on NS land/buildings → The number of m3 gas consumption	7, 9 and 13**
	7.3 By 2030, double the global rate of improvement in energy efficiency.	7.3.1. Energy intensity measured in terms of primary energy and GDP	→ The energy consumption per passenger kilometre	7, 9 and 13**
	9.4 By 2030 upgrade infrastructure and retrofit industries to make them sustainable.	9.4.1. CO ₂ emissions per unit of value added	→ CO ₂ emissions per passenger kilometre	7, 9 and 13**
Circular Enterprise 	12.2 By 2030, achieve the sustainable management and efficient use of natural resources	12.2.1. Material footprint, material footprint per capita, and material footprint per GDP 12.2.2. Domestic material consumption, domestic material consumption per capita/GDP.	→ % circular inflow → % circular inflow	12 12
	12.4. By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle.	12.4.2. Hazardous waste generated per capita and proportion of hazardous waste treated	→ Kg of hazardous waste generated	12

	12.5. By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	12.5.1. National recycling rate, tonnes of material recycled	→ % circular outflow	12, 13**
Green Enterprise 	12.2 By 2030, achieve the sustainable management and efficient use of natural resources	12.1.1. Sustainable consumption and production	→ % vegetable supply	12
		12.2.1. Material footprint, material footprint per capita, and material footprint per GDP	→ Indicator under development*	12
	12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	12.3.1. Global food loss index	→ Indicator under development*	12, 13**
	15.5 Significant action to reduce the loss of biodiversity	15.5.1. Red List Index	→ Indicator under development*	15
For & by everyone 	11.2 Provide access to safe, affordable, accessible and sustainable transport systems for all by 2030.	11.2.1. Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities	→ % main rail network stations with travel assistance → Independently accessible rolling stock: % of sprinter fleet	11
	11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.2. Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence.	→ % main rail network stations with travel assistance	11
	5.1 End all forms of discrimination against all women and girls everywhere	5.1.1. Non-discrimination framework/code	→ % share of women in senior management	5
		5.1.2. Women by level of responsibility	→ pay gap monitoring	
	5.4 Recognise and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	5.4.1. Parental leave options for all employees	→ parental leave	
	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life	5.5.1. Women by level of responsibility	→ % share of women in senior management	
		5.5.2. Non-discrimination framework/code	→ pay gap monitoring	
	8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value		→ # sustainable jobs	8
	8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training			
	8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment			
	10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	10.2.1. Job opportunities for highly-educated refugees	→ # work experience placements UAF	10
		10.2.2. Women by level of responsibility	→ % share of women in senior management	
	10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	10.2.3. Proportion of employees with multicultural background	→ NWA interventions	
Sustainable Mobility 	9.1. Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	9.1.2. Passenger and freight volumes, by mode of transport	→ We annually measure the impact of NS on society by means of the True Value Model	7,9,11,12 en 13**.

Our activities and achievements abroad

Abellio



Merseyrail employees take part in Pride in Liverpool.

Abellio Transport Holding BV and Transport Holding Germany BV (together 'Abellio') are fully-owned subsidiaries of NS and operate in the passenger transport markets in the United Kingdom (UK) and Germany.

NS's foreign strategy

Abellio was founded in 2002 to prepare NS for the liberalisation of the European rail market and help NS to achieve its objectives in the Netherlands. In 2018, NS revised its foreign strategy in respect of Abellio, which covers Abellio UK and Abellio Germany. In short, activities abroad have since had to serve the interests of passengers in the Netherlands, for example by improving cross border connections.

As a result of the revised foreign strategy, Abellio UK has no longer been of strategic interest to NS. NS has been working on exiting the British market, which initially took some time due to the uncertain British rail market and the high guarantees that NS had outstanding for the UK rail contracts (originally circa €0.5 billion). Fundamental changes to the UK's rail system have now been implemented and in 2022 NS has been granted approval from its shareholder, the Dutch Ministry of Finance, to divest its British activities. As from 31 May 2022, Abellio Transport Group Ltd and its subsidiaries have been classified as 'activities held for sale'. The activities are expected to be transferred to Abellio UK's current management by way of a management buyout (MBO) at the end of February 2023. After completion of the transfer, the UK current management will manage the unwinding of the old franchise contracts, including the remaining outstanding guarantees by NS for these franchises of circa € 0.3 billion at the end of 2022, and legacy items on behalf of NS.

NS's activities in UK and Germany

The rail markets in both UK and Germany have been difficult to operate in in the past years. In the UK a reform of the national railway industry is ongoing, which anticipates to achieve better alignment between track and train, to facilitate future climate targets and a return of growth in mobility. During 2022 the business environment continued challenging with a relatively unstable political environment in UK and adverse economic circumstances with high inflation and a series of national strikes. Passenger railway contracts have historically been tendered as net contracts, meaning that passenger revenue risk is taken by the operator and any subsidy received is calculated on costs net of revenue. Since the start of the corona virus pandemic for most UK railway contracts a temporary emergency agreement has been in place to compensate for the loss of passenger revenue due to the pandemic. These have gradually moved into National Rail Contracts (NRCs) where most of the revenue risk, cost risk and investments are for the account of the franchising bodies. In September 2021 NRCs have been concluded for Greater Anglia and West Midlands and in October 2022 for East Midlands. The emergency agreement for ScotRail has ended on 31 March 2022 and the contract has been subsequently handed back to the Scottish Government.

In Germany the financial corona impact was minimal as most passenger railway contracts are tendered as gross contracts, meaning that passenger revenue risk is retained by the tendering Public Transport Authority (PTA) and any subsidy received is based on the gross costs of the contract. The gross costs is exactly where the difficulty for Germany lies as the staff indexation mechanisms in the contracts do not cover for unforeseen changes in labour agreements causing additional costs and also penalties for causes outside of the control of the operator are not compensated. Unfortunately negotiations did not result in additional compensation for these unforeseen circumstances. Hence, a restructuring was deemed necessary by means of protective shielding procedures starting 30 June 2021 in order to avoid continuation of loss making contracts. A protective shielding procedure is a preliminary insolvency procedure whereby local management stays on board under supervision of a 'trustee' appointed by the court in order to find a viable solution together with the PTAs. The former shareholders lost control. In 2022 Abellio Germany has completed its restructuring. Control was regained by NS -via the newly incorporated holding companies Transport Holding Germany BV and ATH Rail Transport Beteiligungsgesellschaft Deutschland

GmbH- over PTS GmbH (as at 1 February 2022), WestfalenBahn GmbH (as at 1 March 2022) and Abellio Rail Mitteldeutschland GmbH (as at 1 July 2022). From those dates onwards, these entities have been included in the consolidation again. The activities in North Rhine-Westphalia and Baden-Württemberg were discontinued and transferred to operators appointed by the PTAs, as an agreement could not be reached with the PTAs on additional compensation for operating the franchises. NS has contributed to the costs of the restructuring, including Baden-Württemberg and North Rhine-Westphalia, for a total amount of circa €100 million. In addition it has been agreed that the loss making DISA contract will be continued by Abellio Rail Mitteldeutschland until December 2024 (instead of December 2032) at the cost of NS to allow sufficient time for the PTAs to retender. The insolvency proceedings regarding the former German holding company Abellio GmbH are still in progress. The legal completion of these proceedings could take quite some time. The nature and outcome of an insolvency process are unpredictable. Hence, the operating result and cash flow in future years could be affected by an (un)favourable outcome compared to current estimates that have been made.

Capital at risk

In 2022 Abellio (consists of Abellio Transport Holding BV and Transport Holding Germany BV) worked within the capital at risk framework which has been agreed between the Dutch Ministry of Finance and NS in 2016. With this framework NS and its subsidiary Abellio can develop foreign activities. The framework stipulates how much capital at risk can be invested in the UK and Germany. Foreign franchises and concessions, like Dutch activities, involve (financial) risks. The core of the framework is that an upper limit has been set for the capital at risk that NS, as the parent of Abellio, may allocate for its foreign activities of Abellio. This consists of € 500 million for invested capital (defined as NS share in Abellio equity) and issued guarantees (Box 1). An additional limit of € 500 million applies to the contracts in the UK for specific parent company guarantees (PCS) that the franchise provider in the UK required from the ultimate shareholder (Box 2). These guarantees can be seen as a contingent contribution in capital which can be drawn as a subordinated shareholder loan to support activities of the franchise and to fulfil required liquidity ratios. For the new NRC contracts the PCS and performance guarantees have decreased to £12m per contract and have been provided at the Abellio UK level. Therefore the PCS facilities as provided by NS have reduced further in 2022 due to the termination of the franchise agreements. After the unwinding of the former franchise agreements, expected in the course of 2023, the PCS facilities of NS will disappear. After the restructuring of the UK and German activities has been finalised also the capital at risk framework will need to be redefined.

Abellio Capital @ Risk	2022	2021
(in € million)		
Capital invested	231	226*
Reserves	-152	-377
Equity attributable to NS	79	-151
Guarantees provided by NS**	257	83
Guarantees called on	73	29
Total capital invested and guarantees	488	309
Total PCS guarantees provided by NS	217	484
PCS guarantees called on (NS share)	87	93
Total capital @ risk	705	794
From which drawn	391	347

* Comparative figures have been adjusted with investment in Transport Holding Germany BV

** Guarantees provided by NS have increased due to the transfer of guarantees by Abellio Transport Holding BV as a result of the restructuring

Key figures 2022 per country

	UK (excluding Merseyrail)	Germany (from consolidation date)
Number of employees at the end of the year	10,563	1,544
Revenue in € million	2,463	253
EBIT in € million (UK including Merseyrail net result)	74.1	2.3
Number of railway contracts at year-end	4	3

Germany

During 2021 and 2022 Abellio Germany has been in the process of restructuring the German activities that have been in insolvency proceedings since 30 June 2021. As the consolidation criteria were no longer met, NS deconsolidated all German entities as of 30 June 2021 and shareholder loans (€ 93 million) and equity value (€ -46 million) have been valued at zero.

After the agreement of an insolvency plan NS regained control over the companies PTS, WestfalenBahn and Abellio Rail Mitteldeutschland in the course of 2022. The shares have been acquired by a new German holding company with its shareholder being, Transport Holding Germany BV, all within the NS Group. The total revenue in 2022 (from the date of regaining control) amounts to € 256 million. The German activities generated an operating profit (EBIT) of € 2 million in 2022.

A provision for guarantees recorded by the shareholder in 2021 in connection with the uncertainties arising as a result of the insolvency process has been released in 2022 for an amount of € 77 million as the related operations will now continue. The release has been accounted for as 'net financial result'. Also an impairment of € 9 million recorded in 2021 by the shareholder with respect to the re-acquisition of German entities has been reversed. The first time consolidation in 2022 of the German entities resulted in an accounting upside of € 99 million due to acquisition accounting whereby assets and liabilities are reassessed and

shareholder liabilities as well as part of the creditor liabilities are released as agreed in the insolvency plan. This upside in 2022 should be seen in conjunction with the impairment of shareholder loans of € 93 million when NS lost control in 2021 and the contribution to the restructuring of circa € 100 million. The aforementioned items have been recognised under the net financing result in 2022 and 2021.

UK

The UK activities are classified as 'held for sale' from 31 May 2022 in view of the anticipated management buyout. Consequently, the results for 2022 have been classified as 'results from discontinued operations', with the results for 2021 having been restated for comparison. Without the accounting implications of the classification as 'activities held for sale', Abellio UK realized an operating profit (EBIT) of € 74 million, including a non-recurring income of € 30 million as a result of the release of a provision. The ScotRail franchise and therefore Abellio's activities in Scotland ended on 31 March 2022 as Transport Scotland did not use its options to extend the contract for another three years.

Abellio UK



West Midlands Trains welcomes children from a local primary school to launch the new book 'My Mum is a Train Driver', aimed at increasing diversity in the rail sector.

Management buy-out

From 31 May 2022 Abellio Transport Group Ltd and its subsidiaries (Abellio UK) are presented as 'activities held for sale'. On 31 August 2022, NS entered into a sale and purchase agreement with Transport UK Group Limited (TUK), an entity registered in the UK and owned by the current UK Abellio management team, to sell Abellio UK to the current UK management. The new company is led by Dominic Booth, the Abellio UK managing director, who has extensive experience of UK public transport and has worked at Abellio since 2007.

Under the transaction there is no change to the existing UK company structure below Abellio Transport Group Limited, including the joint venture with Serco at Merseyrail and the minority participations of Mitsui at Abellio East Anglia and West Midlands Trains. There is also no change to the contracts that Abellio UK operates under, or the management of its businesses. The transaction gives TUK the opportunity to further develop the UK rail and bus operations.

Completion of the deal is subject to approval from partners including Transport for London (TfL), the Department for Transport and Merseytravel, as well as the receipt of regulatory consent from the Office for Rail and Road.

The approval process has been completed in 2023, and the transaction is expected to be completed in February 2023.

Current market context

There have been several key developments in Abellio UK during 2022. In terms of the operating businesses the ScotRail contract came to the end of its seven-year life and was handed back to the Scottish Government from 1 April 2022, and Abellio UK completed the transition of the East Midlands (EMR) contract with the Department for Transport (DfT) to a National Rail Contract (NRC) from October 2022, joining Greater Anglia (GA) and West Midlands (WMT) which had both transitioned to NRCs from September 2021. The year has also signalled the end of an era of ownership by Nederlandse Spoorwegen following the announcement of a management buyout (MBO) and the formation of a new company, Transport UK Group Limited, to acquire the Abellio UK business.

This corporate activity is set against a continued challenging business environment, particularly a relatively unstable political environment and adverse economic conditions with inflation peaking at 11.1% in November 2022, and a cost-of-living crisis impacting consumer behaviour and fuelling extensive industrial action, including the first national rail strikes for several decades.

Despite this tough environment, the signing of the four-year East Midlands NRC. Abellio UK exited its ScotRail contract after seven years operating north of the border as services moved into public ownership. Abellio remains an important employer in Scotland through its Shared Services Centre in Glasgow. Abellio is proud of its legacy in Scotland, including a new electric train fleet, enhanced intercity services and new and improved stations, and the exit on 31 March 2022 was achieved smoothly and with an efficient handover.

The last of the Covid-19 restrictions were lifted early in 2022, however the rail and bus industries are still contending with the consequences of the pandemic. In particular, passenger numbers have generally remained below where they were before the pandemic in 2019 with typical recovery to about 75% of 2019 levels. The resulting shortfall in revenue puts pressure back on the industry to control its cost base and this is the economic backdrop to the extended industrial action, with Government ministers requiring cost savings and wage restraint on the railway while the transport trade unions oppose many of the proposed reforms and have campaigned for double-digit pay increases for their members.

The trade unions have coordinated industrial action, the longest since privatisation in the mid-1990s, across the UK at both infrastructure provider Network Rail (NR) and at train operating companies (TOCs), beginning with strike days in late June 2022 and continuing through the following months. Under a system of collective bargaining, trade unions have been negotiating with NR and the Rail Delivery Group representing DfT-contracted TOCs, although this excludes Merseyrail whose arrangements are devolved to the Metro Mayor of the Liverpool City Region.

The Abellio bus division is looking to compete for contracts in Merseyside and other city regions pursuing London-style bus regulation after deciding not to proceed with its bid to run bus services in Greater Manchester as Abellio could not agree to the size of the capital support requirements of Transport for Greater Manchester).

UK rail companies and bus services

Abellio UK operates four UK rail franchises and around 9% of London bus services with a combined revenue of €2.5 billion (excluding Merseyrail). It operates East Midlands Railway, ScotRail (prior to 31 March 2022), Greater Anglia as a 60:40 venture with Mitsui, West Midlands as an 85.05:14.95 venture with Mitsui and Merseyrail as a 50:50 joint venture with Serco, as well as a wholly owned bus business.

As noted previously, EMR signed a National Rail Contract (NRC) in 2022, meaning all three of Abellio's DfT-contracted TOCs, including Greater Anglia and West Midlands, are signed to NRCs. This reflects a different model of public-private contracting compared to the previous franchise agreement. Under the NRC, the UK Government takes most of the revenue and cost risk and finances the capital expenditures of the TOCs. Similar to the GA and WMT NRC, EMR will be paid a fixed management fee of circa 0.5% of operating costs for running rail services, plus a performance fee of maximum circa 1.5% of operating costs based on the delivery of various customer, operational, financial, business management and capital projects focused performance metrics. The risk profile of the NRC is lower compared to the former franchise agreements, but because of lower margins the profitability of Abellio UK will reduce going forward.

The EMR NRC commenced on 16 October 2022 and is for an four-year period to October 2026, with the DfT having the option to extend by a further four years to October 2030. Work is being undertaken by the local team to finalise the balance sheet under the ERMA which ended on 15 October 2022. Operational performance to date has been impacted by Network Rail attributed delays and, like the other TOCs, by industrial action. However, the performance across all areas under the NRC is in line with the recent, strong, performance under the ERMA.

The GA and WMT NRCs are for up to five years to September 2026 with the DfT having the option to exercise a break clause after the third anniversary of the contract. The overall performance of the GA and WMT NRCs in 2022 has been pleasing, noting that like EMR, the performance has been impacted by industrial action.

It is the intention of the UK Government to replace the NRCs, in time, with Passenger Service Contracts and the nature of these is currently under discussion with the DfT. The timing and nature of these remain uncertain due to the changing political landscape within the UK.

In March 2021, the Scottish Government announced that on the expiry of the ScotRail franchise agreement (from 1 April 2022), operations would transfer to a publicly owned operator. This transition was successfully completed on 1 April 2022 and Abellio UK played a key role during the demobilisation of Abellio ScotRail and the mobilisation of the new operator, ScotRail Trains Limited. Whilst the Abellio ScotRail contract ended, Abellio is pleased that the Abellio Shared Services Centre has been retained by the Scottish government to continue to provide their services to the new publicly owned operator until January 2025. Following the transition, Abellio UK has been focusing on the unwinding of the 31 March 2022 balance sheet and this work is expected to be ongoing for several years due to the nature of certain of the balances, which include historic legal claims between Abellio ScotRail and third parties.

Abellio Bus continues to implement its electrification strategy and 2022 seen the roll out of 53 electric vehicles. This takes the percentage of vehicles which are either hybrid or fully electric to 69% of the fleet. The operational performance for bus has been challenging due to a combination of inflationary cost pressures and a competitive driver recruitment market. Management have implemented various initiatives to help tackle these external pressures.

Operator	Revenue (€ million)	Punctuality PPM	Number of stations	Number of trains/buses	Number of employees
Greater Anglia	729.0	93.3%	137	928	2,744
Merseyrail	217.8	95.2%	66	162	1,175
ScotRail (until 31 March)	288.9	-	-	-	-
West Midlands	679.3	83.8%	150	679	2,885
East Midlands	534.3	83.4%	103	402	2,374
Abellio Bus	266.3	-	-	786	2,357
Total operators	2,715.8	-	456	2,948	11,535
Abellio UK head office	4.0	-	-	-	203
Exclusion intercompany and JV	-250.4	-	-	-	-1,175
Consolidated (incl. head office, excl. JVs)	2,469.4	-	456	2,948	10,563

Key figures for Abellio UK rail franchises and bus services

Operator	Passenger revenues (€ million)	Government contribution (€ million)	Other income (€ million)	Revenue (€ million)
Greater Anglia	590.8	59.7	78.4	728.9
Merseyrail (JV)	57	127.5	33.3	217.8
ScotRail	60.8	223.5	4.6	288.9
West Midlands	389.9	267.3	22.1	679.3
East Midlands	383.7	133.5	17.1	534.3
Abellio London Bus	-	238.5	27.8	266.3
Total operators	1,482.2	1,050.0	183.3	2,715.5
Consolidated (incl. head office, excl. JVs)	1,425.2	922.6	121.6	2,469.4

Financial result

Abellio UK consolidated	2022	2021
(in € million)		
Passenger revenue	1,425.20	921
Government income	922.6	2,150.80
Other income	121.6	222.1
Revenue (excluding Merseyrail)	2,469.4	3,294.10
EBIT before non-recurring items	44.3	28.8
Non-recurring items	29.8	381.7
EBIT	74.1	410.5
Intercompany financial result*	-9.8	-16
Other financial results	-7.6	-18.1
Profit before tax	56.7	377.2
Corporation tax	2.5	24.1
Net profit	59.2	401.2
Minority interest	-7.4	160.7
Net profit attributable to Abellio	51.8	240.6
Capital investments (excl. Merseyrail)	-	11.6
Equity attributable to NS	-27.2	-85.3
PCS guarantees provided by NS	216.9	484.3
Other guarantees provided by NS	148.5	75.5
Total capital at risk Abellio UK	338.2	474.5
PCS guarantees called on (NS portion)	87.3	92
Other guarantees called on (NS portion)	28.2	21.4
Total guarantees called on (NS portion)	115.5	113.4

* *Intercompany financial results consists of interest on shareholder loans and guarantee fees.

Industry reform

Despite the political uncertainty in the UK, the work required to progress the government's plans for rail reform continued, with a "Great British Railways Transition Team" (GBRTT) fully established. A member of Abellio's Executive Team is seconded to GBRTT.

The government also launched a consultation on the legislative changes required to implement rail reform, which Abellio responded to in the summer. Initial plans to introduce that legislation in the Autumn were postponed, with Ministers saying there is no parliamentary time available. Legislation is likely to be introduced during the next session of parliament, which will start in Autumn 2023.

A general election must be held by January 2025 at the latest, and polling is now consistently predicting the Labour party will form the next government. What this would mean for the rail reform agenda set out by the current government, including plans for Great British Railway, is unclear. The Labour party has recently recommitted to a policy that would see the railway brought back into public ownership, although the detail of this policy is not yet clear.

Operational performance

The effects of extreme weather, including record summer temperatures of 40C, are being felt in Abellio businesses and operational contingency plans have been tested. These plans were refreshed and enacted to ensure services were operated safely in collaboration with Network Rail.

Flooding has also become more prominent over the last year, with flooded tracks on Greater Anglia and station access being restricted in East Midlands.

Birmingham hosted the Commonwealth Games and West Midlands was commended for its exceptional service provision during the games. The 10-day event saw people travel to the city from across the country and West Midlands Trains provided a good service and were able to scale up services at the request of the mayor.

With the passing of Queen Elizabeth II, 'Operation London Bridge' was launched across the UK rail network and all businesses delivered an exceptional level of service during the period of mourning and on the day of the monarch's funeral. All businesses that provided services into central London mobilised all available units.

On strikes, Abellio and its businesses prepared months in advance and have a strong contingent workforce, providing a good level of operational resilience compared to other operators.

Carrier*	PPM** 2022	PPM 2021	Trains per day
1 Merseyrail	95.20%	97.10%	485
2 London Overground	93.70%	95.60%	1,327
3 Abellio Greater Anglia	93.30%	94.80%	1,012
4 TfL Rail	93.20%	94.70%	691
5 Chiltern	92.30%	93.80%	272
6 c2c Rail	92.20%	95.10%	269
7 ScotRail	88.80%	90.70%	1,615
8 South Western Railway	87.70%	91.00%	1,323
Average for all TOCs	86.80%	90.50%	
9 Southeastern	86.70%	91.10%	1,356
10 Caledonian Sleeper	86.60%	83.30%	5
11 Great Western Railway	86.40%	90.30%	1,322
12 Transpennine Express	85.20%	92.00%	201
13 First Hull Trains	84.80%	88.00%	12
14 TfW Rail Services	84.20%	87.30%	757
15 West Midlands Trains	83.80%	88.10%	951
16 East Midlands Railway	83.40%	86.90%	404
17 Northern	82.70%	88.90%	1,750
18 London North Eastern Railway	82.30%	88.50%	133
19 Govia Thameslink Railway	81.80%	87.40%	2,581
20 Crosscountry	81.40%	89.50%	185
21 Grand Central	76.60%	86.20%	16
22 Avanti West Coast	72.80%	84.10%	169

* This table shows the performance of the UK's franchised TOCs (MAA = Moving Annual Average) for Period 10 of the railway calendar for 2022 and 2021. Eleven of these franchises were contracted by the Department for Transport. ScotRail and Caledonian Sleeper are contracted by Transport Scotland and Transport for Wales Rail Ltd is franchised by Transport for Wales. Merseyrail, London Overground and TFL Rail have a franchise that is contracted by the local authority. LNER, Northern Trains and Southeastern are operated directly by the Department for Transport.

** PPM is the standard industry measure of train punctuality when a service arrives within 5 minutes of time advertised, or 10 minutes for long distance services.

The table below shows the cause of delays for Abellio's TOCs in 2022 by category, with delays attributed to Network Rail still the main cause:

- NR on TOC: delays attributed to Network Rail (infrastructure) on train operating companies, including extreme weather conditions;
- TOC on Self: delays attributable to a TOC itself;
- TOC on TOC: delays attributable to another TOC.

	Greater Anglia	Merseyrail	West Midlands	East Midlands
NR on TOC	75%	60%	57%	61%
TOC on Self	17%	38%	30%	27%
TOC on TOC	8%	2%	13%	12%

Abellio UK as an employer

Abellio UK is a major employer with more than 11,700 colleagues across its operating companies including Merseyrail.

Abellio UK is becoming a more diverse and inclusive workforce, so that it can both represent the communities it serves and attract the best talent. The Abellio Diversity and Inclusion Forum brings together colleagues from all operating companies to share best practice and make progress on the Abellio Diversity and Inclusions Strategy, including building an inclusive culture.

Following the response to the coronavirus pandemic Abellio UK has continued to ensure that it provides excellent wellbeing resources to all colleagues. Abellio UK continue to invest in their physical, emotional, and financial wellbeing through a range of initiatives and benefits such as Mental Health First Aid.

Each year Abellio UK undertakes two engagement surveys to ensure it is open and responsive to colleague feedback. Results are shared with colleagues through our engagement forums and communication channels and actions for improvement are owned at all levels through strategy and objective setting.

Abellio UK continues to play a key role in engaging with the principal rail trade unions by chairing both the industry wide Rail Industry Coronavirus Forum and Rail Industry Recovery Group to coordinate the response to the pandemic and then the financial aftermath due to the significant loss of revenues.

East Midlands Railway



East Midlands Railway (EMR) provides a mixture of Intercity and Regional railway services across the East Midlands region. EMR Intercity provides fast services between London St Pancras International and the towns and cities of the East Midlands and South Yorkshire. EMR Regional operates multiple of services across the country, from Liverpool to Norwich, Crewe to Newark Castle, Leicester to Lincoln and Cleethorpes to

Barton On Humber. EMR Connect connects commuter markets in Bedfordshire and Northamptonshire with London St Pancras International.

On Sunday 16 October 2022, EMR transferred from the extended ERMA on to the National Rail Contract model for an initial period of four years, until October 2026, with an optional additional four years with the Department for Transport.

There have been many important projects that will be key to the future success of EMR. These include extensive works at key depots to enable the ability to accept the new Aurora bi-modes fleet as they become available; the introduction of the new EMR uniform, significant increase to services on the Intercity and Regional routes, improved ticket solutions with introduction of a new App, web features and installation of smart kiosks.

EMR has been recognised in multiple awards, including being certified as a Top Employer by the Top Employers Institute for the sixth consecutive year, first place in 'Involving Young People and Children' at the national Community Rail Awards, and Nottingham was named 'Large Station of the Year' at the National Rail Awards Nottingham while the Customer Service Excellence Award was given to EMR Connect and a mainline driver, won the Lifesaver Award.

East Midlands (in € million)	2022	2021
Passenger revenue	383.7	209.4
Government income	133.5	293.9
Other income	17.1	33.8
Revenue	534.3	537
EBIT	12.4	3.7
Capital investments	-	-
PCS guarantees provided by NS	56.5	133.3
PCS guarantees called on (NS portion)	-	-
Other guarantees provided by NS	-	21.4
PCS guarantees not called on	56.5	133.3

Greater Anglia



Greater Anglia provides train services in the East Anglia region on intercity, commuter and rural networks, including services between Stansted Airport and London Liverpool Street.

Greater Anglia delivered a good year for operational, customer service, safety and financial performance, including its highest ever annual punctuality average of 95.02% in February 2022 and another very high rating from the DfT for its contract delivery and management. This was all achieved against the backdrop of the ongoing challenges of the pandemic

in the first half of the year and the national industrial relations issues in the second half of the year. In both cases, GA again consistently provided the best possible service and updated customers on the changes affecting their plans.

In its first full year under its new National Rail Contract (NRC), GA continued its transformation programme for rail services in East Anglia, with new trains now in service on all the routes it operates and over 140 of the 191 new trains ordered now in operation. Completion of this unprecedented full fleet renewal project is due by the end of 2023.

There have also been ongoing improvements across all areas including performance (as evidenced by the continued high punctuality results and the positive impact of the new trains); customer service (such as more tickets available as e-tickets and more flexible car park tickets at some locations); stations (such as the major upgrades at March and Bury St Edmunds and improved seating or waiting facilities at 76 stations); and accessibility (such as innovative, new virtual station tours for 12 stations). There has also been progress on sustainability (with more biodiversity at stations reinforced and embedded through a pioneering wildlife friendly stations accreditation scheme); energy efficiency (an 11% reduction in carbon emissions for the second year running); integrated transport (more cycle parking spaces and interchange enhancements); and community rail projects (most notably Essex and South Suffolk Community Rail Partnership winning the Outstanding Contribution award at the national Community Rail Awards).

There was also major independent recognition of GA's achievements and positive impact, as the company was named Passenger Operator of the Year at the National Rail Awards 2022.

Greater Anglia (in € million)	2022	2021
Passenger revenue	590.8	313.7
Government income	59.8	253.9
Other income	78.4	107.7
Revenue	729	675.4
EBIT before non-recurring items	15.7	10.4
Capital investments	-	-
PCS guarantees provided by NS	67.8	194
PCS guarantees called on (NS portion)	13.6	14.3
PCS guarantees not called on (NS portion)	54.2	179.7

Merseyrail



The Merseyrail concession is Abellio's longest rail contract, let by Merseytravel, for a period of 25 years (2003 to 2028). Merseyrail operates metropolitan services in and around the Liverpool City Region and is operated as a 50/50 joint venture with Serco.

Merseyrail has a well-deserved reputation as the most punctual train operator in the UK. In 2022, Merseyrail was recognised once again for its performance by being named Best Performing Regional Rail Operator at the Golden Whistle Awards for the fourth year in a row.

Despite a delay due to the COVID 19 pandemic and other factors, Merseyrail

continue to work with their client, Merseytravel on the implementation of the new fleet of class 777 trains. This is planned to take place over the next 12 months, replacing the current 507/508 rolling stock, which is over 40 years old.

Merseyrail continues to lead the way in terms of passenger satisfaction, with 91% of passengers expressing their satisfaction with their journey according to research carried out by the independent transport watchdog, Transport Focus.

Merseyrail (based on 100%) (in € million)	2022	2021
Passenger revenue	57.0	41.8
Government income	127.5	118.3
Other income	33.3	29.2
Revenue	217.8	189.3
EBIT	24.4	10.1
Capital investments	0.4	0.4
PCS guarantees provided by NS	-	-

West Midlands Trains



West Midlands Trains operates services from London Euston to Liverpool and throughout the entire West Midlands region. West Midlands Trains is divided into two brands: West Midlands Railway for train services in and around Birmingham and London Northwestern Railway for train services on the West Coast Main Line to and from London Euston.

As the primary train operator in Birmingham, West Midlands Trains was at the centre of the successful transport operation for the 2022 Commonwealth Games. Record-breaking passenger numbers were recorded at several stations across the network as an estimated two million journeys made by rail in the West Midlands during the Games period.

In October 2022, West Midlands Trains successfully introduced the first in a new fleet of 26 diesel trains – the Class 196 – into passenger service onto its route between Birmingham and Shrewsbury. These CAF-built trains will begin running between Birmingham, Worcester and Hereford in 2023. A fleet of 84 electric trains – Class 730s – are also due to begin entering service in 2023. Built by Alstom, these trains will be used on long-distance routes on the West Coast Main Line and on the Cross-City Line in Birmingham. The introduction of both fleets has been delayed by the pandemic.

A milestone of 672 available drivers was reached at West Midlands Trains in autumn 2022. This figure represents important progress as WMT continues to operate a concerted driver training programme to catch up on months of training lost during the pandemic, in turn significantly reducing traincrew-related cancellations.

West Midlands (in € million)	2022	2021
Passenger revenue	389.9	228.1
Government income	267.3	422.7
Other income	22.1	63.2
Revenue	679.3	714.0
EBIT before non-recurring items	15.3	10.7
Capital investments	-	-
PCS guarantees provided by NS	61.4	122.6
PCS guarantees called on (NS portion)	42.4	45.2
PCS guarantees not called on (NS portion)	19.0	77.4

Abellio Bus

Abellio London Bus runs 786 buses on 51 London routes, equating to 9% of the market in the capital, for the client Transport for London (TfL).

In 2022 the company commenced two new TfL route contracts, including its first double deck electric vehicles. It also received confirmation of future contract awards which resulted in five of the six depots running electric bus routes from the middle of 2022. This means that more than 10% of the fleet is operating with zero emissions.

The impacts of the high inflation prevalent across 2022 were significant. As well as this having an adverse impact on costs, there has been an increase in the cost of living resulting in bus drivers seeking an above inflation pay rise. Abellio London Bus has been engaging with the Unite the Union for several months on a new pay award to ensure that supports staff through the cost-of-living crisis whilst being affordable to the company. Despite discussions, Unite has taken its members out on 13 days of strike action in late 2022. After exhausting the pay negotiation process, Abellio London Bus implemented a pay increase on 31 December, seeking to end the pay dispute and ensure staff received increased pay for them to combat the increased cost of living. However, the pay award for 2023 remains unresolved as at 31 December 2022. Management continues to engage with union officials and are confident that a resolution will be achieved in the coming period. An agreement was reached on the remuneration for 2023 in February 2023.

The company has opened a new operating centre and an engineering facility. These additions in west London, replacing a depot closed the previous year, have strengthened facilities for bus service operation, and improved the prospects for acquiring additional TfL routes.

In the Abellio ancillary businesses, Abellio Rail Replacement (ARR) provides alternative transport services, such as coaches, buses, and taxis, to the Abellio Train Operating Companies (EMR, WMT and GA), as well as non-Abellio TOCs including Caledonian Sleeper, Transport for Wales and ScotRail Trains Limited.

With the introduction of the National Rail Contracts, intercompany rail replacement services had to be retendered in 2021. Due to a challenge from a bidding party around the procurement process in 2021 that was conducted by a third-party entity, these services have had to be retendered again in 2022. The outcome of the intercompany rail replacement tenders is outstanding, and therefore it is uncertain whether ARR will be able to retain these contracts. The ScotRail rail replacement contract, which was previously with the intercompany Abellio ScotRail until 31 March 2022, expires on 31 March 2023 and a tender process is underway with the aim of retaining this contract.

Event Connect supplies ground transport solutions to major sporting events, tour operators and corporate clients. This market, which was impacted severely by COVID, recovered significantly in 2022, and Abellio continues to invest in this area to develop its offering.

Abellio London Bus (in € million)	2022	2021
Government income	238.5	233.0
Rail Replacement (Intercompany)	27.8	33.9
Revenue	266.3	266.8
EBIT	6.7	14.8
Capital investments	-	12.5
Guarantees provided by NS	-	-

Abellio Germany



A passenger receives help buying a train ticket.

Economic situation and market context

The overall economic development in Germany in 2022 was characterised by several factors. COVID-19 continued to have a strong impact on economic activity in the third year of the pandemic. However, in Germany the direct financial impact of the coronavirus pandemic on public transportation and mobility services has been limited because the risk of lost revenue lies with the Public Transport Authorities (PTAs), the clients of Abellio Germany. Public funds have been granted to the PTAs to compensate for this impact.

With the start of the Russian war against Ukraine in February 2022, the situation in global supply chains worsened. There were also massive price increases, especially for food and energy costs. Further, the acquisition of spare parts has become significantly more difficult.

The German economy cooled down sharply in 2022. The high rates of inflation are reducing the real income of private households and their savings and reducing purchasing power.

In order to mitigate the effects of higher prices, especially for energy, food and mobility, the federal government has decided on several relief packages.

One of the key measures was the introduction of a three-month discounted nationwide ticket for regional public transport, the so-called 9-Euro-Ticket in the months of June, July and August. More than 52 million tickets have been sold within 3 months – in addition to 10 million subscribers, who automatically received the discount via their monthly tickets. Due to the relaxation of the corona measures and the introduction of the 9-Euro-Ticket public transport in Germany recorded significantly more passengers in 2022 than in the two previous years.

In addition to the challenges posed by the corona pandemic and the current geopolitical environment the year 2022 has further been quite difficult for rail operations in Germany due to the all-time high number of construction works on the infrastructure and shortage of staff across our industry.

German rail market in a nutshell

The German regional market has been deregulated since 2003, with responsibility for its organisation assigned to the 16 federal states of Germany. Each state has its own way of managing its regional market for rail passenger transport. This led to the creation of 27 regional transport authorities (PTAs), who adopted different tendering regimes, with a substantial flow of potential concessions. There is a constant flow of public tenders into the market.

Regional public rail transportation in Germany is subsidised by the federal and the state governments through grants in contrary to public long-distance transportation that is not subsidised.

In Germany the rail passenger transport market is dominated by Deutsche Bahn and its regional transportation subsidiary DB Regio AG including Regionalverkehre Start Deutschland GmbH. Start is a subsidiary of DB Regio with a clear focus on winning back regional contracts for Deutsche Bahn. Deutsche Bahn is also responsible for the rail network and

stations with infrastructure operator DB Netz and DB Station und Service as part of the DB-Group.

Abellio has gross contracts with the PTAs, which means that Abellio Germany is paid for its service per train-kilometre.

Restructuring of Abellio Germany

Abellio Germany was founded in 2004 as a regional rail company in Essen and NS acquired the company (Abellio GmbH) in 2008. The German regional transport market has been difficult to operate in due to external factors other than the corona pandemic, such as increased infrastructure works resulting in rail replacements costs and penalties for missing contractual punctuality targets that cannot be influenced by the train operators and tariff agreements for train crew and labour market developments resulting in higher staff- and training costs. The aforementioned cost increases are not sufficiently covered by the transport agreements indexation mechanism and not otherwise compensated. Abellio Germany was thus foreseeing a loss-making situation for the longer term, which was not sustainable without significant financial support and/or changes to the transport agreements. The losses have been funded by Abellio Germany's shareholder under the assumption that long term solutions would be feasible. In 2021, after negotiations with major PTAs had failed, Abellio Germany initiated a so-called Schutzschirmverfahren (special insolvency proceedings under German law) to find a viable long-term solution by restructuring the activities and loss-making contracts of all entities of Abellio Germany. The insolvency proceedings made it possible to work on a solution per entity together with the most important PTAs, rather than a solution for the whole of Abellio Germany.

In the course of 2022 the restructuring process of part of the operational entities was completed and the shares of the relevant entities were transferred to a new German holding company within the NS Group (ATH Rail Transport Beteiligungsgesellschaft Deutschland GmbH) with its headquarter in Berlin. With the closing of the insolvency proceedings financial control was regained over PTS GmbH (as of 1 February 2022) and WestfalenBahn GmbH (as of 1 March 2022). WestfalenBahn will continue running the Emsland- and Mittelland contract until regular expiry in December 2030. Control over Abellio Rail Mitteldeutschland GmbH was regained on 1 July 2022. Abellio will continue services in the STS-network until its regular expiry date (December 2030), whereas the DISA contract will be handed back earlier (December 2024 instead of 2032). Re-tendering of DISA, without participation of Abellio, has already been initiated by the PTAs.

The activities in North Rhine-Westphalia were discontinued and the contracts were transferred to various operators appointed by the PTAs, as an agreement could not be reached on additional compensation. The entity in North Rhine-Westphalia will be liquidated by the trustee. The subsidiary in Baden-Württemberg was acquired by the state-owned operator SWEG, which manages the operations until the end of 2023. The entity will then be transferred to a new shareholder following the retender of the local rail network contract. The insolvency (restructuring) proceeding of Abellio GmbH, the former German holding, is still in progress. The legal completion of these proceedings could take quite some time. The nature and outcome of an insolvency process are unpredictable. Hence, the operating result and cash flow in future years could be affected by an (un)favourable outcome compared to current estimates that have been made.

After the restructuring Abellio Germany now operates rail concessions in the federal states of North Rhine-Westphalia and Lower Saxony (WestfalenBahn) as well as Saxony, Saxony-Anhalt, Thuringia, Hesse, Brandenburg and Berlin (Abellio Rail Mitteldeutschland). In addition, Abellio in Germany owns the cleaning and security services company PTS, located

in Neuss.

Further, in 2022 (after completion of the insolvency proceedings) a new functional organisation across all remaining Abellio entities with a clear Management focus on operational performance and customer satisfaction has been established. Key management objectives are improvement of operational quality, safety and service orientation as well as sustainable profitability.

Operational Performance

In Central Germany, the STS concession entered its eighth year of operation in December 2022. WestfalenBahn has also been operating the Emsland and Mittelland network for eight years. In recent years, both companies have built up based on their operational performance a strong and good reputation among passengers and PTAs.

In general the operational framework conditions are very challenging. Especially in the summer months, the 9-Euro-Ticket led to an all-time high number of passengers on the connections, which were already in high demand. The significant increase in number of passengers all over the country caused a significantly lower punctuality rate in 2022 than in former years. Reasons are: overcrowded trains due to 9-Euro-Ticket, personnel shortages and poor infrastructure availability (unmanned signal boxes, construction works, short term closure of tracks because of the replacement of a specific type of railroad ties (Dwarsliggers) by DB Netz. Other operational challenges, e.g. safety management and availability of trains, are under control.

Shortage of staff and need for qualified personnel

The labour market in Germany is difficult. There is a high demand for conductors, train drivers and workshop employees. Experienced train drivers are scarce and it is not easy to recruit qualified specialists as career changers for the industry. All players in the industry see themselves confronted with the challenges of an increasing shortage of skilled workers. The entire railway sector is in competition with other industries, so that it is becoming increasingly difficult to attract career changers. The infrastructure operator DB Netz is also increasingly unable to fill shifts. This means, for example, that Abellio in Central Germany had to cancel numerous connections, especially during night hours and weekends. Abellio launched a major employer branding and recruiting campaign for all operational companies in 2022. The aim of the campaign is to draw attention to Abellio as an attractive employer in our regions. The attrition rate at Abellio is below industry average, which is especially significant as Abellio just left an insolvency proceeding. However, vacancy rates are high as job vacancies could not be filled due to the proceedings and the overall shortage of skilled work force is impacting us the same as all companies.

Constructions works

The German rail network is considered to be overloaded. Apparently there are too many trains on certain main axes in particular. In many places the infrastructure is outdated and ailing. It urgently needs to be renovated, extended and digitalised. As a result there are now more construction works to get the network back into shape. This also causes bottlenecks in the rail network, resulting in massive delays. In addition to the planned construction sites to modernise the infrastructure, there were particular strains in 2022 due to short-term route closures to replace damaged concrete sleepers. The network operator DB Netz had to replace concrete sleepers in the summer of 2022 following an accident in the south of Germany that killed 5 people. The Harz region in Central Germany (ABRM), among others, was massively affected. Train traffic was disrupted for several weeks.

Financial result

As the consolidation criteria were no longer met, NS deconsolidated all German subsidiaries as of 30 June 2021 following the start of the insolvency proceedings and its value and further investments have been written down to zero. NS started consolidating the financial result again from the moment the shares in the restructured German entities were re-acquired and the insolvency proceedings ended in the course of 2022. As such the consolidated period varies per legal entity. PTS is consolidated as of 1 February 2022, WestfalenBahn (WfB) as of 1 March 2022 and Abellio Rail Mitteldeutschland (ABRM) as of 1 July 2022. Abellio GmbH (the former holding company) is still in proceedings, thus not consolidated, but still possess various assets, personnel and contracts.

In 2022 Abellio Germany reported a revenue of € 256 million from its restructured operations (first half of 2021 € 355 million). The consolidated operational result for Abellio Germany in 2022 was € 2 million (first half year 2021 € 22 million negative and in addition the shareholder financed the costs incurred during the restructuring, for the loss-making contracts and costs associated with the termination of part of its activities).

The first time consolidation in 2022 of the restructured German entities resulted in an accounting upside of € 108 million in the acquiring holding company ATHR due to acquisition accounting whereby assets and liabilities are reassessed and former shareholder loans as well as part of the creditor liabilities are released as agreed in the insolvency plan. This accounting upside in 2022 has been recognized as 'financial result' and should be seen in conjunction with the aforementioned impairment of the investment and shareholder loans and provisions by the shareholder when NS lost control in 2021. The result is due to the on-going finalisation of the insolvency and local statutory accounts still subject to change in 2023.

Outlook 2023

In 2023, the two issues of staff availability and infrastructure construction sites will continue to have a strong impact. In order to continue to have sufficient staff available, Abellio will further intensify its recruitment campaign in the first half of 2023.

In view of the high investment volume for the expansion and renewal as well as digitisation of the rail infrastructure, numerous restrictions are to be expected. The German state and Deutsche Bahn will invest €86.2 billion by 2030 to modernise the rail network. Among other things, this involves the replacement of outdated switches, tracks and bridges. A further €40.5 billion are available for the digitisation of the network and for new construction and expansion projects. This will increase the capacity of rail infrastructure in the longer term, but will cause an increase in construction works in the short term with massive impact on both passengers and train operating companies.

According to the Federal Government, the general refurbishment is a prerequisite for the desired "Deutschlandtakt". By 2030, this envisages a system with better coordinated transfer connections between the major cities. Passenger transport is to be doubled by 2030.

As a continuation of the popular 9-Euro-Ticket and with regard to strengthen environmentally friendly mobility, the federal government and the federal states have decided to introduce a digital and nationwide ticket for local and regional transport for 49 euros per month (so-called Deutschland-Ticket). It is currently planned by the federal states and the PTAs that the ticket - as a monthly redeemable subscription - will be available from May 1st 2023.

In addition the funding of regional public transportation services ('regionalisation fund') were increased by €1 billion per annum. This will give the 16 federal states the opportunity to order more public transportation, make rail transport more attractive and thus achieve the goal they have set themselves of doubling the number of passengers by 2030.

Regarding Abellio's business activities the current strategy is to optimise existing contracted services and pursue opportunities that are regionally well connected to its current business activities and will offer synergy potential. While the focus for 2022 has been on the restructuring; the future goal remains that Abellio's operations contribute to Dutch operations through cross-border connections in the interest of Dutch passengers and contribute positively to the financial result. Preferably the cross-border traffic between the Netherlands and Germany is expanded and improved. This supports the strategy of NS and is an attractive prospect for Dutch and German passengers, but only if the contracted fee enables Abellio Germany to earn a reasonable return over time.

In 2023 Abellio will intensify the preparatory work regarding the handover of the DISA-network to a new operator in December 2024.

Rail franchises in Germany

Today Abellio operates 29 lines in 3 rail concessions in 8 federal states. Abellio Germany's head office is based in Berlin with subsidiary offices in Halle (ABRM), Bielefeld (WfB) and Neuss (PTS).

In Central Germany, Abellio operates the Saale-Thüringen-Südharz network (STS) and the Sachsen-Anhalt diesel network (DISA) with Abellio Rail Mitteldeutschland GmbH. WestfalenBahn GmbH runs the Emsland and Mittelland network in North Rhine-Westphalia and Lower Saxony. In addition, Abellio in Germany owns the cleaning and security services company PTS, located in Neuss, which provides services to various concessions operated by Abellio and other train operators in Germany.

	Company	Start	End	Annual train kilometres in millions	Punctuality with a 5 minute margin	Trains
Franchise						
Saale-Thüringen-Südharz-Netz (STS)	ABRM	2015	2030	9.2	89.2%	35
Dieselnetz-Sachsen-Anhalt (DISA)	ABRM	2018	2024	9.0	90.5%	54
Emsland-/Mittelland-Netz (EMIL)	WfB	2015	2030	5.4	89.2%	28

German operating companies

Abellio Germany	Revenue in 2022 (in € million)	Number of employees (end of December 2022)
Abellio Rail Mitteldeutschland	138.9	954
WestfalenBahn	108.2	300
PTS	9.3	285
Miscellaneous	-1.5	5
Total before intercompany elimination	257.8	1,544
Intercompany elimination	-5.0	-
Total	252.8	1,544

After completion of the restructuring in 2022, the following rail franchises in Germany are operated by Abellio next to the cleaning and security services company PTS:

Abellio Rail Mitteldeutschland GmbH

Abellio plays an important role in Central Germany. Since 2015, Abellio's trains have been running on the STS electric network and since December 2018 on the DISA network. Thousands of passengers are able to travel with Abellio in the Harz and Börde regions and as well between the major cities of Erfurt and Magdeburg.



WestfalenBahn GmbH

The company is based in Bielefeld and connects the cities of Braunschweig and Hannover in Lower Saxony with Bielefeld and Rheine in North Rhine-Westphalia. From Münster there is a direct line via Meppen and Leer to Emden on the North Sea.



Financial performance

Finance in brief



A main guard opens a library in De Huiskamer at Arnhem Central station.

The disclosed capital position and the net result of NS show a positive development. Even so, the operating profit without government support and underlying developments remain negative. This is due to the impact of COVID-19 on passenger behaviour and, on top of that, to negotiated wages and an inflation rate that are both substantially in excess of the increase in train fares. The result from operating activities for 2022, net of the public transport availability payment (BVOV) and other non-recurring and exceptional items, amounted to a loss of €-304 million (2021: €-952 million). Despite the government support in the form of the BVOV, the total cash flow from operating activities has been insufficient since 2020 to cover our operating activities and the capital expense incurred in recent years to keep the Netherlands accessible in a sustainable manner. The deficit has resulted in a sharp increase in borrowed capital (up €1,185 million since 2020) that we needed to finance our operating activities and investments. A financially healthy NS is essential if we are to continue serving the public interest and achieve our ambitions for mobility in the Netherlands.

Financial result

Below we present the income statement plus explanatory notes, up to the result from operating activities, differentiating between our activities in the Netherlands and those in Germany. The income statement presents revenues and costs net of the public transport availability payment and other non-recurring and exceptional items, and is reconciled with the result from operating activities as recognised in the financial statements. Due to the proposed sale of our operations in the United Kingdom, we present the results concerned on a net basis under result from discontinued operations after tax.

Underlying result improves but is not sufficient to ensure financial health for NS

Income statement (part 1/2) (in millions of euros)	The Netherlands		Germany		Total	
	2022	2021	2022	2021	2022	2021
Train-related transport	2,362	1,547	256	378	2,618	1,925
Station development and operation	437	327	-	-	437	327
Revenue (excluding BVOV and NOW)	2,799	1,874	256	378	3,055	2,252
Personnel expenses	1,376	1,294	49	84	1,425	1,377
Depreciation charges	486	453	64	50	550	504
Use of raw materials, consumables and inventories (excluding energy)	173	147	6	5	179	152
Energy	97	81	17	24	113	105
Own capitalised production	-106	-99	-	-	-106	-99
Subcontracted work and other external costs	398	353	17	38	416	391
Infrastructure levy	249	247	94	172	343	419
Franchise fees	172	167	-	-	172	167
Other operating expenses	254	162	11	28	265	191
Operating expenses (excluding non-recurring and exceptional accounting items)	3,100	2,806	258	401	3,358	3,207
Share in result of investments (accounted for according to the equity method)	1	1	-	-	1	1
Underlying result from operating activities	-302	-930	-2	-22	-304	-952
Public transport availability payment (BVOV)	274	925	-	-	274	925
Temporary emergency bridging measure for sustained employment (NOW)	12	15	-	-	12	15
Provisions for reorganisation costs	-	-11	-	-	-	-11
Temporary early retirement scheme	-5	-16	-	-	-5	-16
Impact on the result impairment 2020	535	149	-	-	535	149
Revised working method for capitalisation and depreciation of IT expenditure	-117	-	-	-	-117	-
Balance of miscellaneous	-9	-37	4	-	-5	-37
Effect of non-recurring and exceptional items	690	1,025	4	-	694	1,025
Result from operating activities	389	94	2	-22	391	71

The result from operating activities was €391 million (2021: €71 million). However, this result is highly distorted due to the public transport availability payment received and other non-recurring and exceptional items. This is why the development of the underlying result from operating activities is a more reliable measure of our financial performance. The underlying result from operating activities reflects the result from operating activities net of non-recurring and exceptional items and amounted to €-304 million in 2022 (2021: €-952 million, 2020: €-977 million). While less negative than in previous years since the COVID-19 outbreak, the result remains far too low.

The new normal

As in previous years, NS received compensation from the Dutch government for the costs incurred to keep its trains running, despite the sharp fall in passenger numbers. In 2022 this compensation amounted to €274 million (2021: €925 million, 2020: €818 million). Since passengers returned to our trains, our revenues from passenger transport and station activities in the Netherlands have risen substantially, by nearly 50% relative to 2021. The number of passenger kilometres in 2022 was up 76% compared with 2019, the last year before the COVID-19 crisis (2021: 49% (2020: 45%). The passenger kilometres increased gradually throughout the year: from 46% in January to 86% in December. We now seem to have reached a new normal in terms of passenger numbers since COVID-19. Now that working from home has become commonplace, passenger numbers, especially for commuters, remain behind 2019 levels.

Rising energy prices and inflation rate

The inflation rate in the Netherlands for 2022 was 10%. The consequences were widely felt, also by NS. Nevertheless, over the same period we only increased the price of most train tickets and season tickets by an average of 1.8%. In 2021, too, the increase in the price of most train tickets, at 1.2%, was lower than the inflation rate. The 'indexation gap' of 9.4% is obstructing the crucial recovery of our revenues while the high inflation rate is pushing up our costs.

Adjusted for non-recurring items, our operating expenses increased by 10% relative to 2021. This is mainly due to the higher passenger numbers compared with 2021, the rising inflation rate and the increase in negotiated wages. Personnel expenses account for nearly half of our operating expenses. We are a high-volume user of electricity, but as regards the traction electricity requirements of our rolling stock we only suffered very limited exposure to the sharp increase in market prices in 2021 and 2022. This is thanks to a hedging strategy under which we purchased much of the required traction electricity for the period up to and including 2024. In 2022 we recognised a franchise fee and a high-speed line fee payable to the Ministry of Infrastructure and Water Management totalling €172 million (2021: €167 million) and an infrastructure fee payable to ProRail of €249 million (2021: €247 million).

Due to the impact of the COVID-19 pandemic on NS, we recognised an asset impairment of €1.6 billion in 2020. This resulted in a €150 million decrease in depreciations in 2022. Due to realised losses, the impairment has since been reversed in the amount of €385 million. The impairment does not generate any cash flows.

NS has adapted its operating practices within the IT domain to reflect current developments in IT. This has reduced the amount of IT expenditure that can be capitalised. While this is generating higher costs, the effect is temporary and due to lower depreciations the cumulative effect of this change on the result will fall to zero in the next few years.

Positive operating result in Germany

The financial impact of the COVID-19 crisis on NS in Germany was limited. This is because in Germany it is the public transport authorities, rather than the carriers themselves, who bear the transport revenue risk. The result from operating activities in Germany was positive. Due to the restructuring operation in Germany, however, the 2022 results cannot be compared with those for 2021. As the railway companies in Lower Saxony (WestfalenBahn) and Thüringen (Abellio Rail Mitteldeutschland) were restructured successfully, the insolvency proceedings could be terminated. Hence, these units have once again been included in the consolidated results of the Group.

Abellio Rail Nordrhein-Westfalen went bankrupt; once it had been established that no agreement could be reached, its activities were transferred to operators designated by the public transport authorities. Abellio Rail Baden-Württemberg was taken over by SWEG, a company owned by the federal state of Baden-Württemberg. The insolvency proceedings with respect to the former holding Abellio GmbH are still pending. The finalisation of these proceedings may take some considerable time, and the outcome is highly uncertain. At the end of 2021, we made provisions for the expected outflow of funds in the context of the settlement, and we maintained these provisions in 2022.

Positive result

Below is the second part of the income statement.

Income statement (part 2/2) (in millions of euros)	NS	
	2022	2021
Result from operating activities	391	71
Net financing result	178	-331
Result before income tax	569	-260
Income tax	-37	343
Result from continued operations	532	83
Result from discontinued operations after tax	54	417
Result for the period	586	500
Minority interest	7	161
Attributable to the company's shareholder	579	339

The positive net financing result is mainly attributable to the negative goodwill and partial reversal of the downward value adjustment and provisions created as recognised in 2021 in connection with the restructuring of operations of Abellio Rail Mitteldeutschland and WestfalenBahn in Germany. The partial reversal of the downward value adjustment and provisions created was possible thanks to the successful completion of the restructuring operation for these business units.

It has been a requirement under the NS strategy since 2018 for international operations to serve the interests of passengers in the Netherlands. In compliance with this principle, we have been preparing to exit the UK market. Due to the intended sale of our UK operations to Abellio UK's local management in the first half of 2023, we present the results concerned on a net basis under result from discontinued operations after tax (2022: €54 million, 2021: €417 million). For a further explanation of the result, see [Note 2](#) to the financial statements, which recognised an underlying result from operating activities of €44 million (2021: €29 million).

Thanks to the result from operating activities and the exceptional items it includes, in combination with the above, we are able to report a net profit of €579 million (2021: €339 million).

Financial position

Borrowing funds for investments

The adjusted cash flow statement below focuses on the ratio between the cash flow from operating activities and the cash flow from investing activities and the relationship with the development of the company's debt position.

Cash flow statement (in millions of euros)	2022	2021	2020	Total
The net cash flow from operating activities after repayment of lease commitments (excluding security deposits for energy contracts)	656	-437	441	660
Acquisition of assets (tangible and intangible) and investment property	-450	-554	-548	-1,552
Balance of cash flows from operating activities and investments	206	-991	-107	-892
Increase in loans (balance withdrawal/repayment)	80	598	507	1,185
Balance of other cash flows and exchange rate differences	-266	-64	-81	-411
Total movement in cash and cash equivalents (including exchange rate differences)	20	-457	319	-118
Cash and cash equivalents (year-end)	394	680	1,137	
Classified as held for sale	304	-	-	

In 2022, NS invested a total of €450 million (2021: €544 million), mainly in purchasing new trains and upgrading existing trains, and in IT in support of operations and customer contacts. Despite government support in the form of the public transport availability payment, since the outbreak of the COVID-19 pandemic our cash flow from operating activities has been insufficient to cover our business and capital expenditure. Following cumulative increases since 2020, the deficit of €892 million resulted in a sharp increase in loans (balance of drawdowns and repayments) of €1,185 million (to a total of €1,840 million) needed to finance our operating activities and investments. The balance of other cash flows in 2022 was negative, mainly due to investment of temporary surplus cash in money market funds.

Limited fall in credit rating since the COVID-19 pandemic

Standard & Poor's (S&P) is an independent credit rating agency that has assessed NS's creditworthiness for quite a few years now. One important indicator is the ratio between cash flows from operating activities and the company's debt position. The fact that the Dutch State is the shareholder of NS is a positive factor in S&P's assessment of our creditworthiness. In its last assessment before the COVID-19 crisis, in May 2019, NS received an A+ rating. It is thanks to the availability payment in 2021 and 2022 that the decrease of our rating, despite the sharp fall in passenger numbers and the negative underlying result from operating activities, has remained limited. In the most recent assessment, which dates from June 2022, we have an A rating with a stable outlook.

Restructured German operations reconsolidated

In 2022 the restructured German operations were included once again in NS's consolidated balance sheet, resulting in a higher balance sheet total for 2022. The balance sheet of NS is presented below.

Balance sheet (in millions of euros)	2022	2021		2022	2021
Non-current assets	4,866	4,793	Equity	2,309	1,689
Current assets	1,641	1,895	Non-current liabilities	2,384	2,675
Cash and cash equivalents	396	680	Current liabilities	2,339	3,004
Assets held for sale	1,476	-	Liabilities held for sale	1,347	-
Total assets	8,379	7,368	Total equity and liabilities	8,379	7,368

NS's assets include trains, inventories, software, company buildings and premises and land for train maintenance activities and business accommodation. In addition, we own properties that we lease out to third parties, for example to accommodate retail outlets at our stations.

The balance sheet total increased in 2022, which is mainly due to the reconsolidation of the German entities (€727 million), investments (€450 million) and the partial reversal of the impairment (€385 million). The impact of the impairment was €879 million at year-end 2022. In view of the intended sale of our operations in the United Kingdom, the assets and liabilities concerned are presented on a net basis under assets and liabilities held for sale, respectively.

The off-balance sheet liabilities include guarantees that NS provided in connection with the operation of the franchises in Germany and the United Kingdom. These decreased to €504 million (2021: €781 million) and will largely expire in 2023.

The liquidity available to the Group at the end of 2022 amounts to €1,141 million. This includes cash resources of €396 million, including the security received from Eneco based on a Credit Support Agreement under the energy contract for the Dutch main rail network of €360 million, and investments in two money market funds totalling €745 million. In addition, the Group has access to credit facilities totalling €950 million.

Looking ahead

Reducing costs

We expect to see further financial challenges in the years ahead. This is due to high inflation rates, the long-term drop in passenger numbers and termination of the public transport availability payment in 2022. The availability payment will be replaced by a much smaller 'transition safety net' with an expected budget of €45 million for NS. In the coming years, NS will have to continue borrowing funds to cover all the costs of its operating activities and investments, while the company's debt has already risen in recent years. We will continue our efforts to reduce our costs and improve our results. In 2020, NS launched a cost-savings programme that should reduce our costs by €1.4 billion over the period through 2024: this involves a structural decrease of our operating costs and postponement or cancellation of capital expenditure projects. NS has so far realised approximately half of all the initiatives in the programme that concern our operating costs.

Healthy balance sheet risks and return from the main rail network franchise

Based on the current conditions governing the franchise, NS expects to continue making losses on the main rail network up to and including 2024. In the period ahead, we will consult with the Ministry of Infrastructure and Water Management about the conditions to be attached to the new franchise, which will take effect in 2025.

Taxation

Taxes are the primary source of income for the government, and are used to finance general facilities. This includes the railway infrastructure, which is of crucial importance to NS. As a state participation, NS wants to be fully transparent as regards the money flows associated with taxation. The table below presents the amounts paid and received.

Tax paid (in millions of euros)	Corporate income tax		Turnover tax		Payroll tax	
	2022	2021	2022	2021	2022	2021
The Netherlands	-	-	66	-17	416	707
United Kingdom	1	-4	-333	-404	221	281
Germany	-	-	-14	-44	4	8
Total	1	-4	-281	-465	641	996

From a tax perspective, NS incurred a loss in the Netherlands in 2022, as in the preceding years. This situation is due in particular to the fact that the reversal of the impairment was not recognised for tax purposes, and does not result in a taxable profit. Due to the tax losses incurred, NS has not paid any tax on profits (corporate income tax) in the Netherlands in the past few years. Under the existing tax rules, the tax losses can be set off against future profits. In the financial statement for reporting purposes, the tax on profits is calculated on the basis of the applicable tax rates, with due regard for the tax rules that give rise to permanent and temporary differences between the determination of the profit for commercial purposes and the determination for tax purposes. The effective tax rate for profit before corporation tax was 7% (2021: -276%). This lower effective tax rate relative to the nominal tax rate of 25.8% is caused mainly by the upward revaluation of temporary differences as a result of the expected release of tax deferrals for impairments and untaxed results of the restructuring of the German operations.

NS's costs are largely subject to the high VAT rate. We can set off the VAT charged against the VAT that we have to pay on our sales. Most of NS's sales are taxed at the lower VAT rate or are zero-rated. In the United Kingdom, the VAT rate on the sale of train tickets is zero.

Payroll tax is a tax that we, as the employer, withhold from the salaries of our employees and then pay to the Tax and Customs Administration (*Belastingdienst*).

Our impact

Our impact on the Netherlands



In its television commercials, NS provides space for up-and-coming musical talent.

In 2022, NS welcomed more passengers than in 2021. Our social impact is considerable. This is reflected in areas such as mobility, safety and the environment, as well as in our expenditure.

We use our impact model to provide insight into our impact on Dutch society. In that model we translate the effects of our operations into positive or negative values expressed in euros. Besides these effects, we also have an impact on society in many other fields. Below are some examples of our contribution to solving societal challenges in the Netherlands.

Housing construction

The Dutch government has decided that 100,000 new houses are to be built every year during the period up to 2030. Those houses have to be climate neutral and accessible, while space is scarce. NS is contributing ideas on how to ensure good connections for new housing estates, some of which will be built on its own land. To ensure accessibility for these housing estates in the long term, the residents should have a choice of different modes of transport. In addition to train services, therefore, NS will also offer shared transport facilities of its own and those of its partners. However, there is also a negative impact: construction activities for new stations near new housing estates and villages may cause noise nuisance for local residents. It is our task to minimise that nuisance.

Liveable cities

The Dutch population will grow by one million over the period up to 2030. This will cause pressure on the liveability of many areas, on top of the existing challenges in connection with pollution, safety (including road safety), congestion and education. Thanks to public transport, cities are becoming more and more pleasant and healthy places to live. High-quality rail connections to and from our cities help to reduce congestion and pollution while improving road safety. Providing such connections, therefore, will remain a key priority for us. In addition, our train services and OV-fiets concept help to make cities accessible for everybody - including people who do not have a car.

Emissions

Excessive nitrogen emissions are threatening the ecosystem in the Netherlands. Road transport and agriculture are the main sources of those emissions. If people travel by train instead of by car, substantial nitrogen and CO₂ emissions can be prevented. Persuading people to travel by train instead of by car is an effective method, therefore, to help solve the nitrogen issue in the Netherlands. At the same time, rail transport itself appears to be responsible for relatively large emissions of particulate matter. We are examining ways of reducing those.

Social inequality

Inequality in the Netherlands is growing. This is why participation and equal opportunities are crucial. NS wants to be there for everybody. For that reason, in 2022 we offered equal travel opportunities for passengers with a disability at 27 more stations, and engaged with people with a minor mental disability to find ways of making it easier for them to travel by train. In addition, in 2022 we signed the 2022-2023 Administrative Agreement on the Accessibility of Public Transport with ProRail. The purpose of this agreement is to ensure that public transport is accessible to all by 2040. The staff shortages at NS in 2022 also affected our travel assistance service. On some occasions, no travel assistance was available or the passengers concerned had to wait for a long time before being assisted. We are committed to implementing improvements.

Rising costs

Due to high inflation rates and soaring energy prices, many people in the Netherlands had less money to spend in 2022. In September 2022, the inflation rate even reached 14.5%. We strive to keep train fares affordable, so that rail travel remains available for as many people as possible. At the same time however, the high inflation rate is also pushing up our own costs. For the most part we paid those costs ourselves, and did not pass them on in the new train fares for 2023. After all, we want to keep rail travel attractive for everybody.

Calculating our social impact

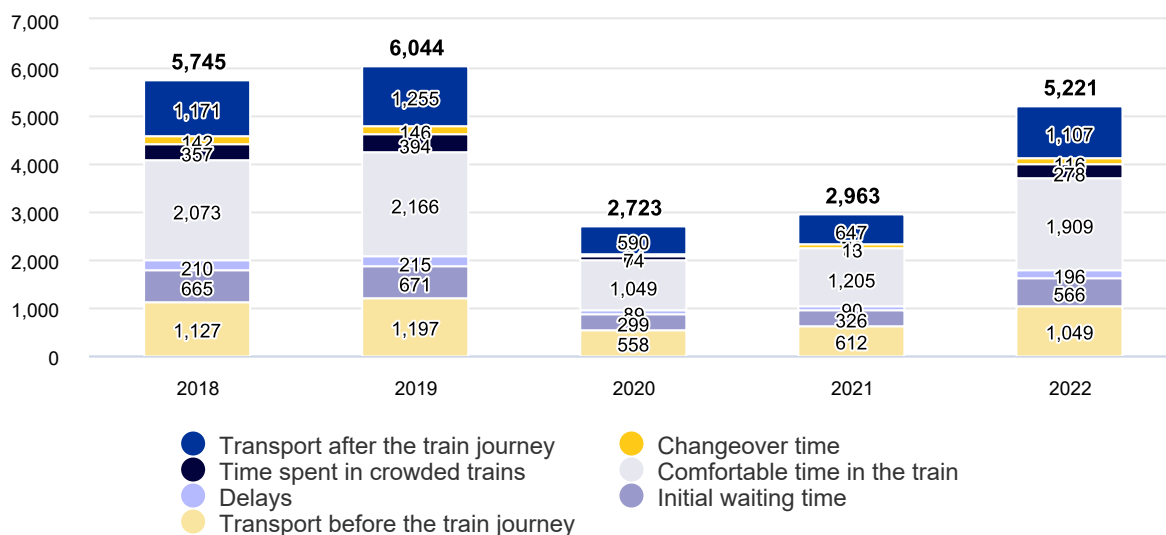
We present our social impact by expressing our positive and negative socio-economic and environmental effects in euros. In this chapter, we objectify our social impact by expressing some of those effects in monetary terms. For further information about the terminology, the principles applied and the valuations and sources used, consult the [NS 2022 Handbook on socio-economic impact analysis \(in Dutch\)](#).

Mobility and travel time

The Kennis Instituut Mobiliteit, a knowledge centre for mobility issues, has valued the importance of mobility in the Netherlands at €81 billion. NS used the results of that study to attach a certain value to each kilometre travelled by our passengers on our trains. Multiplying this value by the total number of passenger-kilometres at NS in 2022 results in an overall positive socio-economic value. In 2022, passengers travelled 13.3 billion kilometres by train (2021: 9 billion), resulting in a total socio-economic value of €6,917 million (2021: €4,114

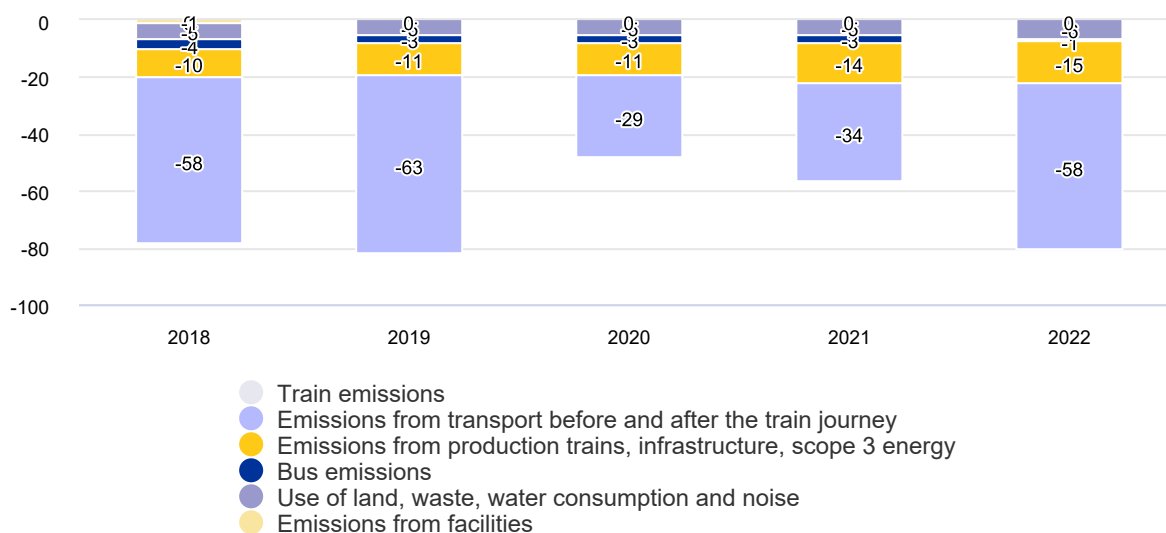
million).

The negative value from travelling by train exists in the extent that passengers cannot entirely spend the time they need to travel from A to B in other useful ways. As a result, the total door-to-door travel time also generates social costs. Above all, this applies to time lost due to delays and to time spent in overcrowded trains. This negative value of time spent travelling amounted to €5,220 million in 2022 (compared with €2,963 million in 2021). Given the fact that the positive value exceeds the negative value, travelling by train has a net positive socio-economic value impact.



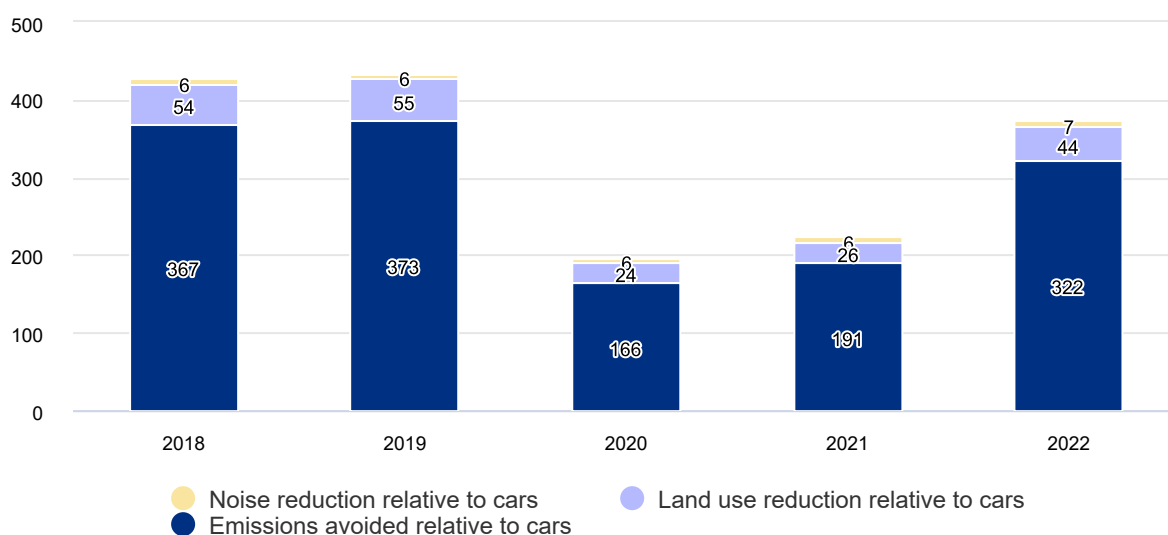
Environmental impact: emissions, land use, waste, water and noise

Although travelling by train is climate-neutral on an annual basis, NS does have an impact on the environment. This environmental impact results, among other things, from the use of fossil fuels. Fossil fuels cause air pollution due to emissions of substances such as CO₂, SO₂, NO_x and particulate matter. Land use, waste, water consumption and noise nuisance also have negative environmental impacts. The use of 100% green power for our trains and buildings (on an annual basis) has considerably reduced our negative impact over the past few years, even by more than 50% compared with our reference year 2014.



In 2022, the negative environmental value was €79 million (2021: €55 million), of which approximately €7 million as a direct consequence of NS's own operations and approximately €72 million as a consequence of the first and last mile, the building of trains, electricity and infrastructure. The increase compared with 2021 was caused by the rise in the number of journeys made and the resulting increase in the consumption of resources for the first and last mile.

The use of public transport instead of passenger cars prevents part of the impact of air pollution from CO₂ emissions. The positive impact of rail travel on noise and land use compared with cars consists in the road construction and noise abatement measures that are not required because passengers are opting for the train. The positive environmental impact compared with car use was only calculated for 'elective passengers', i.e. those who are willing and able to make a choice between the car and the train. Compared with car use, travelling by train had a positive environmental impact of €373 million in 2022 (2021: €223 million).



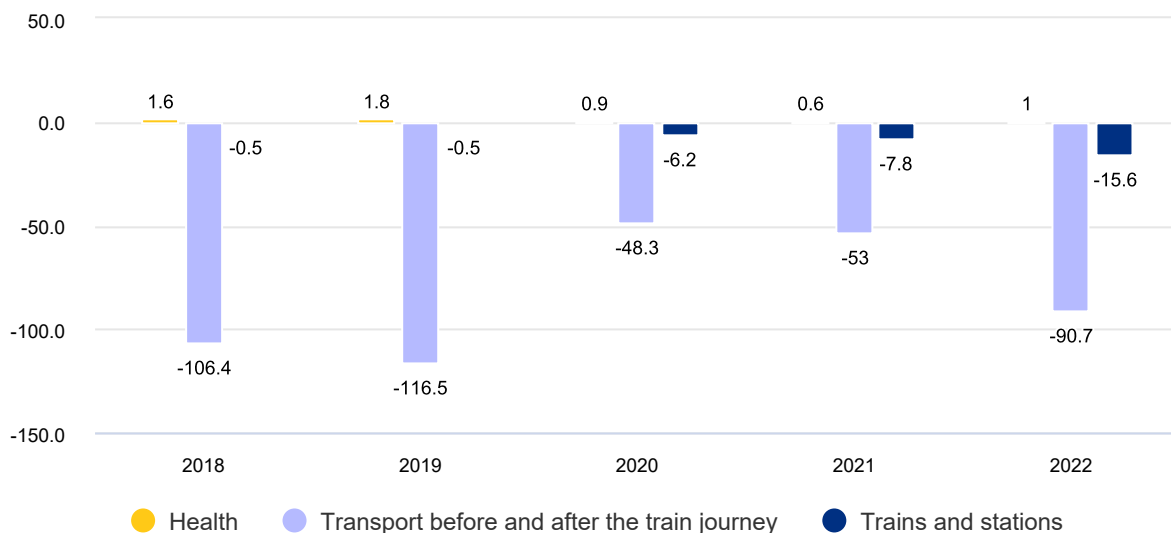
Safety

NS contributes to safety in society by providing safe transport and a safe environment for its passengers and employees. We constantly work to guarantee occupational safety, personal safety and safe travel.

The social costs of occupational safety (accidents at work) in 2022 were €33.9 million (2021: €32.4 million). The social costs of personal safety (or lack thereof) in 2022 were approximately €27 million (2021: €19 million).

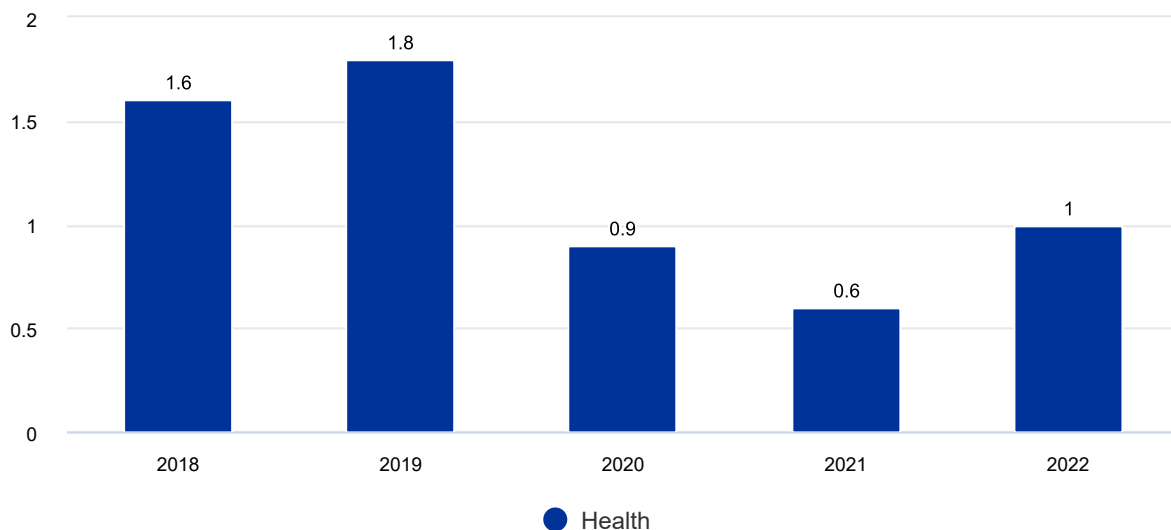
To provide safe travel, NS is working with its partners on preventing collisions, derailments and unsafe situations on the tracks and at the stations. In 2022, the social costs of unsafe situations amounted to approximately €15.5 million (2021: €7.8 million). The number of traffic accidents in the first and last mile is much higher, and so is their impact, which in 2022 amounted to approximately €90 million (2021: €53 million).

Rail travel train is relatively safe compared to transport by car. We calculate this positive impact by determining the number of avoided accidents. To that end, we calculate how many more accidents would have happened if all our elective passengers had travelled by car instead of by train. In 2022, the social benefits of safe transport by train were approximately €502 million (2021: €298 million). Compared with the use of cars, travelling by train has a positive socio-economic impact on safety.



More active lifestyle

Passengers who use our services become more active than they would be if they opted for the car. Moving to and from the train or bus station makes a certain percentage of otherwise inactive people become active. On average, NS passengers get 16 minutes of extra exercise every day. Due to this extra exercise, one sixth of rail passengers move to the group of people with an active lifestyle. Such a lifestyle can avoid costs associated with an inactive lifestyle, including medical costs and loss of productivity. The positive impact of this in 2022 was €1 million (2021: €0.6 million). Compared with the use of cars, travelling by train has a positive socio-economic impact on the 'more active lifestyle' criterion.



Training and deployability of employees

NS exerts a positive socio-economic impact by developing the knowledge, skills and talents of its employees, by aiming to keep them in sustained employment, and by being a diverse and inclusive organisation. Training programmes at NS increase the economic value of our people and improve their potential on the labour market, also after they have left NS. The social benefits of this in 2022 amounted to approximately €19 million (2021: €11 million).

Expenditure

We also have a socio-economic impact through our own expenditure, which includes the money we spend by purchasing services and goods, making investments and paying salaries. This means, for instance, that we generate jobs at our suppliers. The economic benefits were €1,436 million of added value at suppliers (2021: €1,373 million), in the form of approximately 21,676 jobs.

NS group

Report of the Supervisory Board



Middelburg station is an exhibition space for De Mix Nederland. Historical photo collections are a source of inspiration for contemporary photographers here.

In 2022, the agenda of the Supervisory Board featured several themes of crucial importance to the strategy of NS, including the new main rail network franchise (effective from 2025) and the proposed sale of Abellio UK. Issues such as labour market shortages, a new CLA, work pressure and their consequences for our daily operations demanded considerable attention on 2022.

Staff shortages, work pressure and a new CLA

Like many other companies in the Netherlands, NS was hit hard by persistent labour market shortages. The lack of train drivers and guards in particular had a severe impact, and was one of the causes of high levels of work pressure and sickness absence among NS colleagues. As a result, NS had no option but to scale down its timetable. The Supervisory Board has considered the question of whether NS should have anticipated the labour market shortages in the wake of the COVID-19 crisis, and what it should or could have done differently. The Board concludes that the company, like companies in many other sectors, underestimated developments on the labour market after COVID-19. Staff shortages have presented NS with several huge challenges. The Supervisory Board discussed these challenges extensively with the Executive Board and the employee participation bodies. The negotiations on a new CLA took place in parallel with those discussions last year. The Supervisory Board also notes that NS colleagues went on strike on a total of five days last year; its main role in that context was to serve as a sounding board for the Executive Board.

The new main rail network franchise

The new main rail network franchise that will come into effect in 2025 was one of the most significant themes in 2022, featuring in discussions and negotiations with the Ministry of Infrastructure and Water Management and in the Lower House. At practically all meetings, the Executive Board or colleagues involved in the process updated the Supervisory Board on the state of affairs. In addition, the Supervisory Board established a special committee to concern itself with the new franchise; the committee members include Ms Van Lier Lels, Mr Van der Feltz and Mr van de Aast. This new committee had a number of ad hoc meetings last year with the NS colleagues involved. The committee served as a sounding board and contributed views on what the franchise might look like. The franchise and the associated Schedule of Requirements also featured regularly on the agenda of talks with the shareholder. The realisation of the main rail network franchise is an intensive process that involves a large number of stakeholders. From the start, NS has had a very clear idea of what the franchise should consist of. In recent years, we have made substantial investments in high-quality train products for passengers in the Netherlands, so it would only be logical for the franchise to be awarded to NS as a state participation - also with regard to the importance of an integrated main rail network that offers high-quality passenger services compared with those in other countries. The process has not yet been finalised, but thanks in part to support from the vast majority of MPs we now have a draft available for further discussion.

Abellio UK and Abellio Germany

Several years ago, NS reconsidered its international strategy and decided that its international operations should serve the interests of (passengers in) the Netherlands. Given that it was difficult to demonstrate that they did in the case of the rail franchises in the United Kingdom, NS decided to sell its subsidiary Abellio UK. Due in part to Brexit, the Williams review of the British railway sector and the COVID-19 crisis, this process is taking longer than scheduled. NS will probably transfer the franchises to the management of

Abellio UK at the beginning of 2023. While this will have a very substantial impact on the turnover and size of NS Group, the Supervisory Board does not expect that the disposal of this international activity will have any adverse effects on our Dutch operations. There was no synergy between the companies in the United Kingdom and the Netherlands, and the UK operations did not serve the interests of passengers in the Netherlands.

NS will continue its German operations, through Abellio Germany. Over the past few years we have had to give up several franchises as we proved unable to operate them at a profit, attributable in part to unforeseen external factors such as high penalties due to the unavailability of infrastructure. Furthermore, local authorities made insufficient efforts to assist Abellio in solving the problems. It is part of the NS strategy to operate cross-border connections between the Netherlands and Germany, for example to Lower Saxony and North Rhine-Westphalia and on to Berlin.

Implementing the NS strategy

In view of the considerable operational challenges, the Supervisory Board has critically examined the underlying causes of the scale-down. These include high sickness absence, staff shortages, the inflow of new colleagues, and employee satisfaction issues. The reduced timetable often meant shorter trains, at times leading to serious crowding. At the same time, NS is still struggling with a passenger deficit in the aftermath of COVID-19 which, in part, has turned out to be structural in nature: commuters, the most lucrative category of passengers, are increasingly working from home or bought a car (or a second car) during the COVID-19 crisis. Even so, passengers are returning to the train. Despite the current challenges, the Supervisory Board is convinced that public transport will continue to play an essential role in improving the accessibility of the Netherlands.

At the same time, NS is increasingly developing into a broad-based provider of mobility services. The Supervisory Board notes that the range of door-to-door services is becoming more and more successful, as reflected in the broader range of transport options offered in the NS App. In this way, the Mobility as a Service concept is becoming an increasingly concrete proposition. NS stations serve as hubs with an important function in every passenger's journey, and are a key factor in passenger satisfaction. In this respect, too, NS continues to make further quality improvements, for example as regards sanitary facilities and safety. In addition, stations, real estate and station areas provide opportunities for us to contribute to the housing construction challenge the country is facing.

Over the past year, the Supervisory Board also extensively considered NS's sustainability strategy. The key question was: How can NS contribute to transforming the Netherlands into a sustainable society? NS will make the greatest impact if as many people as possible travel by train instead of by car or by plane. So facilitating that transition is a priority: we need to invest with others in sustainable and energy-efficient trains to make sure the very heart of our operations is sustainable.

Safety

The Supervisory Board attaches great importance to safety, which is a key theme during its meetings, work visits and safety walks. A company such as NS cannot afford to lose sight of employee and passenger safety. Indeed, NS is extremely active in the field of safety and the Supervisory Board is proud of that. Unfortunately though, every year accidents do take place, such as the collision of a train with a bus in Bergen op Zoom last October, in which fortunately nobody was hurt.

An important item on last year's agenda was the RIVM report on [chromium-6 \(in Dutch\)](#) and the apologies that the Executive Board offered to current and former employees who may have been exposed to this substance. Working with chromium-6 may have made people ill and even though these working practices belong to a different era, their huge impact continues up to the present day.

In 2022, the Supervisory Board also discussed the evaluation of the rail accident at ScotRail in 2020. Three people died in this accident, including the train driver and the guard. The investigation has shown that the accident was caused by infrastructural problems and was not the fault of the carrier. The recommendations from the investigation report have been extrapolated so that we can also learn lessons for the Dutch situation.

A safety incident of a completely different kind was the IT outage of 3 April, which [paralysed train services \(in Dutch\)](#) for much of the day. This was a major incident and the Supervisory Board evaluated it extensively, also to minimise the risk of similar incidents in the future.

Financial position

NS achieved a net profit of €579 million for 2022, which will be added to the financial reserves. The result from operating activities was €391 million. Without the public transport availability payment and non-recurring and exceptional items, however, the result from operating activities is €304 million negative.

NS will continue to face major challenges in the years ahead, as a result of expected lower passenger numbers and revenues in the aftermath of the COVID-19 pandemic. Our financial position is also an important factor in agreements on the new franchise.

Investments

Despite the financial challenges it is facing, NS continues to invest in measures to prevent a shortage of trains in the longer term. In late December, NS ordered 60 single-decker and double-decker trains from Spanish manufacturer CAF. The Supervisory Board also considered the investments in the ICNG, which can be used for cross-border services into Germany.

Corporate governance

Changes in the Executive and Supervisory Boards

Executive Board

Following the unexpected departure of Marjan Rintel, the first priority was to safeguard the continuity of effective management. At the Supervisory Board's request, Bert Groenewegen assumed the role of interim CEO on 19 May. The other members of the Executive Board also made extra efforts. The Supervisory Board is very grateful to them for that. At the same time, the Supervisory Board also looked for a person to succeed Ms Rintel. The Supervisory Board welcomes the arrival of Wouter Koolmees as the new CEO of NS from 1 November. Mr Koolmees made a very good start. The Supervisory Board wishes to thank Ms Rintel for her commitment to NS over the past eight years.

Supervisory Board

There were no changes in the membership of the Supervisory Board in 2022. Following the shareholders' meeting of 2 March 2023, after nine years Gerard van de Aast stepped down as chair and member of the Supervisory Board. The Supervisory Board has found an excellent successor in Herman Dijkhuizen, who will take over on 1 July 2023. The Supervisory Board is looking for a new member to bring it back to the desired number of six supervisory directors and to serve as chair of the RAC. Nebahat Albayrak has announced that she does not wish to serve a second term after 1 June 2023.

Functioning of the Supervisory Board

Every three years, the Supervisory Board engages an external agency to evaluate its own performance. The Executive Board conducts internal evaluations in the intervening years. The Supervisory Board commissioned such an external evaluation in 2022. The results showed that despite the intensity of the work and the crises of the past two years, the overall performance of the Supervisory Board was good. The many meetings and huge tasks also placed significant pressure on individual supervisory directors. The external evaluation also considered the relationship between the Supervisory Board and the shareholder and the Executive Board. The Supervisory Board discussed the outcomes with the shareholder and the Executive Board, and is now implementing the improvement points in practice.

The functioning of the Executive Board and collaboration with the Supervisory Board

The Executive Board functioned satisfactorily under extraordinary circumstances that called for considerable flexibility and creativity. The Executive Board performs its tasks effectively. The relationship between the Supervisory Board and the Executive Board is professional and good. The Supervisory Board is involved in major and complex decisions in a timely and effective manner. The discussions also cover concrete dilemmas. The Supervisory Board has confidence in the Executive Board and professional relations between the two boards are good. Both the Supervisory Board and the Executive Board keep to their roles in the performance of their tasks.

Supervisory Board meetings

In total, the Supervisory Board met eight times in the past year. Virtually all of these meetings were attended by all the Supervisory Board Members, with average attendance amounting to 90%. The Supervisory Board has two permanent committees: the Risk and Audit Committee, and the combined Remuneration and Appointments Committee.

Risk and Audit Committee

The Risk and Audit Committee (RAC) consists of all Supervisory Board members and is chaired by Herman Dijkhuizen. The committee met four times. The CEO, the members of the Executive Board for Finance and Risk & Compliance, the Audit Director, the Group Control & Expertise director and the external auditor were also invited to these meetings. The external auditor attended all RAC meetings.

Depending on the agenda, other individuals - such as the directors of Legal Affairs and Sustainable Enterprise - were also invited. In 2022, the committee held discussions about the financial statements, the annual report and the yearly reporting for the Ministry of Infrastructure and Water Management, the six-monthly figures, the budget, risk management and risk appetite, the group plan for 2022-2026, periodic reporting by the I&C department, plans and reports of the Internal Audit department, reports prepared by the external auditor, the successive external auditor, Abellio and cybersecurity issues.

The RAC also discussed rolling stock reports and the performance of the external audit function. A key focus of the RAC, based in part on the available reports, was the progress made in addressing undesirable types of behaviour and preventing nuisance.

One important point in the external auditor's management letter was the nature of the involvement of NS with Abellio UK after the sale. In addition, the auditor advised NS to

report more explicitly on the effectiveness of the measures taken via cyber KPIs, and called attention to developments concerning non-financial information (CSRD) and the important role of data in this regard.

The most significant topics in the auditor's report at year-end that were discussed concern the results, solvency, the financing and continuity of NS, the update on the impairment of assets in the Netherlands, how the acquisition of entities under Transport Holding Germany and support measures are shown in the accounts, developments regarding Abellio Germany and the sale of Abellio UK.

Over the course of the year, the chair of the Supervisory Board and the chair of the RAC held several consultations separately with the external auditor and the shareholder.

In addition, the RAC hosted a session on cybersecurity and another one on sustainability, which were attended by external experts as well as representatives from internal departments.

Remuneration and Appointments Committee (combined)

The combined Remuneration and Appointments Committee is chaired by Janet Stuijt; its members are Gerard van de Aast, Nebahat Albayrak, Pim van der Feltz and Marike van Lier Lels. The committee met three times in 2022. The topics discussed include talent and leadership development, succession planning and the remuneration for the Executive Board. The committee also considered the remuneration report, target letters, the appraisal process, sickness absence and the Abellio Gain Sharing Plan. In addition, the committee held a meeting on finding a candidate to succeed Marjan Rintel. All members of the Supervisory Board are independent as defined in the Dutch Corporate Governance Code. The Supervisory Board broadly subscribes to best practice stipulations 2.1.7 through to 2.1.9 in the 2016 Code.

Shareholder

The Supervisory Board maintained good relations and regular contacts with the shareholder.

Employee participation

In 2022, the Supervisory Board met with the Central Works Council on many occasions. Among various other themes, we discussed the staff shortages, the new franchise, the post-COVID-19 strategy and finding a successor to Marjan Rintel. The Supervisory Board also had two 'Section 24 Works Council Act meetings' with the Central Works Council and the Executive Board.

Relationship with the external auditor

As standard, the external auditor attends all meetings of the Risk and Audit Committee (RAC). The external auditor also attends the meetings of the full Supervisory Board when the financial statements and six-monthly figures are discussed. In addition, the RAC consults with the external auditor without the Executive Board being present. Every year, the RAC evaluates the external auditor's performance and issues a report to the Supervisory Board.

During 2022, the RAC also conducted a procedure to select a new auditor. After this careful procedure, KPMG was selected as the most suitable party. KPMG will take over and prepare the financial statements of NS starting in 2024.

About this report

The financial statements for 2022, as prepared by the Executive Board, were discussed within the Supervisory Board in the presence of the external auditor. The financial statements are accompanied by the Executive Board's report. We invite the General Meeting to adopt the 2022 financial statements. We also invite our shareholder to discharge the Executive Board and the Supervisory Board from their liabilities. The Supervisory Board proposes adding the profit for the 2022 financial year to the distributable reserve.

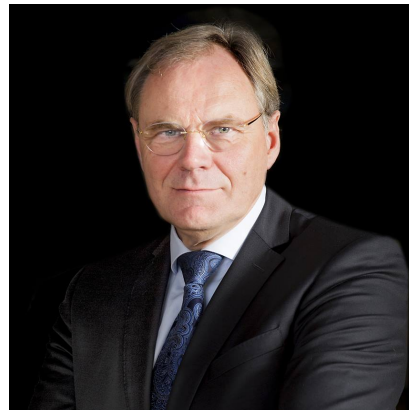
The Supervisory Board would explicitly like to thank all employees, the employee participation bodies and the Executive Board of NS. Like the two previous COVID-19 years, 2022 was another challenging year that took its toll on all of us. Still, all colleagues continued with full commitment throughout the year. 2023 will once again require a great deal of resilience on the part of our people, but passengers will always be able to count on NS.

Utrecht, 22 February 2023

Personal details – Supervisory Board

Gerard van de Aast, chair (b. 1957), Dutch nationality (m)

- Appointed on 4 March 2014 until 2018, reappointed until 2023
- Background: former chair of the executive board of Royal Imtech NV,
- former chair of the executive board of Koninklijke Volker Wessels NV, former member of the executive board of Reed Elsevier
- Other positions held: chair of the supervisory board of KPN, member of the supervisory board of Signify



Nebahat Albayrak (b. 1968), Dutch nationality (f)

- Appointed on 1 June 2019 until 2023
- Background: Senior Vice-President Corporate Affairs, Safety and Sustainability Fortum. Former State Secretary for Justice and MP.
- Other positions held: member of the supervisory board of NKT, member of the advisory board of Topvrouwen NL



Pim van der Feltz (b. 1964), Dutch nationality (m)

- Appointed on 1 May 2017, reappointed until 2025
- Background: managing director of Natuurmonumenten
- Former CEO of Google Netherlands
- Other positions held: Member of the Advisory Board of NWO



Marieke van Lier Lels (b. 1959), Dutch nationality (f)

- Appointed on 3 February 2016, reappointed until 2024
- Background: COO of Schiphol Group until 2005, held various supervisory board memberships after that
- Other positions held: member of the supervisory board of PostNL, member of the supervisory board of Dura Vermeer, non-executive board member at RELX Plc, chair of Innovation Quarter



Janet Stuijt (b. 1969), Dutch nationality (f)

- Appointed on 15 August 2016, reappointed until 2024
- Background: member of the management board, general counsel and company secretary of NN Group NV
- Other positions held: member of the Master in Finance & Law Advisory Board, University of Amsterdam



Herman Dijkhuizen (b. 1960), Dutch nationality (m)

- Appointed on 1 January 2020 until 2024
- Background: CFO and vice-chair of the executive board of NIBC Holding N.V. and NIBC Bank N.V.
- Other positions held: member of the supervisory board of the Dutch World Wildlife Fund, member of the executive board of the National Committee for 4 and 5 May Foundation (until June 2022), member of the supervisory board of Kröller-Müller Museum.



The remunerations of Supervisory Board members can be found [here](#).

Name	First appointment	Reappointment	Retiring at the latest on/reappointed on
Mr. G. van de Aast (chair)	4 March 2014	4 March 2018 (and 2021)	3 March 2023
Ms. M. van Lier Lels	3 February 2016	3 February 2020	3 February 2024
Ms. J.L. Stuijt	15 August 2016	15 August 2020	15 August 2024
Mr. W.J. van der Feltz	1 May 2017	1 May 2021	1 May 2025
Ms. N. Albayrak	1 June 2019	-	1 June 2023*
Mr. H.H.J. Dijkhuizen	1 January 2020	-	1 January 2024

* At her own request, Ms N. Albayrak will not be reappointed, due to personal circumstances.

Remuneration of the Executive Board

Composition of the Executive Board

The members of the NS Executive Board are nominated by the Supervisory board and appointed by the shareholder, the Ministry of Finance, for a period of no more than four years. Reappointments can be made for subsequent four-year periods. Marjan Rintel stepped down with effect from 19 May 2022 and left NS from 1 July 2022. Wouter Koolmees has served as CEO since 1 November 2022. In the intervening period, Bert Groenewegen temporarily assumed the position of CEO. In 2022, the Executive Board comprised the following members:

	Position	First appointment	End of appointment
Wouter Koolmees	CEO	1 November 2022	31 October 2026
Marjan Rintel ¹	CEO	1 October 2020	19 May 2022
Bert Groenewegen	Finance Director	15 September 2016	14 September 2024
Tjalling Smit	Commerce & Development Director	01 April 2017	31 March 2025
Anneke de Vries	Stations Director	15 October 2019	14 October 2023
Eelco van Asch	Director of Operations	1 March 2021	28 February 2025

Pursuant to the remuneration policy, the term of the employment contract equals the term of office, and the Board member and the employer must observe a notice period of two months and eight months respectively.

¹ Prior to her appointment as CEO, Marjan Rintel served as Operations Director since 2014 and as an Executive Board member since July 2016.

Remuneration policy

Effective 1 January 2020, the Minister of Finance, on behalf of the Dutch State, adopted the remuneration policy for the NS Executive Board. The policy aims to enable the Supervisory Board to attract and retain highly qualified administrators (from both internal and external sources). The remuneration policy is required to support the objectives and strategy of NS and reflect the public nature of the company. It is based on the principles of the remuneration policy for state participations and complies with the best practice provisions on remuneration laid down in the Dutch Corporate Governance Code.

The pay ratio within the Executive Board is in line with common practice in the external market, depending on the job load for the position concerned. We use the Hay method to determine the job load, which also plays a role in determining remuneration levels for board members. The latter is done on the basis of a comparison with public or semi-public companies, comprising state participations and transport companies (BNG Bank, COVRA, FMO, Gasunie, Havenbedrijf Rotterdam, KLM, NWB Bank, Amsterdam Airport Schiphol, TenneT, Thales, ProRail, RET, GVB and HTM) and private companies in the Dutch market with board level positions similar in weight to those at NS. The guiding principle for the (variable and non-variable) remuneration of Executive Board members is the median with a ratio of 60% for the public and semi-public sector and 40% for the private sector. We chose the median of these two markets as the basis because it is stabler across job weight levels than higher or lower market levels. In addition, given the public nature of NS, the 60% versus 40% weighting for public/semi-public versus private takes into account a lower market level than the median relative to the overall Dutch market.

The non-variable remuneration of Executive Board members is based on 100/120th of their income, and the remuneration policy's impact on long-term value creation is taken into account. For NS, this means that the remuneration is determined with due regard for NS's position in society, its obligations under the franchise and the long-term challenges for mobility in the Netherlands.

On premature termination of the employment contract at the initiative of NS, a severance payment cannot exceed one year's base salary. The Supervisory Board decides whether a severance payment is to be paid and, if so, what the amount should be. Board members who are not reappointed will not receive a severance payment, unless the law provides otherwise.

Performance agreements for Executive Board members

The Executive Board has drawn up performance agreements that comprise collective and individual targets as laid down in so-called target letters. While the results do not give entitlement to any reward (see Variable Remuneration), they do form part of the assessment process. The individual targets are related to the portfolio for which the Executive Board member concerned is responsible. The table below presents the collective targets that applied for 2022.

Objectives	KPI	Target	Realisation
Smart reduction of the passenger level	Transport revenue, € million	2,379	2,294
	Passenger Satisfaction (EHUR), [1-10]	7.5	7.3
Agile and financially healthy organisation	EBIT NS Group (excluding Abellio), € million	-113	-131
	Employee pulse report NS as employer, %	80	72
	Realised structural cost savings, € million	107	114
World-class stations	Station Experience Monitor, [1- 10]	7.2	7.3
Develop broad mobility policy	Chain services sold via NS, # million	11	10.4
Increase social impact	Costs per seat-kilometre, €	0.047	0.057
World-class operation	Passenger punctuality on main rail network (5 min.), %	92.9	91.6
	Reprack score, [1-100]	64	62.9

The realised structural cost-savings and the Station Experience Monitor both exceeded the target in 2022. The other targets were challenging, but have not been achieved.

Structure of the remuneration package

In response to the proposal submitted by the Remuneration and Nominations Committee and upon the voluntary request of the Executive Board, in June 2020 the Supervisory Board decided to reduce the base salary of Executive Board members temporarily by 10%, over the period from 1 July 2020 up to and including 31 December 2021. This reduction was continued in 2022 as there has been no significant change in circumstances. In accordance with the remuneration policy, the negotiated pay increases were resumed with effect from 1 January 2022.

In the financial statements, the section entitled [Remuneration of the Executive Board](#) includes a table with specific figures for the overall remuneration for 2022.

Non-variable remuneration

In 2022, the agreed gross annual base salary including holiday allowance for the members of the Executive Board was as follows:

	Position	Fixed annual remuneration on 31 December 2022 (€)	Received fixed remuneration 2022 (€)
Wouter Koolmees ¹	CEO	492,758	73,914
Bert Groenewegen ²	Finance Director	405,802	356,526
Tjalling Smit	Commerce & Development Director	405,802	356,526
Anneke de Vries	Stations Director	405,802	356,526
Eelco van Asch	Director of Operations	405,802	356,526

1 Wouter Koolmees was appointed CEO on 1 November 2022.

2 At his own request, Bert Groenewegen received no remuneration during the period in which he served as acting CEO.

The difference between the annual base salary and the base salary actually received for 2022 is explained by the wage restraint measure (10% reduction).

Variable remuneration

In their employment contracts, all members of the Executive Board waived entitlement to variable remuneration. They did not receive any compensation for this via their base salary. In accordance with the remuneration policy, the Supervisory Board could consider granting the variable remuneration once again. The variable remuneration cannot exceed 20% of the annual base salary.

Pension

The members of the Executive Board are also members of the NS pension plan. The employer pays two thirds of the total pension costs. The tax-facilitated pension build-up has been capped since 1 January 2015. The capping threshold for 2022 is €114,866 gross. All new and existing employees, including Executive Board members, whose remuneration exceeds that amount will receive a gross allowance of 12% over the part of their non-variable remuneration in excess of that threshold. A transitional scheme applies for members who were 46 or older - and in the employment of NS - on 1 January 2015. They receive a supplementary age-related contribution. This transitional scheme, as described in chapter 10, article 26a of the NS CLA, only applied to Marjan Rintel.

Other benefits

The other benefits are equal to those that apply to all NS employees. Executive Board members are additionally entitled to an appropriate expense allowance, a lease car (or mobility budget allowance) and the use of communication devices. For business-related travel, two chauffeur-driven director's cars are available to all Executive Board members. NS takes this to include trips not directly associated with the relevant member's appointment, but where private use is unavoidable given the combination with the obligations associated with that member's position at NS. All Executive Board members are subject to an additional tax liability for the use of the director's cars. Given that the private use of those cars is unavoidable and arises from the relevant member's position with NS, they will receive a net allowance that equals the wage tax due on the amount of the addition.

NS has not extended any loans, advances or guarantees to the Executive Board.

Pay ratios

As of 2021, under the Corporate Governance Code the pay ratios are calculated on the basis of the remuneration of the Chair and CEO and the average annual pay¹. This has resulted in a pay ratio for 2022 of 7.4. In 2021, the internal pay ratio was 7.7.

1 The average annual remuneration of NS and Abellio Nederland employees for the 2022 calendar year is determined by dividing the total wage costs in the financial year concerned by the average number of FTEs during that year. Costs of external staff over the period from October 2021 up to and including September 2022 are included in this calculation on a pro rata basis, to the extent the external staff was hired for at least three months of the financial year. As in 2021, the pay ratio was calculated on the basis of Dutch employees. In line with the strategy, which provides that NS's international operations should benefit the interests of Dutch passengers, foreign employees have not been included as deemed appropriate in the Corporate Governance Code, section 3.4.1. For this reason, we focus exclusively on the pay ratio of Dutch employees and do not include employees of our foreign companies.

Personal details – Executive Board

Wouter Koolmees (b. 1977), Chair and CEO - Dutch nationality

- Member of the Executive Board since 1 November 2022
- Focus on: communication and corporate affairs, audit, legal and board secretariat, risk & compliance, HR
- Other positions held: chair of the temporary Energy Emergency Fund, member of the executive board and general council of VNO-NCW, chair of the supervisory board of the Anne Frank Stichting
- Background: Economics (Utrecht University), among others
- Career: Ministry of Finance, Member of Parliament, Minister of Social Affairs and Employment, and (second) Deputy Prime Minister.



Bert Groenewegen (b. 1964), Member of the Board - Finance, Dutch nationality

- Focus on: finance, Abellio, IT and data, procurement, accommodation, new trains
- Other positions held: member of the supervisory board of Coolblue, member of the supervisory board of Teslin Participaties, member of the supervisory board of the Dutch Railway Museum
- Background: Business Economics (Tilburg University)
- Career: Exact Software, General Atlantic Partners, PCM Uitgevers and Ziggo, among others



Tjalling Smit (b. 1977), Director of Commerce & Development, Dutch nationality

- Focus on: strategy and innovation, network development, sustainability, commerce
- Other positions held: member of the executive committee of Coöperatie OV Bedrijven
- Background: Business Administration (Nyenrode) and Hotel Management School
- Career: Transavia, Air France/KLM, among others



Anneke de Vries (b. 1964), Stations, Dutch nationality

- Focus on: station management and operation, retail, real estate, QHSE Stations
- Other positions held: patroness of NS Harmonie, UAF Award membership jury member, member of the supervisory board of Stichting Eye Filmmuseum
- Background: Economic Geography and post-doc degree in Real Estate Studies (University of Amsterdam)
- Career: ING Vastgoed Ontwikkeling, Rochdale social housing association, Bureau Architectenregister and Albert Heijn, among others
- *Owing to an accident, Anneke de Vries's availability was limited during a part of 2022. Her duties under the Articles of Association were taken over by several other Executive Board members; her other duties by Sebastiaan de Wilde.*



Eelco van Asch (b. 1972), Operations, Dutch nationality

- Focus on: operations management, service, maintenance, train modernisation, technology, QHSE in operations
- Other positions held: -
- Background includes: VU Amsterdam, IMD Lausanne, Stanford University
- Career includes: KLM, Air France/KLM, Delta Lloyd



Stepped down as at 1 July 2022

In 2022 Marjan Rintel (b. 1967), of Dutch nationality, stepped down as Chair and CEO.

Corporate governance



During the municipal elections in March, passengers cast their vote at various stations in the Netherlands.

NV Nederlandse Spoorwegen is a public limited company under Dutch law. Its registered offices are in Utrecht. NV Nederlandse Spoorwegen is the holding company of NS Groep N.V. NS is a state participation, The governance of NS is based on the modified two-tier company regime. NS is managed by the Executive Board, which consists of the same people at NS Groep N.V. and NV Nederlandse spoorwegen (*personele unie*).

Corporate Governance Code

As a major enterprise with a significant role in Dutch society, NS attaches great value to a high-quality governance structure. Although not a listed company, therefore, it does apply the Dutch Corporate Governance Code 2016 (hereinafter the 'Code'). Given that NS is not a listed company and does not have a one-tier management structure, several elements of the Code do not apply to it. On its website, NS provides an overview of the way in which it applies the stipulations of the Code.

Shareholder

The sole shareholder of NV Nederlandse Spoorwegen is the Dutch State. The role of the shareholder is performed by the Ministry of Finance. The annual meeting takes place annually, within six months of the close of the financial year. The matters discussed at the annual meeting include the annual report by the Executive Board. The annual meeting also adopts the financial statements, approves the profit appropriation (if applicable), discharges the members of the Executive Board from liability for their policy work, and discharges the members of the Supervisory Board from liability for their supervision. The Executive Board, the Supervisory Board and the shareholder are free to convene interim general meetings as often as they wish. Resolutions can also be adopted outside meetings.

Executive Board

The Executive Board is charged with and responsible for managing the business. The Executive Board develops the vision and associated mission, strategy and objectives of NS. The Executive Board aims to achieve the objectives and ensure the continuity of the company and its affiliated enterprises. The Executive Board is also responsible for implementing the NS strategy. Through the NS strategy, the Executive Board focuses on long-term value creation while weighing up the relevant interests of the stakeholders. That means that when making decisions, the Executive Board considers aspects such as safety and the role of NS in providing sustainable mobility, in addition to financial aspects. The tasks of the Executive Board are performed in part by the business units and subsidiary companies. The Executive Board meets at least six times a year with the Supervisory Board and is in permanent contact with the latter throughout the year.

Establishing responsibilities, tasks and procedures

The Executive Board's responsibilities, tasks and procedures are laid down in the Articles of Association of NV Nederlandse Spoorwegen and in the Rules of Procedure of the Executive Board. The Executive Board is responsible for managing the business in a transparent way and for evaluating its performance. The Executive Board reports to the Supervisory Board and the General Meeting. Pursuant to the Articles of Association of NV Nederlandse Spoorwegen, the Executive Board Rules of Procedure and the Supervisory Board Rules of Procedure, certain decisions by the Executive Board must be submitted for approval to the Supervisory Board and/or the General Meeting.

Appointment

Executive Board members are appointed in the General Meeting on the recommendation of the Supervisory Board. The Supervisory Board decides on the number of members for the Executive Board. Members of the Executive Board can be suspended or dismissed by the General Meeting. Members of the Executive Board are appointed or reappointed for a period of four years at most. The Executive Board aims for a composition that is diverse, with a good mix in terms of gender, age and competencies. Both the Executive Board as a whole and each individual Executive Board member are authorised to represent NS.

Interests

Members of the Executive Board will not be involved in discussions or decision-making concerning matters or transactions where their direct or indirect personal interests conflict with the interests of NS. If all members of the Executive Board have a direct or indirect personal interest that conflicts with the interests of NS and, as a result, the Executive Board is unable to make a decision, the decision will be made by the Supervisory Board. The Supervisory Board must give its approval beforehand to decisions by the Executive Board about such matters as entering into transactions that involve conflicting interests that are of material significance to NS and/or the Executive Board member in question. Such transactions are published in the report of the Executive Board, stating the conflicting interest. There were no such transactions in 2022. Transactions involving conflicts of interests of members of the Executive Board or Supervisory Board are agreed with conditions that are in line with the market. The Company Secretary ensures that the proper procedures are followed and that the actions taken comply with the legal and regulatory obligations applicable to the Executive Board. This procedure was adhered to in 2022.

Rewards

The remuneration and terms and conditions of employment of the Executive Board members are established by the Supervisory Board with due regard for the remuneration policy adopted by the General Meeting. The remuneration policy for members of the Executive Board, to which reference is made in their respective employment contracts, includes the right to compensation upon dismissal on the initiative of NS, up to a maximum that has been fixed at one year's basic salary. The Supervisory Board decides whether a severance payment is to be paid and, if so, what the amount should be.

Supervisory Board

The Supervisory Board's tasks include supervising the Executive Board's policies and the general affairs of the company and its affiliated enterprises. It also advises the Executive Board. In performing its duties, the Supervisory Board focuses on long-term value creation for the company and its affiliated enterprises, taking into consideration the interests of the company's stakeholders. The Executive Board provides the Supervisory Board promptly with the information and resources the latter requires in order to do its work properly. If the Supervisory Board and/or one of its members consider it necessary, they can obtain information from the Executive Board, NS Audit, the external auditor, the Central Works Council and/or other officials and external advisers to NS.

Responsibilities, tasks and procedures

The Supervisory Board's responsibilities, tasks and procedures are laid down in the Articles of Association and in the Rules of Procedure of the Executive Board, the Supervisory Board and its committees. The Supervisory Board reports to the General Meeting. The Supervisory Board as a whole is responsible for the proper implementation of its tasks. Supervisory Board members are free to adopt positions independently from the Executive Board. Members of the Supervisory Board perform their duties independently of any personal interest in the company. At least once a year, the Supervisory Board discusses the performance of the Executive Board as a body and the performance of the individual members of that board.

Appointment

Supervisory Board members are appointed by the General Meeting, on the recommendation of the Supervisory Board, with due observance of the job profile and after consulting the Central Works Council. The Central Works Council has enhanced powers of recommendation covering the nomination of one third of the Supervisory Board members. The Supervisory Board has at least five members and at most nine. The Supervisory Board had six members as at 31 December 2022. The Supervisory Board has drawn up a profile for its size and

composition, taking account of the nature and activities of the company and the desired expertise and backgrounds of its members. The Supervisory Board aims for a composition that is diverse, with a good mix in terms of gender and age. Supervisory Board members can be appointed for two terms of four years each. After that period, they can be reappointed for a maximum of two terms of two years each. Reappointment after a period of eight years must be justified by the Supervisory Board in its report. In the case of a reappointment, the manner in which the relevant board member fulfilled their duties in the previous term is taken into account, and members will only be reappointed after careful consideration. The Supervisory Board's retirement schedule is published on the company's website.

Interests

Members of the Supervisory Board will not participate in discussions and decision-making about any matter or transaction where their direct or indirect personal interests conflict with the interests of NS.

Committees of the Supervisory Board

In view of the extent, diversity and complexity of the matters it has to handle, the Supervisory Board has set up a Risk and Audit Committee and a combined Remuneration and Appointments Committee. The Supervisory Board can also establish ad hoc committees. In 2022, it had such an ad hoc committee in connection with the new franchise. The composition of these committees is determined by the Supervisory Board. The committees advise the Supervisory Board and prepare its decisions. This allows the committees to assist effective decision-making by the Supervisory Board. The Supervisory Board as a whole remains responsible for the decisions that have been prepared by a committee.

Risk and Audit Committee

The Risk and Audit Committee (RAC) performs its duties pursuant to the RAC Rules of Procedure as established by the Supervisory Board under the provisions of the Code. The RAC advises the Supervisory Board and prepares the Supervisory Board's decisions with respect to monitoring the integrity and quality of NS's financial reporting and the (assessment of the) effectiveness of NS's internal risk management and control systems. The RAC convenes with the external auditor as often as it deems necessary, and at least once a year, without the Executive Board being present. The RAC Rules of Procedure stipulate that the RAC must have at least three members who are also members of the Supervisory Board. The RAC had six members as at 31 December 2022.

Remuneration and Appointments Committee

The combined Remuneration and Appointments Committee (Renomco) performs its duties pursuant to the Renomco [Rules of Procedure \(in Dutch\)](#) as established by the Supervisory Board under the provisions of the Code. The Renomco prepares the decisions of the Supervisory Board in areas such as the appointment of Executive Board and Supervisory Board members, the performance of the Executive Board and the Supervisory Board, and the formulation, implementation and monitoring of the remuneration policy for the Executive Board. The Renomco Rules of Procedure stipulate that the Renomco must have at least three members who are also members of the Supervisory Board. The committee had five members as at 31 December 2022.

External auditor

The external auditor is appointed by the General Meeting. The external auditor reports to the Supervisory Board and Executive Board on its audit. After the examinations and audit, the auditor issues an audit opinion regarding the truth and fairness of the NS annual report and financial statements.

The RAC annually reports to the Supervisory Board on the performance of and developments

in the relationship with the external auditor. The external auditor attends the meetings of the Supervisory Board in which its report on the audit of the financial statements is discussed, and is also available for the General Meeting in which the adoption of the financial statements is handled. The external auditor also attends the meeting of the Supervisory Board held to discuss the six-monthly figures. In principle, the external auditor attends the RAC meetings, unless the RAC determines otherwise. The external auditor immediately informs the chair of the RAC if, in the course of its audit task, it encounters any actual or suspected abuses or irregularities. If an actual or suspected abuse or irregularity concerns the functioning of an Executive Board member, the external auditor reports this to the chair of the Supervisory Board. EY has been NS's external auditor since the 2014 financial year. In 2020, the appointment of EY in that role was extended by two years to cover the period up to and including the 2023 financial year, in line with the rule regarding the maximum term of office of an external auditor. The tendering procedure for the selection of a new auditor was finalised at the end of 2022. KPMG will be appointed the new external auditor of NS with effect from 1 January 2024.

NS Audit

NS Audit provides independent and objective assurance and advice on the adequacy of governance, risk management and internal control measures in view of the need to support NS's objectives and promote continuous improvement. NS Audit is subordinate to the Executive Board, The NS Audit Director reports directly to the Chair and CEO. The NS Audit Director also reports to the chair of the RAC. The NS Audit Director has direct access to the NS Chair and CEO, the chair of the Risk and Audit Committee, the members of the Executive Board, the members of the Supervisory Board and the external auditor.

Risk and compliance

Risk governance at NS has been set up using the 'three lines of defence' model. The guiding principle in this model is that the first line of defence (the operational business) is responsible for the management of the risks by embedding this properly in processes and clearly assigning responsibilities. The second line of defence, which includes the Risk & Compliance and Legal departments, provides support and advice and makes sure that line managers are fulfilling their responsibilities as intended. In addition, there are safeguards that risks are demonstrably taken into account in decision-making, thanks in part to advice from this second line of defence. The third line of defence, involving NS Audit, carries out independent audits to make sure that the risk management and internal control system is working properly. Finally, safeguards have been put in place to ensure that NS will learn from incidents, thus promoting the continuous improvement of risk management processes.

Sustainable enterprise

The CSR (Corporate Social Responsibility) Council is NS's policy preparation body for sustainable enterprise. The Council is comprised of the business unit and staff department directors and its meetings are chaired by the Member of the Board for Commerce & Development. Where necessary, proposed decisions and policies are submitted for approval to the Executive Board. Progress and development in sustainability results are monitored and managed through the regular planning, control and reporting cycle. Every two months, the CSR Council discusses the KPI reports on sustainability performance. In accordance with the Code, the Executive Board is responsible for the aspects of Corporate Social Responsibility that are relevant to NS. The Executive Board reports on this to the Supervisory Board and the General Meeting.

Risk management



Alzheimer Nederland and NS donate train components to 22 nursing homes so they can create their own travel compartments for residents with dementia.

NS wishes to keep the Netherlands accessible in a sustainable manner. Our operations involve a number of uncertainties. Risk management is all about targeting uncertainties that could impede the achievement of the strategic objectives.

Organisation of risk management

To ensure permanent integral management of risks, risk management must move along with internal and external developments. We use planning schedules and analyses to present a realistic picture of the future impact of uncertainties and risks, so as to gain better insight into the reliability of project-related plans, policy choices and risk budgets. This supports our decision-making process.

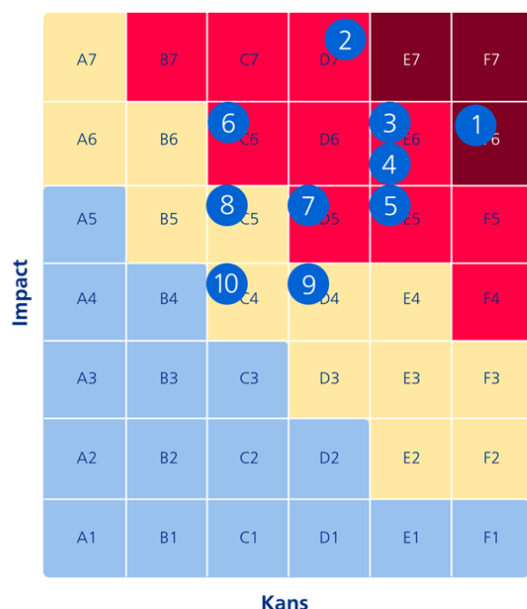
Recording and reporting

We have recorded identified risks, including the risk owners, in risk registers and assign quantitative scores to those risks using a single, uniform risk matrix. Every three months, NS reports the main risks for each business unit; those reports are discussed in the Executive Board as part of the planning and control cycle. Any risks that fall outside our risk appetite are reported immediately and escalated where necessary. The Executive Board reports on and renders account for the risk management and internal control system to the Supervisory Board after discussing it in the Risk and Audit Committee.

Risk appetite and risk tolerance

The risk appetite and risk management we are aiming for in six risk themes at NS can be found in our 'risk appetite statements'. Each risk theme is linked to specific performance indicators with a quantitative bandwidth. Every year, the Executive Board evaluates and, if necessary, adjusts the risk appetite for each theme. The table below presents the current risk appetite for each risk theme plus the most important group risks. NS adapted its risk appetite in 2022 in response to the impact of several factors, including the staff shortage. The shortages on the labour market, the unexpectedly high outflow and internal advancement of (in particular) main guards and the high sickness absence rate had a substantial impact on our operational performance over the past year. The staff shortages may prove persistent and could even increase, given the persistently tight labour market and our ageing operational workforce. This is why NS has become more risk averse in the field of operations. Specifically, this means that operational risks are now more likely to qualify as unacceptable in the risk matrix.

Main group risks: 1 - Staff shortages 2 - Revenue 3 - Costs 4 - Infrastructure 5 - Absenteeism due to psychological causes 6 - Cyber threat 7 - ICNG 8 - Non-compliance 9 - Safety 10 - Digitalisation



Key changes in the risk profile compared with 2021

The risk profile saw a negative development in 2022, especially on the risk theme of Operations, where the shortage of staff had a considerable impact on our operational performance. The risks in connection with Safety and Finance remain high. We do however note an improvement on the theme of Compliance, where our measures are becoming increasingly effective.

- Operations: The main risk is that the existing staff shortages persist or become even worse. The shortages are attributable to the structural staff shortages on the labour market, high exit and internal advancement rates among main guards, high sickness absence levels and our ageing operational workforce. The most visible effect of these staff shortages are their direct consequences for train services, but shortages also affect other job categories and business processes. This effect is strengthened by the risk of

psychological sickness absence, caused by factors such as high work pressure and persistent COVID-19-related health issues. Another persistent risk is infrastructure, where - despite the announced government investments - quality and volume issues can potentially result in product development steps being postponed or cancelled altogether, or in increasing levels of operational vulnerability.

- **Finances:** Revenue levels remain uncertain due to lower passenger number forecasts and changing travel behaviour following the COVID-19 lockdowns. Furthermore, cost-related risks increased in 2022 as a result of higher inflation rates and disrupted supply chains.
- **Safety:** Rail travel remains one of the safest forms of mobility. However, rail travel is not immune to the increasing rudeness in social intercourse (personal safety) nor to the increasing risks in the cybersecurity domain.

Group risks

Group risk	Development 2022	Control measures
1. Staff shortage: The risk that we do not have enough skilled and vital employees. Score: F6 (dark red) 2021: C5 (yellow)	Greatly increased tight conditions on the labour market, higher outflow and transfer of employees, high absenteeism also due to increased work pressure. This risk occurred in 2022 and led to continuity problems. Trend: worsened	<ul style="list-style-type: none"> • Limit outflow through better retention (including later retirement, flexibility in rosters) and focus on employee experience and increased vitality. • Increase inflow through employer branding, proactive recruitment and further scaling up of training capacity. • More robust planning and timetables, with which shortages are better and more predictably accommodated. • In consultation with social partners to adjust deployment model, with measures in the short term (e.g. deployment of office staff) and long term.
2. Revenue: The risk of disappointing revenue due to the scaling down of the timetable, the resurgence of the COVID-19 virus, and the insufficient ability to bind new passengers to us and to activate existing passengers to travel more. Score: D7 (red) 2021: D7 (red)	Revenue in 2022 was still less than before the outbreak of COVID-19. We also expect substantially lower revenue in the coming years due to, among other things, more working from home, a decrease in purchasing power and the termination of the availability payment after 2022. The scaled-down timetable makes it difficult to achieve further growth. Trend: the same	<ul style="list-style-type: none"> • We conduct continuous research in order to gain insight into changing travel behaviour and customer satisfaction. Passenger forecasts are therefore regularly updated. These insights are used, among other things, for: <ol style="list-style-type: none"> 1. improving services; 2. activating our season ticket and business card holders to travel more often; 3. adjusting propositions to continue to meet the wishes of customers as much as possible; 4. targeted marketing and communication to bind new passengers to NS; 5. the targeted deployment of train (reinforcements) in order to prevent crowded trains.
3. Costs: The risk that the € 1.4 billion savings will not be realised or that cost increase Score: E6 (red) 2021: E6 (red)	The savings plan of € 1.4 billion up to and including 2024, which was drawn up in consultation with the social partners, is roughly according to plan. On the other hand, costs are increasing due to inflation with an impact on salaries, equipment, materials, parts and financing interest, while rail fares cannot be increased as much as the rate of inflation. The costs of the digitalisation process that NS is going through, as well as cyber security measures, are also rising. Trend: the same	<ul style="list-style-type: none"> • Tight monitoring of savings initiatives. • Collective labour agreements made until 1 January 2024 • Energy costs are covered until 31 December 2024. • Negotiation with contracting authority about the terms and conditions in the franchise from 2025.

<p>4. Infrastructure: The risk that the implementation of the timetable and the realisation of our ambitions (high frequency and speed increase) will be negatively affected by infrastructure bottlenecks.</p> <p>Score: E6 (red) 2021: E6 (red)</p>	<p>In 2022, infrastructure bottlenecks have emerged that negatively affect the operation of the train services and the realisation of our domestic and international ambitions. It is positive that the government is releasing € 4 billion for investments in the railways. Despite the fact that € 585 million is available within these investments for already known bottlenecks, NS considers this insufficient to remove all these bottlenecks (track stability, level crossings, energy).</p> <p>Trend: the same</p>	<ul style="list-style-type: none"> • We are discussing these matters within the Medium-Term process with ProRail and Ministry of Infrastructure and Water Management and NS is requesting explicit attention for the removal of future infrastructure bottlenecks. • Influence the planning of service disruptions to limit passenger inconvenience. • Supporting ProRail in monitoring the condition of the infrastructure. • Preparing alternative planning in the case of infrastructure failure, such as during last year's severe winter weather. • NS takes a much more active role in some infrastructure files (such as Schiphol or Amsterdam). • Continuously shortening the logistics lead times so that the planning can be quickly adjusted in the event of long-term infrastructure bottlenecks, such as this year at Swifterband
<p>5. Psychological absence The risk of psychosocial complaints due to work stress.</p> <p>Score: E5 (red) 2021: E4 (yellow)</p>	<p>The workload increased sharply in 2022 due to structural staff shortages and persistently high sickness absence rates.</p> <p>Trend: worsened</p>	<ul style="list-style-type: none"> • Set up policies and procedures properly. • Monitoring the follow-up of results and actions in response to MBO 2022 and NS-wide in-depth risk analyses (RI&Es). • Reporting on psychological absence with Arbo Unie to enable targeted (collective) actions.
<p>6. Cyber threat The risk of a cyber attack because NS does not meet the compliance or security requirements for IT or OT (= IT on and around the train).</p> <p>Score: C6 (red) 2021: C6 (red)</p>	<p>NS has taken further control measures, but in the meantime the threat level is greater due to further (chain) digitalisation and cyber threats are increasing, partly due to the now hybrid war from Russia directed towards vital infrastructures.</p> <p>Trend: the same</p>	<ul style="list-style-type: none"> • Implementation of the NS Cyber Security Management System (CSMS) and ISO27001 certification on NS Business Card processes. • Increased attention to cyber-safe culture, partly based on phishing campaigns and NS-wide knowledge sessions. • Cyber roadmap with measures to intrinsically reduce the cyber vulnerability of NS, based on a secure-by-design set-up and architecture. • Further development of human and technological capacity for early detection and follow-up of cyber incidents.
<p>7. ICNG delayed: The risk that further delay of ICNG leads to insufficient back-up rolling stock or even a period with insufficient rolling stock in operational service (after the outflow of Traxx locomotives).</p> <p>Score: D5 (Red) 2021: not in top-10</p>	<p>We have not realised the ambition for the ICNG inflow in 2022 due to essential software updates, the length of the admission process, capacity and delivery problems due to COVID-19, the war in Ukraine and setbacks in production. NS has produced a new schedule, in which the passenger service with ICNG will start in Q2 2023. In this schedule, it remains feasible to complete the full inflow of ICNG between Amsterdam and Breda in 2023.</p> <p>Trend: worsened</p>	<ul style="list-style-type: none"> • Maximum extension of the contracts for Traxx locomotives and the life of the ICM carriages (back-up rolling stock). • Maximum control of Alstom on timely delivery of ICNG within the framework of the functional requirements and quality. • Continuous consultation with IL&T about the optimal course of the admission procedure. • Intensive cooperation between NO Process Management and Programme ICNG to incorporate the latest forecasts regarding the delivery of ICNG on time in the rolling stock planning, in order to limit any impact on timetable steps in 2023 to 2025 as much as possible.

<p>8. Non-compliance: The risk that NS does not comply with legislation and regulations or that applicable standards and values are exceeded.</p> <p>Score: C5 (yellow) 2021: B6 (yellow)</p>	<p>We further strengthened the control of compliance in 2022, as part of a multi-year programme. In addition, compliance policy, monitoring and accountability were further expanded. In the area of undesirable behaviour, the improvement in 2022 will be limited.</p> <p>Trend: improved</p>	<ul style="list-style-type: none"> • An NS-wide integrated compliance vision has been established in 2022. • Regular reporting takes place through an NS-wide compliance dashboard with key risks, issues and relevant KPIs. • NS-wide training courses to keep employees' knowledge of legislation and regulations up-to-date. • A national programme to improve behaviour on the shop floor based on the NS Code of Conduct.
<p>9. Safety: The risk that NS does not take adequate measures to prevent safety incidents or does not sufficiently fulfil its duty of care.</p> <p>Score: D4 (yellow) 2021: B6 (yellow)</p>	<p>The key risks have been updated for each domain by owners and advisers. We manage the risks more proactively with KPIs. In the field of social safety, the visibility of NS in 2022 was sometimes insufficient.</p> <p>Trend: the same</p>	<ul style="list-style-type: none"> • Rail travel is one of the safest forms of mobility. NS seeks to continue improving safety by controlling risks and continuously improving performance. Considerable progress has been made in all areas. • In the field of social safety, we focus more specifically on the visibility of personnel in trains and at stations based on data-driven efforts. At a local level, NS works with government bodies, the police and agencies on specific measures. NS cannot solve some problems itself and is working with the ministries involved on a '10-point plan'. • Crowding at the stations continues to increase due to more events and more travellers at the weekends. NS is working on integrated process improvement with regard to events, with a specific focus on Bijlmer Arena station.
<p>10. Digitalisation: The risk that the customer relationship deteriorates and that agile logistics cannot improve because we do not realise digitalisation projects.</p> <p>Score: C4 (Yellow) 2021: not in top-10</p>	<p>Insufficient availability of IT personnel and complexity of IT systems have a negative impact on the digitalisation acceleration.</p> <p>Trend: the same</p>	<ul style="list-style-type: none"> • The most important critical systems in train logistics control have been replaced. The large operational legacy systems, including the travel information system and Data Warehouse systems, are in transition for replacement. • Strategic plan for recruitment of IT personnel and strategic personnel planning. Internal data talent training programme ready. • Plan for a digital commercial strategy about, among other things, standardising digital distribution channels. • Development of effective target architecture.

Dialogue with our stakeholders in the Netherlands



During the Spoorwensdag, volunteers from NS and ProRail make 60 rail-related wishes come true.

In addition to daily contact with passengers, NS maintains close relations with many different partners and stakeholders. Thanks to this dialogue, which is based on trust, we are able to jointly seize opportunities, identify risks at an early stage and, if possible, mitigate them. These talks also provide valuable expertise and ideas for our organisation and for better, more sustainable services for our passengers. The permanent dialogue provides input for the steps we are considering to keep the Netherlands accessible in a sustainable manner, for everyone.

Our stakeholders

Our stakeholders are the people or groups who are affected by our actions and who, in turn, influence our organisation and services. NS is continuously monitoring who the stakeholders are. The nature of our contacts with stakeholders is determined in some cases by legislation (government ministries and regulatory authorities), in some cases by collaboration in the transport sector (carriers, ProRail) and in other cases by the public nature of our service (passengers, politics, the media and interest groups). Some stakeholders are on the scene only temporarily in connection with specific subjects, but their input too can be relevant and we take it seriously. We organise sessions with stakeholders on specific themes or promote a broad stakeholder dialogue on the course of NS. Last year the focus was on the timetable reduction and the price of our train tickets, among other things. The dialogues with our stakeholders take place at various levels within the organisation, with the Executive Board often being involved. This enables us to build trust.

Collaboration in the transport sector

We work with partners in the transport sector to ensure an optimum door-to-door journey for our passengers. This collaboration features prominently at all levels of our organisation, in terms of strategy as well as operations, and with due regard for the long-term vision drawn up in the Mobility Alliance on improving and optimising mobility within the Netherlands.

Vision for the Future of Public Transport up to 2040

National and regional parties continue their joint efforts to make a significant contribution to the societal challenges associated with accessibility and liveability in the Netherlands. Our contributions have been compiled in various rail transport corridor studies, the Bus Rapid Transit (BRT) manifesto and an Action Agenda for Public Transport Hubs. They are the fruits of many years of study and collaboration under the programme known as the Vision for the Future of Public Transport up to 2040 (TBOV2040).

Passengers have a significant interest in the continued development of the public transport network and hubs. We are pleased, therefore, that in late 2022 several components of the TBOV development agenda were translated into concrete investment agreements within the MIRT framework. Examples include the extension of the North-South Line to Hoofddorp and the new stations between Leiden and Dordrecht (such as Rotterdam Stadionpark).

Tailored regional solutions

NS serves the whole of the Netherlands. We aim to meet the needs of the various regions, while ensuring smooth connections within the Netherlands and with other countries. In 2022, NS hosted several more 'regional management dinners'. During these dinner sessions, regional administrators and the NS Executive Board discussed their shared ambitions and challenges and collaboration between the various regions and NS.

NS is struggling with staff shortages and, for that reason, decided to scale down its timetable. We are engaged in intensive dialogue on this issue with our stakeholders. We keep them abreast of our choices and explain why we make them. Conversely, we bring our regional stakeholders' concerns in connection with the timetable to the attention of the Executive Board.

We also maintain our focus on the continued development of the public transport rail infrastructure and the role of the train in the accessibility programmes. Regional authorities are very interested in hub development (mobility hubs), also with a view to their need for new homes and international rail connections. Regional authorities in the Netherlands are facing major tasks and complex challenges, such as housing construction and the associated accessibility and mobility issues. NS can make a key contribution to help solve these issues. NS is keen to intensify its collaboration with provincial and regional authorities by jointly developing plans and implementing measures.

Dilemmas in the discussions

By sharing dilemmas with stakeholders at an early stage, NS seeks to provide insight into our considerations and jointly reach solutions. We provide our stakeholders with feedback about their ideas and recommendations and the effect that the dialogue has had on NS policy, both in regular discussions and thematic sessions and in reports. The aim is that passengers overall should benefit from this, although there will inevitably be passengers for whom any given choice has an adverse effect. We have contacts with consumer organisations to address these dilemmas. Over the past year we consulted with our stakeholders on a range of issues, including the timetable, product portfolios and accessibility.

Consultations with the trade unions

NS attaches great importance to good relations with the trade unions. In September 2022, NS agreed with the trade unions on a new CLA that runs from 1 July 2022 until 1 January 2024. The talks were held in the context of broader social developments such as labour market shortages and high inflation rates. The capacity problem - an NS-specific theme that has resulted in high work pressure among our staff - also played a role in these talks. In the past year, NS and the unions also discussed issues such as organisational changes, a temporary reduction of our timetable, the pension scheme and temporary solutions to the capacity problem.

Case study: hub development

Many regions in the Netherlands are facing substantial challenges. For example, now that the coronavirus crisis is over, congestion on the nation's roads is returning to pre-pandemic levels. The housing construction challenge facing many municipalities also calls for high-quality transport connections to and from the new housing estates. At the national level, we are confronted with a huge climate challenge. Stations that serve as mobility hubs where passengers can change to other trains or continue their journey by bicycle or bus can play a key role in tackling all those challenges. The same applies to shared mobility services.

This is why NS frequently consults with municipal and provincial authorities in the joint search for solutions that serve the interests of their inhabitants. In the Randstad-Noord region, for example, we are working to reduce the parking capacity standards for stations. In Breukelen we have explored the development of residential and business functions around the station, which may serve as a regional hub for transport in the direction of Amsterdam and Utrecht.

In the South region we are developing the hubs formed by the stations of Roosendaal, Oss, Best and Eindhoven, while in Vlissingen we are participating in a project on autonomous transport. In the Northeast region we are developing the stations of Kampen-Zuid and Steenwijk into regional hubs. Together with its partners, NS is examining the feasibility of these hubs, their impact on the timetable and their contribution to a lively atmosphere in the station areas.

Case study: New Generation Intercity

Together with train manufacturer Alstom, NS is engaged in the development, testing and introduction of the [New Generation Intercity](#) (ICNG). These 99 new Intercity trains will provide a total of 33,000 seats. Right from the start of this project, NS involved its stakeholders in the introduction of the ICNG, from a working visit to the 3D facility of train manufacturer Alstom in France to the first mock-up in Amersfoort and the presentation to the general public in Rotterdam on 2 and 3 July 2022.

2022 saw the start of the extensive testing and training programme in the Netherlands, following intensive testing on the test tracks in the Czech Republic and the climate facility in Vienna. NS closely collaborated with ILT for the purpose of a smooth admission process. And with Alstom, NS joined forces to ensure the careful and reliable introduction of these new trains.

The ICNG was presented to the public on one of the platforms at Rotterdam Centraal for two days, on Saturday 2 and Sunday, 3 July. Colleagues showed as many as 3,500 visitors around the new train. To find out the about the visitors' experiences, see the [NS YouTube channel](#). Stakeholders - including representatives of consumers' associations, ProRail and regional and national authorities - were also given a special tour of the train.

Stakeholder dialogue diagram

European	Nature of dialogue	Content of dialogue	Effects of the dialogue on NS policy
EU institutions, CER, UIC, ERA	Informational, creation and to determine standpoints	4, 5, 6, 7, 10. Promote sustainable mobility in Europe and a level playing field with other modes of transport such as air and car, stimulate international rail traffic (for distances up to 700 km), investments and co-financing, stimulate innovation, facilitate international door-to-door travel, improve international ticketing and customer services	<ul style="list-style-type: none"> • Strengthening the position of national and international passengers • Optimising cooperation between European railway companies and institutions • Sustainable investments in the railway sector that contribute to climate objectives by stimulating the modal shift from air to rail • NS's reputation as a sustainable partner
National (NL)	Nature of dialogue	Content of dialogue	Effects of the dialogue on NS policy
Customers (consumers and businesses) N.B. Some customer groups are represented by interest groups. See also LOCOV	Informational, creation, monitoring	1, 2, 4, 6, 11, 12 Timetable, public transport card (OV-chipkaart), customer satisfaction, handling complaints and inquiries, consumer portfolio, corporate portfolio, collaboration with bus, tram and metro companies, accessibility	<ul style="list-style-type: none"> • Innovation in Mobility-as-a-Service: the integration of new chain services in our product range, such as e-scooters from Check via Rivier. Agreements with Tier, DeelfietsNL and Mywheels to expand the range with their services in 2023. • Development of crowd information and communication in the NS app: the train journey can now be reported anonymously via 'switch on notifications'. Passengers receive notifications about seat availability, disruptions, delays or track changes. • NS Voordeel pilot will be continued on several routes. The discount per train journey is determined by our crowd data and can be as much as 60%. We are attracting extra passengers and there seems to be a spread effect. • NS Flex: over a million customers now travel with an NS Flex season ticket. • Follow-up introduction of the Young Person's Day Ticket: more than two million day tickets purchased. • Introduction of new proposition Vroegboek Dal (early reservation/off-peak) where passengers can travel with a 10% discount. • Improvement of group ticket: available for groups of two or more. • International travel: laid a technical foundation in collaboration with partners to be able to book a larger part of Europe online • Expanding the number of stations with travel assistance (+27 stations). • Improving direct feedback options for passengers using NS Travel Assistance

			<ul style="list-style-type: none"> • Simplification of the provision of information for (among others) passengers with a slight intellectual disability and development of opportunities to practice travelling. • Improving communication for people with a hearing impairment at the station by replacing all teleloop systems at the information desks and in the OV Service Shops • Implementation of the Whatsapp and text message option (SWAP) in the event of an unsafe atmosphere or nuisance in the train or station will be completed in 2022. We also drew extra attention to this possibility via the screens and stickers in the trains. • In 2022, 80 of the 400 stations had access gates to reduce fare evasion and aggression at stations and in the train: more than 90% of people will pass through a gate at the start of their train journey or when leaving the station
Shareholder Ministry of Finance	Intensive involvement	3, 5, 6, 8 NS operations, remuneration, strategy, appointments, major investments, standard return, dividend policy, financial situation/ COVID-19, CSR, foreign activities	<ul style="list-style-type: none"> • Determining financial policy within the scope of Participations Policy Memorandum 2022 • Appointment of new CEO • Management remuneration • Transparent reporting according to GRI • Progress GRC measures and saving efficiency measures • Investment decision DDNG, ICNG follow-up order • Restructuring and winding down of foreign activities • Impact of COVID-19 on financial performance of NS Availability payment and Transition plan • Drafting and monitoring CSR targets as part of the Participations Policy Memorandum 2022 • Chromium-6 compensation scheme
Ministry of Infrastructure and Water Management	Intensive involvement	1, 4, 6, 7, 8, 11, 12 NS performance, door-to-door journey, travelling and working in safety, international connections, HSL South train services, cross-border transport, social and railway safety, OV-chipkaart (public transport smart card), accessibility, timetable, transparency, sustainability	<ul style="list-style-type: none"> • Transport plan 2023, half-yearly and annual report 2022 • Timetable 2023, 2024 • NS staff shortage, integrated approach to staff shortage, consequences for timetable • Preparation for new franchise, Schedule of Requirements • KPIs/fulfilment of franchise obligations • International train services • Cross-border transport • Passenger spread • Availability payment and Transition plan 2023 • Supporting accessibility measures 2023-2024
National political bodies	Informational, intensive involvement	1, 2, 3, 4, 5, 6, 8 10, 11, 12	<ul style="list-style-type: none"> • Various measures to reduce staff shortages and optimise timetables.

		Operational performance, customer satisfaction, being an attractive and inclusive employer, door-to-door journey, sustainable business, international travel, financially healthy organisation, innovation, digitalisation and data-driven working methods, safe travel and work, accessibility	<ul style="list-style-type: none"> • Commitment to improve connections to and from regions • Follow-up study into acceleration and expansion of international, cross-border connections, including to Aachen and via the Utrecht-Arnhem-German border corridor • Accessibility of rolling stock increased, Administrative Agreement on Accessibility concluded and various studies are being carried out to improve services for passengers with a disability • Acting on various signals about social safety in the train • Introduction PET collection at 5 major stations
Supervisory authorities – ACM, IL&T, Dutch Data Protection Authority	Involvement, consultation ('guidance') and information	4, 7, 11, 12 Answering standard and ad hoc requests for information, discussing current issues such as a more professional safety culture, (market) issues, acceptance of rolling stock, safety incidents, incident investigations, clarification of new regulatory requirements, and providing input for market studies and consultations	<ul style="list-style-type: none"> • Improve execution and service provision • Continue to promote compliance • Transparency • Position statement • Increase safety on the track, both for NS and industry-wide
ProRail	Intensive involvement	1, 4, 5, 7, 9, 10, 11, 12 Long-Term Rail Agenda, timetable development, performance of the rail system, availability of infrastructure, planning future rail maintenance and improvement, safety, accessibility, station development, ERTMS, sustainability, joint performance indicators	<ul style="list-style-type: none"> • Cooperation with regard to seasonal measures • Cooperation in the field of security (policy) • Cooperation in the field of sustainable business and accessibility • Cooperation in the field of stations (management, maintenance, development and new construction) • Better coordination between infrastructure and the timetable • Cooperation in the field of planning large infrastructural (re)construction plans • Cooperation with regard to sustainable development and placing it on the political agenda
LOCOV (National Public Transport Users' Forum)	Intensive involvement	1, 2, 4, 6, 7, 12 NS timetable, fares, travel information, service delivered to passengers, transport plan, new rolling stock, customer satisfaction, punctuality, rolling stock, accessibility, international connections, HSL services, NS strategy	<ul style="list-style-type: none"> • Better train product by incorporating suggestions from consumer organisations in theme sessions and advice (timetable, pricing policy, accessibility, communication, etc.) • Adoption of various specific recommendations regarding the 2023 price proposal, such as not increasing the desk surcharge in 2023 and not maximising the joint journey discount • Adoption of various specific recommendations regarding the OV-ebike pilot, such as the extent to which the battery is full when an ebike is rented, how to deal with GPS data and stocking spare batteries

			<ul style="list-style-type: none"> Implementing a few recommendations with regard to Timetable 2022 (such as the optimisation of the Sprinter Leiden – The Hague in the evenings) and with regard to Timetable 2023 (such as choices made regarding the scaling down on Wednesday)
Interest groups, NGOs, green partners, Anders Reizen (employers' coalition),	Involvement, consulting and information	1, 2, 4, 5, 6, 7, 9, 12 Promoting sustainable mobility, promoting accessibility of train services for people with a disability	<ul style="list-style-type: none"> Identifying existing barriers for people with disabilities and jointly improving, designing and developing products and services to solve identified barriers Discussions with NGOs and green partners about the 'NS sustainable enterprise' strategy, resulting in useful feedback, understanding and, where possible, appreciation for NS's sustainable direction and strengthening the mutual relationship
Trade unions	Intensive involvement	3, 7 Collective labour negotiations and agreement, pension plan, workload, capacity problems, employee interests, labour market problems, vitality, personnel and social consequences during organisational changes	<ul style="list-style-type: none"> Implementation of new collective labour agreement New staff recruitment campaign Scaling down of the timetable Temporary alternative deployment model for personnel Social Plan and additional measures
Suppliers, subcontractors	Consulting, negotiating conditions, making contractual agreements, intensifying collaboration, innovation and development, mitigating price increases and supply problems	1, 5, 7, 8, 9, 10, Operational performance, sustainable business practice, innovation, financial performance, integrity and compliance, responsible procurement, risk management	<ul style="list-style-type: none"> Focus on cost reduction for NS as a result of financial situation Focus on reliability, availability and cost of products and services for business-critical processes Promoting collaboration, innovation and sustainability of the supply chain with suppliers
Media	Informational, intensive involvement	All NS-related subjects	<ul style="list-style-type: none"> Position statement Improve NS image in line with operational performance
Regional authorities and official representatives of the provinces, metropolitan regions and municipalities, other carriers and consumer organisations	Informational, negotiations, contractual agreements, crisis management, collaboration, exploring and investigating	1, 2, 4, 5, 6, 7, 8, 9, 11, 12 Quality of train services, crowded trains, punctuality, network development, redevelopment of existing stations, public transport and railway discussion platforms, advisory body on the Multi-annual Programme for Infrastructure Space and Transport for the northwest Netherlands (BO MIRT NWNL), vision of the future of public transport and the public transport development agenda, national environmental strategy, timetable, cross-border transport, personal/railway safety, transport sector-wide agreements, regional franchises, noise nuisance near the railways, hub development	<ul style="list-style-type: none"> New, more modern stations and redevelopment of the station environment Train service quality, busy trains, punctuality, network development, (re)development of existing stations, public transport and railway discussion platforms, advisory body on the Multi-annual Programme for Infrastructure Space and Transport for the northwest Netherlands (BO MIRT NWNL), vision of the future of public transport and the public transport development agenda, national environmental strategy, timetable, cross-border transport, personal/railway safety, transport sector-wide agreements, regional franchises, noise nuisance near the railways, hub development Regional customisation for train replacement bus transport in the event of train withdrawals

- Joint public transport development agendas for attractive stations and better door-to-door accessibility
- Customisation in HRN timetable and better connections to regional public transport
- Various bicycle parking facilities free for first 24 hours, expansion of P+R locations
- Collaborating on regional challenges and ambitions for Vision for the Future of Public Transport
- Door-to-door journey (including MaaS projects)
- Optimising the Noord-Holland North timetable
- Thinking along/working with municipalities for large-scale housing around stations
- Quick scan ProRail-NS for acceleration measures for northern Netherlands-Randstad in the medium term, results discussed with coordinating body for railway infrastructure in the northern Netherlands (Bestuurlijk Overleg Spoor Noord-Nederland)
- IC Randstad-Aachen
- Intensification of cooperation with stakeholders based on our commitment to broad mobility, deployment of extra mobility developers
- Cooperation in the region on, among other things, availability payment, spread (education and employers) and sustainable recovery

Internal: central and local works councils, vocational training

See: [Attractive and inclusive employer](#)

Strategy and material topics diagram

Strategic priorities		Indicators with a quantitative target value	Objectives		Results	Risk factors	Result/ prospects	Contribution to global objectives
Themes	Material topics	KPI	2024	Objective in 2022	Achieved in 2022	Risks	Social impact	SDG
A responsible and comfortable journey	Operational performance	Punctuality for passengers (with a 5-minute margin) on the main rail network	91.5%	88.9%	91.6%	Infrastructure / Digitisation / Staff shortage	Mobility / Travel time	SDG 9 / SDG 11
		Punctuality for passengers (with a 15-minute margin) on the main rail network	97.4%	96.7%	97.3%			
		Punctuality for passengers (with a 5-minute margin) on HSL South	84.2%	82.1%	82.0%			
		Seat availability at peak times (main rail network)	95.5%	94.3%	96.6%			
		Seat availability at peak times (HSL South)	94.9%	91.2%	98.0%			
		Number of crowded trains at peak times per working week	100	110	51			
		User-friendly travel information	68.5%	65.0%	81.7%			
		Customer satisfaction	General customer satisfaction with the domestic main rail network	7.5	7.3	not yet known	Infrastructure / Staff shortage / Digitalisation	
	Overall customer assessment HSL-Zuid services		7.4	7.2	not yet known			
	Reputation (RepTrak)		--	64	62.9			
	Travelling and working in safety	Customer satisfaction with personal safety	7.9	7.7	not yet known	Safety	Health and safety	SDG 8
		SPADs where danger point has been reached	--	0	4			
		TRR	--	--	4.0			
	Accessibility	Stations with travel assistance	--	88.0%	89.0%	Infrastructure	Mobility	SDG 10
Focusing on broad mobility services	Door-to-door journey / Collaborating with stakeholders	Quality of connections to other carriers	95.6%	94.0%	95.5%	Infrastructure	Mobility / Travel time	SDG 9 / SDG 11
	World-class stations	Customer satisfaction with stations	--	7.2	7.3	Safety / Infrastructure / Digitalisation	Expenditure	SDG 11
Sustainable accessibility, nationally and internationally	International journeys	Increase in international ticket sales	--	--	6.0%	Infrastructure	Mobility / Travel time / Environment	SDG 11
	Sustainable enterprise	Energy efficiency of traction	--	--	83.8%	Non-compliance	Environment	SDG 7 / SDG 12 / SDG 13 / SDG 15
An agile organisation	Attractive and inclusive employership	% women in senior management	--	--	37%			
		% working at NS higher than a 7		80%	72%			
	Innovation	Perception of NS as an innovative company (RepTrak)	--	60	54.2	Infrastructure / Digitalisation / Cybersecurity	Expenditure	
	A financially healthy organisation	Revenue (in € million)	--	--	3,055	Revenue / Costs /	Expenditure	SDG 8
		Investments (in € million)	--	--	450			

Our performance in a wider context

Reputation

NS commissions the RepTrak Company (www.reptrak.com) to gauge its reputation. The RepTrak-score for 2022 was 62.9 (2021: 68.0), which is below our target score of 64.0 for reputation. All underlying scores were lower compared with those for 2021, with the score for leadership showing the sharpest drop. This can be attributed to reports in connection with the six-monthly figures, the strikes, the staff shortages resulting in the reduction of our timetable, and overcrowding in our trains.

Benchmarking against other carriers

As agreed in the main rail network franchise, we conduct a benchmark study every three years in order to compare our own and ProRail's performance with that of other European rail transport providers. The COVID-19 crisis had a significant impact on our performance and on the availability of data. For that reason, the Ministry of Infrastructure and Water Management, NS and ProRail agreed to shift the benchmark study from 2021 to 2022 and report on the results in 2023. In this way, the study will provide us with a picture of performance levels before, during and after the COVID-19 pandemic.

In 2022, NS conducted the benchmark study with the same carriers as in 2019: DSB (Denmark), Greater Anglia (United Kingdom), NMBS (Belgium), SBB (Switzerland) and West Midlands Trains (United Kingdom). The focus of the study was on the railway system in general (carrier and infrastructure) and on the response to COVID-19 impacts, punctuality issues and train cancellations in particular. We use the benchmark study results as input for further performance improvement plans.

Transparency

NS is transparent about its performance. Every month, it reports via www.ns.nl (in Dutch) on the latest scores for the KPIs that have been set for the main rail network franchise, with detailed supporting evidence. NS won the *Financieel Dagblad's* Sijthoff Prize for best annual report in the category of unlisted companies.

Notes to the material themes

In the years up to and including 2021, NS filled in the material relevance matrix on the basis of our impact on people and planet and the relevance for our stakeholders. We recalibrated our material topics in 2022. In addition, we apply a concept known as 'double materiality', in anticipation of new regulations under the Corporate Sustainability Reporting Directive (CSRD). The CSRD is an extended version of the existing Non-Financial Reporting Directive (NFRD), whose current scope does not include NS. The purpose of the CSRD is to improve the quality and comparability of non-financial information in the annual reports of listed companies and other large or medium-sized businesses, such as NS. The CSRD will take effect in 2024. This means that in 2026, NS's report for 2025 will have to be fully compliant with the CSRD. Double materiality is mandatory under the CSRD and involves a combination of impact materiality and financial materiality.

The material topics provide insight into the impact of NS on societal issues (impact materiality) and, conversely, the way in which such issues influence the development, performance and position of NS (financial materiality). This is an extension of former analyses, in which the key focus was on the relevance of topics to external stakeholders. Double materiality exclusively concerns topics in connection with which NS has an impact on society or topics with a potential impact on NS. We have included both positive and negative impacts in this regard. Examples include the provision of sustainable travel options in the

Netherlands and abroad, a positive impact on employment in the Netherlands, or a potential negative impact on privacy due to the increasing use of data-driven working methods. We have also explored potential opportunities and risks associated with the various impacts. As such, the results of this material relevance analysis provide a more comprehensive picture of the relevant impacts of and on our organisation.

In preparation for the current list of relevant impacts and priorities, this year we asked both internal and [external stakeholders](#) for their input. In collaboration with various internal stakeholders, for each material topic we identified the possible positive or negative impacts of NS on people and planet and human rights, for example, and which developments in society might pose an opportunity or a risk for the development, performance or position of NS. We then asked our most important internal and external stakeholders (administrators and official representatives, partners, consumers' associations, NGOs, suppliers, ProRail, trade unions and political representatives) to prioritise the various impacts based on their perception of NS's impact on people and planet and of the impact on NS's financial value.

For all material topics included in the matrix, we report on objectives and results. The matrix has been validated by the Executive Board.

Tightening definitions

In 2022, NS tightened the definitions of its material topics. Compared with 2021, 12 of the total of 17 material topics have been included in the double materiality matrix. *'Risk management'*, *'Integrity & compliance'* and *'Abellio'* are deemed to be of less importance by stakeholders and were not included this year. *'Sustainable enterprise'* is a new topic in the matrix, a combination of *'Contribution to the Dutch Climate Agreement'* and *'Responsible procurement'* from 2021, as responsible procurement is part of the sustainable enterprise strategy. We have combined the material topic of *'Designing and sharing knowledge on mobility'* with *'Collaborating with stakeholders'* owing to the overlap between these two. We have expanded the scope of *'Innovation'* to cover *'Innovation, digitalisation and data-driven operations'* to reflect internal and external developments in IT.

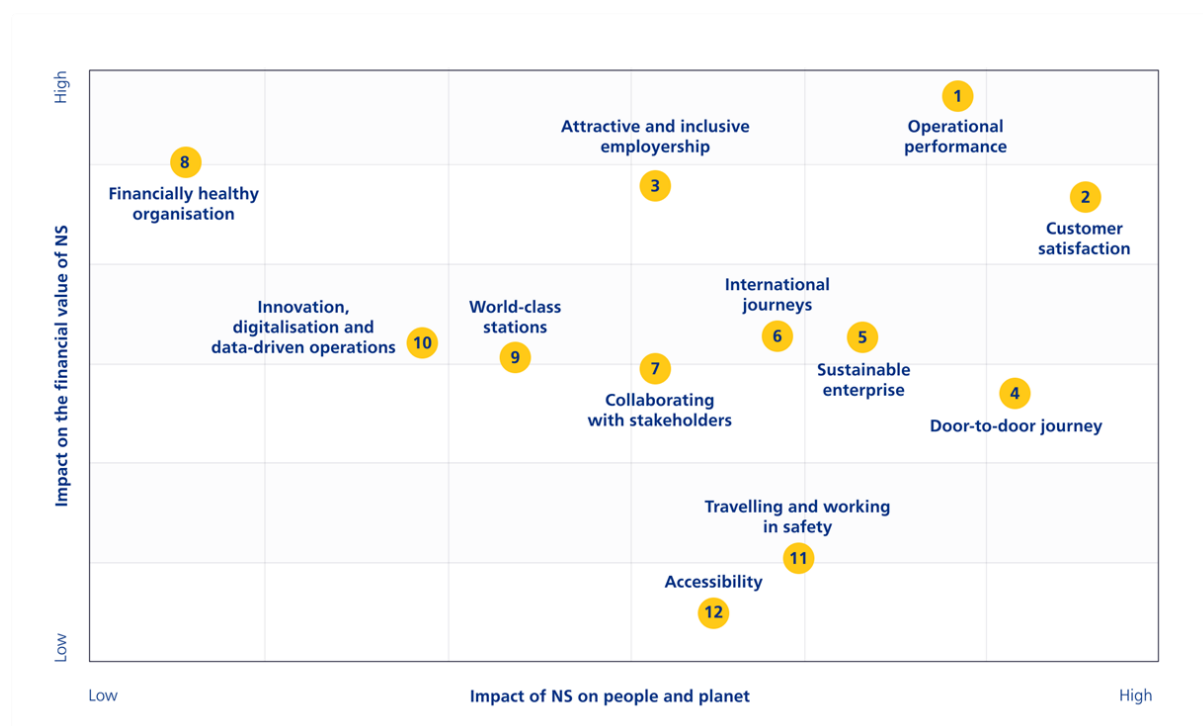
Thematic shifts

'Operational performance' has remained the most relevant material topic for NS and its stakeholders. This concerns the extent to which NS is committed to maintaining and further improving its operational performance, including during the COVID-19 period in the first months of 2022 and the staff shortages and timetable reduction in the second half of that year. The topic of *'Attractive and inclusive employership'* has risen dramatically compared with 2021, which is mainly due to its financial impact on NS. The increase may be a consequence of the strikes in August and September, which coincided with our request among stakeholders to rank the material topics. For our stakeholders, NS has the greatest impact on society through the topic of *'Customer satisfaction'*. This is how NS meets the core needs of passengers with respect to their travel experience. Opportunities to improve customer satisfaction levels include a more effective spreading of passengers by seeking collaboration with employers and educational institutions, technological innovations to give passengers more control over their own journey, and the introduction of new rolling stock. Risks in connection with this topic include maintenance or repair works and other types of service disruption.

'Financially healthy organisation' is the topic where NS's impact on society is smallest. It may have a positive impact through investment in improving NS's operational performance, the affordability of train fares, offering better terms of employment and by investing in rolling stock. The impact is negative however if NS's financial performance fails to meet expectations and the company is unable to invest in the quality and sustainability of its operational performance and in staff. Finally, the topic of 'Safe Journey' has fallen sharply compared with 2021, due in particular to its limited impact on our financial performance. Technological developments in the field of predictive data and enhanced collaboration on personal safety with partners in the chain present opportunities in connection with this topic. They will help NS identify locations where potentially unsafe situations may occur and take preventive measures.

Evaluation of the management approach

We use our results and objectives in the annual evaluation of our management approach to the various material topics. In this connection, we also discuss the effectiveness of our actions and consider any lessons we may learn from the results achieved to implement improvements where necessary. For 'Operational performance' (1), 'Customer satisfaction' (2) and 'Door-to-door journey' (4), for example, we use the performance indicators from the 2022 Rail Transport Franchise. For the other material topics we use our own performance indicators. In addition, we also try to manage our own positive and possibly negative impacts on the various topics. The objective is to increase our positive impact on people and planet where possible, and mitigate and reduce our negative impacts. We report on any adjustments to our management approach that result from the evaluation, and for each material topic provide insight in the way we manage our impacts and mitigate them where necessary.



Material topics 2022 Definition

1	Operational performance	The extent to which NS is committed to achieving operational performance agreements on the main rail network and HSL South, such as punctuality and seat availability.
2	Customer satisfaction	The extent to which NS meets the core needs of travellers with respect to their travel experience.
3	Attractive and inclusive employership	The extent to which NS can offer its current and future employees an attractive (employment conditions and development) and inclusive (open and safe, diversity, equality) working environment where everyone can be themselves, and encourages being a good employer in the chain.
4	Door-to-door journey	The extent to which NS facilitates customised door-to-door travel for all public transport passengers in all regions of the Netherlands. Where possible with our own physical and digital services, but also through other providers.
5	Sustainable enterprise	The extent to which NS contributes to the climate (agreement) by offering sustainable mobility and making it more sustainable by operating fossil-free, circular and green business practices and accepting its responsibility to make the chain more sustainable.
6	International journeys	The extent to which NS works together with partners and implements improvements to international travel, among other things to offer an attractive alternative to short-haul flights and cars.
7	Collaborating with stakeholders	The extent to which NS assumes a coordinating role in the mobility sector through reliable, open and accessible cooperation and knowledge sharing with (inter)national and regional stakeholders in order to shape sustainable mobility in the Netherlands.
8	Financially healthy organisation	The extent to which NS is able to achieve a financial return now and in the future so that it can continue to invest in improving its services.
9	World-class stations	The extent to which NS is committed to working with our partners in the region to provide world-class stations by creating functional and valued hubs for mobility and quality of life.
10	Innovation, digitalisation and data-driven operations	The extent to which NS continues to innovate, digitalise and provide data-driven operations in order to optimise our services, the quality of our products and efficient business operations and thus increase passenger satisfaction with their journey, now and in the future.
11	Travelling and working in safety	The extent to which NS is committed to safety for passengers, colleagues and employees of partners.
12	Accessibility	The extent to which NS is committed to seamless travel in order to make its products and services available and accessible to all.

	Impact on materiality	Financial materiality
Operational performance	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Customer satisfaction	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Attractive and inclusive employership	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Door-to-door journey	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Sustainable enterprise	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
International journeys	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Collaborating with stakeholders	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Financially healthy organisation	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
World-class stations	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Innovation, digitalisation and data-driven operations	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Travelling and working in safety	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Accessibility	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>

Statement by the Executive Board

The Executive Board is of the opinion that the risk management and internal control systems concerning the financial reporting risks in the year under review functioned satisfactorily and give a reasonable degree of assurance that the financial reports do not contain any material misstatements. The report gives sufficient insight, therefore, into the functioning of the said systems. The Executive Board states that as far as it is aware:

- the financial statements give a true and fair view of the assets, liabilities, financial position and profits of NS and the companies included in the consolidation as a whole;
- the annual report gives a true and fair view of the situation on the balance-sheet date and the course of business during the financial year;
- given the current state of affairs, the preparation of the financial reports on a going concern basis is justified;
- the annual report specifies the material risks and uncertainties that are relevant to expectations about the company's continuity for a period of twelve months after the compilation of the report.

Note that the above does not mean that those systems and procedures provide absolute assurance as regards the achievement of operational and strategic objectives, nor that they will necessarily be sufficient to prevent any and all inaccuracies, errors and cases of fraud and failure to comply with laws and regulations. Neither can they provide assurance that we will be able to reach our objectives.

Given the above, the Executive Board is of the opinion that principle 1.2 of the Dutch Corporate Governance Code is being complied with.

About the scope of this report

NS is based in the Netherlands and has a single, Dutch shareholder, the Dutch State. In this annual report, which was published on 23 February 2023, we primarily render account to our Dutch stakeholders for our potential social impact in the Netherlands. Even so, we also report on our international operations and have included a separate chapter for that purpose. NS focuses on passengers and enabling them to enjoy a comfortable door-to-door journey. To that end, NS's main priority is to improve operational performance on the railways, supported by the provision of, for instance, bicycle facilities and station services and by optimised door-to-door journeys thanks to public transport bicycles and collaboration with other partners in the public transport sector and elsewhere. In addition, we aim to remain financially healthy so as to be able to continue investing in services to meet the growing mobility needs in the Netherlands, and to keep train fares affordable. Indeed, this is what our stakeholders expect from us. They also want to see accountability for our non-financial results in the Netherlands.

In order to offer passengers the best possible service at the right price, we are also accumulating experience abroad. We monitor the extent to which our results in the United Kingdom and Germany add value for passengers in the Netherlands, in terms of cross-border travel, for example. Our international activities have to benefit the interests of our stakeholders in the Netherlands. According to our Dutch stakeholders, our activities in the United Kingdom and Germany are a materially relevant theme. Given Abellio's low positioning in the material relevance matrix, we do report on this subject but only in proportion to the financial impact of Abellio on NS as a whole. In tendering procedures, the franchising authorities set the terms of the franchised agreements, which leave less room for non-financial indicators. In the annual report we have not included the data for the various Abellio entities in the calculations of our non-financial indicators. Instead we report that data separately in the chapter 'Our activities and performance abroad'.

Apart from the financial statements and the combined auditor's report, the NS Annual Report for 2022 contains the following information:

- The Report of the NS Executive Board, including Foreword by the CEO, Dilemmas, The profile of NS, Trends and developments, Our strategy, The main rail network franchise from 2025, How NS adds value to society, Our activities and performance in the Netherlands, Our sustainability performance, Our activities and performance abroad, Financial performance, Our impact on the Netherlands, and the following sections that are part of the chapter on NS Group: Corporate Governance, Risk management, Dialogue with our stakeholders in the Netherlands, Statement by the Executive Board, About the scope of this report, and Scope and reporting criteria;
- the Report of the Supervisory Board;
- other data, in accordance with Title 9 of Book 2 of the Dutch Civil Code.

This annual report is subdivided into three blocks:

- A core report comprising the Foreword by the CEO, Dilemmas, The profile of NS, Trends and developments, Strategy, The main rail network franchise from 2025, How NS adds value to society, Our activities and performance in the Netherlands, Our sustainability performance, Our activities and performance abroad, Financial performance, and Our impact on the Netherlands. For the operational results, the core of the report consists of the results that we have achieved within the franchise agreements with the Ministry of Infrastructure and Water Management for the Dutch main rail network.

- A section with other information including Corporate governance, Risk management and Dialogue with our stakeholders.
- Financial statements.

Scope and reporting criteria

In the annual report, NS presents its operational and financial performance and the associated social aspects with the highest possible degree of integration. Our reporting method is in accordance with the 2021 GRI Standards. Compared with last year, the Core option is no longer available and NS has opted for the 'in accordance with' option, which has resulted in additional reporting requirements. The following are the main building blocks of this type of reporting:

- relevant provisions in the Dutch Civil Code;
- the International Financial Reporting Standards (IFRS);
- the revised 2016 Dutch Corporate Governance Code;
- 2021 GRI Standards
- Electric Utilities Sector Supplement, EU Directive on disclosure of non-financial information and diversity
- the International Integrated Reporting Council IIRC.
- In addition, in our report we explain how we implement the OECD guidelines.

In order to provide assurance regarding the reliability of the information included, NS instructed EY to perform an audit with a limited level of assurance, with a focus on non-financial information in the following chapters: About NS, Our activities and performance in the Netherlands, Our impact, and the following components: Our strategy, How NS adds value to society, Dialogue with our stakeholders in the Netherlands, About the scope of this report, and Scope and reporting criteria.

GRI indicators

The selection of the GRI indicators is based on the 2021 GRI Standards method, the 2020 Transport Plan, discussions with our stakeholders and the resulting material relevance matrix. The reported data are derived from measurements, calculations, third-party reports or internal systems. Any changes in definitions or inherent limitations in the data compared with last year are highlighted in the report. A GRI index is available at the end of the online annual report.

Definition cards for performance indicators from the Transport Plan and the reporting criteria can be found on www.ns.nl/mvoberekeningen (in Dutch) and the [PI Vervoerplan 2022](#) (in Dutch).

Scope

- NS reports on topics from the material relevance analysis, which also serves as the basis for choices regarding the level of detail and demarcation of our reporting. Themes where NS has little impact or that stakeholders do not consider particularly important are included in the report in less detail. Abellio regularly provided input during the stakeholder dialogue. Our reporting of non-financial information about NS only includes data about our Dutch entities. Abellio falls outside the reporting scope for all of our material topics, which is why it has not been included in our non-financial information and indicators either.
- This report primarily concerns NS's activities in the Netherlands. The activities in the United Kingdom and Germany are discussed where they involve operations in which NS holds a stake of more than 50% in the reporting year.

- All data derive from measurements, unless stated otherwise in the description of the method. Any estimates are made using the relevant procedures in our Reporting Manual.
- Uncertainties in the data regarding the quantification of our impact are explained on www.ns.nl.
- We report on the transport supply chain as a whole where procurement is concerned or where our process of value creation gives reason to do so. The choices we have made in this regard are specified, where relevant, under value creation.
- Acquisitions are included in both the financial and non-financial data from the date of acquisition; disposals are included until the date of disposal, unless stated otherwise.
- The definitions of the KPIs and the descriptions of the measurement and calculation methods used can be found in the [2022 Transport Franchise Definitions \(in Dutch\)](#).

Financial statements

These financial statements are an English translation of the financial statements prepared on 22 February 2023. In case of any discrepancies or possible differences in interpretation between the English translation and the financial statements prepared on 22 February 2023, the latter prevail. The original Dutch version of the financial statements are available at the chamber of commerce.

Financial statements

Consolidated income statement 2022

(in millions of euros)

	2022	2021
3 Revenue	3,055	2,252
3 Additional government contributions related to COVID-19	286	940
Total revenue	3,341	3,192
4 Personnel costs	1,466	1,404
5 Depreciation costs and (reversal of) impairment losses	43	355
6 Use of raw materials, consumables and inventories	292	257
7 Own capitalised production	-68	-99
8 Subcontracted work and other external costs	431	391
9 Infrastructure levies and franchise fees	515	586
10 Other operating expenses	271	228
Operating expenses	2,950	3,122
17 Share in result of investments accounted for using the equity method	-	1
Result from operating activities	391	71
Finance income	206	3
Finance expense	-28	-334
28 Net financing result	178	-331
Result before income tax	569	-260
11 Income tax	-37	343
Result from continued operations	532	83
Discontinued operations		
Result from discontinued operations after tax*	54	417
Result for the period	586	500
Attributable to:		
Equity holder of the company	579	339
Minority interest	7	161
Result for the period	586	500

* Of the profit from discontinued operations of € 54 million (2021: profit of € 417 million), an amount of € 47 million is attributable to the company's shareholder (2021: € 256 million).

Consolidated statement of comprehensive income for 2022

(in millions of euros)

2022

2021

Result for the period		586	500
Comprehensive income to be reclassified to the income statement in subsequent periods			
	Currency translation differences on foreign activities	1	-20
	Changes in measurement at fair value through other comprehensive income	1	-
	Effective portion of changes in fair value of cash flow hedges	36	34
11	Taxation	-	-5
		38	9
Comprehensive income not to be reclassified to the income statement in subsequent periods			
30	Actuarial result of defined benefit plans	-6	-
	Taxation	2	-
17	Actuarial result for defined benefit plans as a consequence of revaluation of investments accounted for using the equity method, after tax	-	-
	Taxation	-	-
		-4	-
Total recognised profit for the reporting period		620	509
Attributable to:			
	Equity holder of the company	613	354
	Minority interest	7	155
Total recognised profit for the reporting period		620	509

The above table includes the result from discontinued operations, as explained in more detail under the income statement on the previous page and in note 2.

Consolidated balance sheet as at 31 December 2022

before profit appropriation

(in millions of euros)

31 December 2022 31 December 2021

Assets			
13	Property, plant and equipment	3,442	2,973
14	Real estate assets	119	124
15	Intangible non-current assets	319	345
32	Right-of-use assets	461	827
17	Investments recognised using the equity method	12	26
24	Other financial assets, including investments	197	131
12	Deferred tax assets	316	367
Total non-current assets		4,866	4,793
18	Inventories	220	176
19	Trade and other receivables	676	1,219
	Income tax receivable	-	22
24	Other current financial assets, including investments	745	478
20	Cash and cash equivalents	396	680
Total current assets		2,037	2,575
2	Assets held for sale	1,476	-
Total assets		8,379	7,368
Equity and liabilities			
25	Equity		
	Issued share capital	1,012	1,012
	Other reserves	70	36
	Retained earnings	647	308
	Unappropriated result	579	339
Total group equity		2,308	1,695
	Minority interests	1	-6
Equity		2,309	1,689
29	Deferred credits	128	161
26	Loans and other financial liabilities, including derivatives	1,505	1,598
32	Lease liabilities	377	634
30	Employee benefits	55	54
31	Provisions	310	216
21	Accruals	9	10
12	Deferred tax liabilities	-	2
Total non-current liabilities		2,384	2,675
26	Loans and other financial liabilities, including derivatives	296	196
32	Lease liabilities	87	296
	Income tax payable	11	12
22	Trade and other liabilities	1,306	1,647
23	Deferred income	565	645
31	Provisions	74	208
Total current liabilities		2,339	3,004
2	Liabilities held for sale	1,347	-
Total liabilities		6,070	5,679
Total equity and liabilities		8,379	7,368

Consolidated cash flow statement for 2022

(in millions of euros)

	2022	2021
Result from continued operations	532	83
<i>Adjustments for:</i>		
Income tax	37	-343
Results from investments accounted for using the equity method	-	-1
13,14,15.32 Depreciation and amortisation	428	354
13,14,15.32 Impairment losses and reversals	-385	1
Net financing result	-186	316
Change in provisions	97	-59
Change in other non-current liabilities not resulting in cash flows	20	83
Change in deferred credits	-33	-39
	-22	312
Result after adjustments	510	395
Change in inventories	-71	-6
Change in trade and other receivables	82	-395
Change in current liabilities	378	52
Movements in working capital	389	-349
Interest paid	-14	-1
Income tax received/paid	-	-
Net cash flow from discontinued operations	181	310
	167	309
Net cash flow from operating activities	1,066	355
Finance revenues received	11	3
Disposal/acquisition of subsidiaries, net of cash disposed of (acquired)	9	-
13.15 Acquisition of intangible assets and property, plant and equipment	-429	-541
14 Acquisition of investment properties	-2	-1
Receipts (payments) from other investments	-	34
Deconsolidation of Abellio Germany	-	-35
Acquisition of financial assets, including investments*	-1,687	-449
17.24 Disposal of financial assets, including investments*	1,380	15
13,14,15 Disposal of intangible assets, property, plant and equipment and investment properties	-7	18
Net investing cash flow from discontinued operations	-15	-7
	-740	-963
Net cash flow from investing activities	-740	-963
Net cash flow from operating and investing activities	326	-608
Repayment of borrowings	-50	-49
Repayment of lease liabilities	-72	-88
New borrowings	129	651
Net financing cash flow from discontinued operations	-291	-394
	-284	120
Net cash flow from financing activities	-284	120
Net decrease/increase in cash and cash equivalents	42	-488
Cash and cash equivalents as at 1 January	680	1,137
Effect of exchange rate fluctuations on cash held	-22	31
Cash and cash equivalents classified as held for sale as at 31 December	-304	-
Cash and cash equivalents as at 31 December	396	680

* This mainly concerns the acquisition and disposal of money market funds during 2022.

Consolidated statement of changes in equity

(in millions of euros)	Issued capital	Other reserves	Retained earnings	Unappropriated result	Total	Minority interests	Total equity
Balance as at 1 January 2021	1,012	21	2,697	-2,378	1,352	-173	1,179
Result	-	-	-	339	339	161	500
Non-realised profit	-	15	-	-	15	-6	9
Total comprehensive income for the period	-	15	-	339	354	155	509
Dividend paid to shareholders	-	-	-	-	-	-	-
Other movements	-	-	-2,389	2,378	-11	12	1
Balance as at 31 December 2021	1,012	36	308	339	1,695	-6	1,689
Result	-	-	-	579	579	7	586
Non-realised profit	-	34	-	-	34	-	34
Total comprehensive income for the period	-	34	-	579	613	7	620
Dividend paid to shareholders	-	-	-	-	-	-	-
Discontinued operations	-	-	-	-	-	-	-
Other movements	-	-	339	-339	-	-	-
Balance as at 31 December 2022	1,012	70	647	579	2,308	1	2,309

The reserve for discontinued operations held for sale is included in the other reserves. This includes the actuarial reserve, hedging reserve and translation reserve classified as discontinued operations (see note 25).

Notes to the 2022 consolidated financial statements

The notes are divided into six sections. The notes contain the relevant information as well as a description of the specific accounting policies applied in the case of the subject of that particular note.

Section 1 General information and significant accounting policies

General Information

NV Nederlandse Spoorwegen has its registered office on Laan van Puntenburg in Utrecht, the Netherlands (Chamber of Commerce number 30012558). The company's consolidated financial statements for the 2022 financial year include the company and its subsidiaries (hereinafter referred to as the 'Group') and the Group's share in associates and companies that it controls jointly with third parties. NV Nederlandse Spoorwegen is the holding company of NS Groep NV, which in turn is the holding company of the operating companies that carry out the Group's various business operations. The figures for the consolidated financial statements of NS Groep NV are materially the same as the consolidated figures for NV Nederlandse Spoorwegen. The operating companies of NS Groep NV are listed in note 34. The Group's activities consist mainly of passenger transport, the management and development of property and the operation of station locations.

The Executive Board prepared the financial statements on 22 February 2023. In its preliminary report to the General Meeting of Shareholders, the Supervisory Board advised that the financial statements should be adopted unaltered. On 22 February 2023, the Executive Board and Supervisory Board approved the publication of the financial statements. Adoption of the financial statements is on the agenda of the General Meeting of Shareholders on 2 March 2023.

In accordance with Section 2:402(1) of the Dutch Civil Code, the separate financial statements of NV Nederlandse Spoorwegen only include an income statement in abbreviated form.

Acquisition and disposal of companies

In 2022, the Group reached agreement with the franchising authorities for the WestfalenBahn and Mittel Deutschland franchises about the conditions for continuing the franchises. To this end, it has acquired the shares in PTS GmbH, WestfalenBahn GmbH, and Abellio Rail Mitteldeutschland GmbH as of February 1, 2022, March 1, 2022 and July 1, 2022 respectively (see further note 1).

In line with its strategy, which dictates that international activities should be in the interest of passengers in the Netherlands, NS has been preparing its departure from the British market with the consent of the shareholder. As of 31 May 2022, Abellio Transport Group Ltd and its group companies (hereinafter: Abellio UK) are presented as assets and liabilities held for sale and business activities have been discontinued. The sale transaction is expected to be completed at the end of February 2023. See note 2 for a further explanation.

The notes to the financial statements have been prepared exclusive of discontinued operations, unless stated otherwise.

Significant accounting policies

Below is a description of the accounting policies for consolidation, the measurement of assets and liabilities and the determination of the result of the Group. These policies are in accordance with IFRS, insofar as they are accepted by the EU, and are applied consistently to all information that is presented. Furthermore, insofar as applicable, the financial statements comply with the legal regulations as included in Title 9 of Book 2 of the Dutch Civil Code. The Group applies the historical cost price system as measurement basis, unless stated otherwise.

Capitalisation of development costs

In recent years, NS has worked on modernising its IT landscape and improving IT management processes. Partly as a result of this, a shift has taken place within NS in working methods within the IT domain in order to improve the alignment with current IT developments. As a result of this shift, NS has revised its working method with regard to IT expenditure. With effect from 2022, expenditure related to development environments will, in principle, no longer be capitalised, but charged to the income statement. NS has established internal control measures that periodically assess whether costs have been recognised in development environments that qualify for capitalisation. The changed working method has led to higher operating expenses in 2022 of € 89 million, divided between personnel costs (€ 36 million), capitalised production (€ 38 million) and subcontracted work (€ 15 million).

In addition, NS applies a change in accounting estimate to better align with the actual economic life of assets as a result of IT developments that follow one another at an increasingly rapid pace. To this end, all IT assets capitalised under intangible assets have been reassessed from 2020 onwards. This has led to an acceleration of depreciation (useful life from 5 to 3 years) for an amount of € 28 million, which has been recognised prospectively.

For the years 2023, 2024 and 2025, the total effect of the adjusted working method and the change in accounting estimate on the operating result is € 106 million negative, € 87 million negative and € 34 million negative, respectively.

Important (result) developments

The effects of the COVID-19 crisis on passenger behaviour still has a significant impact on NS's financial performance. In addition, the staff shortages and the partial scaling-down of the timetable have had an impact on the result in 2022. As a result of the intended sale of the UK activities, the assets and liabilities in 2022 have been included under assets and liabilities held for sale and the results for 2021 and 2022 are presented under discontinued operations (see note 2).

The Group's result from continuing operations was € 391 million, partly due to the reversal of impairment losses in the Netherlands amounting to € 385 million (note 16). The result from continuing operations was also positively influenced by additional contributions from the Dutch government amounting to € 286 million (note 3).

The net financing result amounts to € 178 million positive (2021: € 331 million negative). The positive financing result is largely due to the release of part of the provision for guarantees in connection with the insolvency proceedings in Germany (€ 77 million) and a positive accounting result as a result of acquisition accounting of € 108 million (see note 1) in relation to reacquired activities in Germany. This finance income in 2022 should be seen in

conjunction with the negative net financing result in 2021. The negative financing result in 2021 was caused by the write-down of a participating interest and loans to zero, costs of restructuring, terminating a number of franchises and provisions made regarding guarantees and settlement of possible other liabilities related to the insolvency proceedings concerning Abellio Germany.

A tax expense of € 37 million has been recognised (2021: € 343 million tax income). The effective tax rate differs from the regular tax rate. This is mainly due to an upward revaluation of the deferred tax asset for temporary differences by € 74 million, mainly related to an expected release of deferred impairments in the coming two years and the aforementioned financing results (Germany) that are not taxed (see note 11).

The following events have had a substantial impact on the Group's financial figures:

- In 2022, partly as a result of the nationwide measures and changed passenger behaviour, the number of passengers and therefore the passenger revenue were still significantly below the pre-COVID-19 level. NS (largely) continued the timetable, partly at the explicit request of the Ministry of Infrastructure and Water Management. NS makes use of the measure of the Ministry of Infrastructure and Water Management with the promise of an availability payment for the public transport sector, as a vital sector, as compensation for maintaining the timetable with a decrease in passenger revenue for the period until 31 December 2022. The availability payment amounts to 93% of the indexed 2019 cost level that is eligible for the availability payment, less 100% of the revenues realised in 2022. With reference to the changed economic circumstances in the Netherlands, a reassessment was made in 2022 of the impairments recognised in 2020 (see note 16) and this led to the reversal of the impairment for an amount of € 385 million.
- As of 31 May 2022, Abellio Transport Group Ltd and its group companies (hereinafter: Abellio UK) are presented as assets and liabilities held for sale. It is expected that the sale transaction will be completed by the end of February 2023. As at 31 May 2022, the Group ceased to depreciate all the property, plant and equipment of Abellio UK. Prior to the qualification as "assets and liabilities held for sale", the carrying amount of Abellio Transport Group Ltd and its group companies was determined in accordance with the reporting system applied by the Group. Subsequently, as of 31 December 2022, it was determined that there was an impairment loss, as the net carrying amount of assets and liabilities of Abellio Transport Group Ltd and its group companies was higher than the expected realisable value (minus expected costs to sell). This led to an impairment loss of € 157 million. The net results of the UK operations, including these impairment losses, are included in "Result from discontinued operations" (see note 2).
- In Germany, as of 30 June 2021, a restructuring was deemed necessary by means of so-called 'Schutzschirmverfahren' (special insolvency proceedings under German law) in order to avoid the continuation of onerous contracts. The special insolvency proceedings are provisional, where local management remains on board under the supervision of a court-appointed 'trustee' in order to find a viable solution. The former shareholders lose control in these proceedings. As of 30 June 2021, this has led to the deconsolidation of Abellio Germany. In 2022, Abellio Germany completed its restructuring for various franchises. With the repurchase of the shares, NS has regained control over PTS GmbH (as of 1 February 2022), WestfalenBahn GmbH (as of 1 March 2022) and Abellio Rail Mitteldeutschland GmbH (as of 1 July 2022). From those dates, these entities have again been included in the consolidation (see note 1). Operations in North Rhine-Westphalia and Baden-Württemberg ceased in January 2022 and were transferred to operators designated by the PTAs, because an additional fee for operating the franchises could not be agreed with the PTAs. In addition, it has been agreed that the onerous DISA

contract will be continued by Abellio Rail Mitteldeutschland until December 2024 (instead of December 2032), at the expense of NS, to give the PTAs sufficient time to tender the contract again. The insolvency proceedings regarding the former German holding company Abellio GmbH are still ongoing. The legal completion of these proceedings can take some time. The nature of insolvency proceedings is unpredictable. The operating result and cash flow in future years may therefore be affected by an (un)favourable outcome compared to the current estimates that have been made. The provision has been updated as of 31 December 2022 (see also note 31 provisions).

A more detailed analysis of the result is included in the 'Finance in brief' section of the NS Annual Report.

Continuity assumption

The Group prepared the financial statements for the 2022 financial year on a going concern basis, which assumes the continuity of ongoing business activities and the realisation of assets and settlement of liabilities as part of its normal business activities.

The Group has prepared financial forecasts, among other things for the twelve months from the date of approval of these financial statements, which include an estimate of the ongoing business impact of COVID-19. The Group has concluded that it is appropriate to prepare the financial statements on a going concern basis and that there is no material uncertainty. To reach this conclusion, the Group has calculated several scenarios and there is room in each of the scenarios for possible disappointing revenues and/or expenses.

As of 31 May 2022, Abellio UK is presented as held for sale. It is expected that the sale transaction will be completed by the end of February. Due to the changed contract forms in the United Kingdom, whereby the revenue risk is limited for Abellio, liquidity risks from normal business operations are limited. Conservative estimates have been made with regard to the UK and included in the liquidity forecasts. For Germany, estimates have been made for the expected outflow of funds required to complete the insolvency proceedings.

The key assumptions and uncertainties in the Group's liquidity forecast further relate to:

- lower level of passenger revenue compared to 2019 as a result of changing passenger demand. for 2023, the Ministry of Infrastructure and Water Management has pledged to provide a one-off transition safety net of € 150 million for the entire sector. NS's share is expected to amount to € 45 million. No pledges have been made for the period thereafter. An advance of 80% has been forecast for the public transport transition safety net for 2023. Furthermore, the Group expects to receive the remaining 20% availability payment for 2022 in 2023;
- uncertainties about cost levels due to shortages on the labour market, raw material prices and inflation;
- the student public transport contract. The point of departure is that this will continue in its regular form, and these revenues for 2023 will be received in full in advance in the financial forecast period;
- timing of investments in new rolling stock (especially ICNG);
- estimates made for the expected outflow of funds required for the settlement of the initiated insolvency proceedings in Germany.

The liquidity available to the Group as at 31 December 2022 amounts to € 1,141 million. This amount is including the security received from Eneco based on a Credit Support Agreement under the energy contract for the Dutch main rail network of € 396 million, and including investments in two money market funds (a total of € 745 million). In addition, the Group can make use of credit facilities totalling € 950 million. Of these credit facilities, € 500 million relates to a 'revolving credit facility' (available until 20 December 2027) and € 200 million to a credit facility used before 31 December 2023 to contract a long-term loan. A financing facility is also available under which one or more long-term loans can be contracted until 17 December 2024 for a maximum cumulative amount of € 250 million. The Group expects to be able to make use of alternative financing options should the situation so require.

Based on the above, the Group concludes that it is appropriate to prepare the financial statements on a going concern basis and there is no material uncertainty.

New standards and amendments to standards that are mandatory from 2022

As of 1 January 2022, the Group has adopted the following new standards and amendments to standards, including all consequent changes deriving from them in other standards. These new or amended standards have not had a significant impact on the Group's consolidated financial statements:

- amendments to IFRS 3 Business Combinations; IAS 16 Property, Plant and Equipment; IAS 37 Provisions, Contingent Liabilities and Contingent Assets; and annual improvements 2018-2020 (effective 1 January 2022).

New standards and amendments to standards that are mandatory from 2023 or later

The Group has not voluntarily applied new standards, amendments to existing standards or interpretations that are mandatory only with effect from the financial statements for 2023 or later.

The following new or amended standards have no significant impact on the consolidated financial statements of the Group:

- amendments to IAS 1 Presentation of Financial Statements and IFRS Practice Statement 2: Disclosure of accounting policies (effective 1 January 2023);
- amendments to IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors: Definition of accounting estimates (effective 1 January 2023);
- amendments to IAS 12 Income Taxes: Deferred tax in respect of assets and liabilities arising from a single transaction (effective 1 January 2023);
- amendments to IAS 1 Presentation of Financial Statements classification of liabilities as current or non-current (effective 1 January 2024);
- amendments to IFRS 16: lease liability in a sale and lease back (effective 1 January 2024);
- IFRS 17 Insurance contracts; including amendments to IFRS 17 (effective 1 January 2023);
- amendments to IFRS 17 Insurance contracts: Initial application of IFRS 17 and IFRS 9 – Comparative figures (effective 1 January 2023).

Estimates and assessments

The preparation of the financial statements requires the Executive Board to make judgements and estimates that affect the application of accounting policies and the reported value of assets and liabilities, and income and expenses. The estimates and corresponding assumptions are based on experiences from the past and various other factors that could be considered reasonable under the circumstances. The actual results may differ from these estimates. The estimates and underlying assumptions are reviewed on a regular basis. Revisions of estimates are recognised in the period in which the estimate is revised or in future periods if the revision relates to those periods.

The most important estimates and assessments concern:

- going concern assumption (as included above in the “Going concern assumption” section);
- business acquisitions (note 1);
- fair value of assets and liabilities resulting from termination of operations in the United Kingdom and presentation as assets and liabilities held for sale (note 2);
- Impairments (note 2 and 16);
- deferred tax assets (note 12);
- trade and other receivables (note 19);
- other provisions (including for settlement in Germany)/arrangements not included on the balance sheet (note 31 and note 33).

The policies for financial reporting set out below have been applied consistently to all the periods presented in these financial statements.

Accounting policies for consolidation

Subsidiaries

The Group has control over an entity if its involvement with that entity means that the Group is exposed to or is entitled to variable returns and that it has the power to influence those returns by virtue of its say in that entity. The financial statements of the subsidiaries are incorporated in the consolidated financial statements as from the date on which control commences until the date on which control ceases.

In the event of a loss of control over the subsidiary, the subsidiary's assets and liabilities, any minority interests and other equity components associated with the subsidiary are no longer recognised in the balance sheet. Any surplus or deficit is recognised in the income statement. If the Group retains an interest in the former subsidiary, that interest is recognised at fair value at the date on which control ceases.

Acquisition of subsidiaries

Business combinations are recognised according to the acquisition method as at the date on which control is transferred to the Group. The remuneration for the acquisition is assessed at its fair value, as are the net identifiable assets that are acquired. Any goodwill deriving from this is assessed annually for impairments. Any book profit from a bargain purchase is recognised directly in the income statement. Transaction costs are recognised at the time when they are incurred.

Elimination of transactions on consolidation

Intra-group balances and transactions plus any unrealised gains and losses on transactions within the Group or revenues and expenses from such transactions are eliminated. Unrealised gains arising from transactions with investments accounted for using the equity method are eliminated in proportion to the Group's interest in the investment. Unrealised losses are eliminated in the same way as unrealised gains, but only insofar as impairment is not indicated.

Assets held for sale and discontinued operations

The Group classifies non-current assets and groups of assets disposed of as held for sale if their carrying amount will be recovered principally through a sales transaction and not through their continued use. Non-current assets classified as held for sale are recognised at the lower of carrying amount and fair value less costs to sell. The criteria for classification as held for sale are considered met only when the sale is highly probable, and the asset or group of assets being disposed of is immediately available for sale in its current condition. Actions required to complete the sale must indicate that it is unlikely that significant changes will be made to the sale or that the decision to sell will be reversed. Management must be committed to the plan to sell the asset and the sale is expected to be completed within one year of the date of classification.

An activity is disclosed as a discontinued operation if it is a part of the Group that has either been disposed of or classified as held for sale, represents a separate major line of business or geographic area of operations and is part of one coordinated plan to dispose of a separate major line of business or geographic business area.

Tangible, intangible and right-of-use assets are not written down once they are classified as held for sale. Assets and liabilities classified as held for sale are presented separately as current assets or current liabilities.

Discontinued operations are excluded from the results of continuing operations and are presented as a single amount as profit or loss after tax from discontinued operations in the income statement.

Additional information is provided in note 2. All other notes to the financial statements contain amounts for continuing operations, unless otherwise stated.

Foreign currency***Foreign currency transactions***

Transactions denominated in foreign currency are translated to the functional currency of the Group entity concerned at the exchange rate prevailing on the date of the transaction. Monetary assets and liabilities that are denominated in foreign currencies are translated to the functional currency at the exchange rate prevailing on the balance sheet date. Non-monetary assets and liabilities denominated in foreign currency that are measured at fair value are translated to the functional currency using the exchange rates that prevailed at the dates when the fair values were determined. Non-monetary assets and liabilities denominated in foreign currency that are measured at historical cost are not retranslated.

The exchange rate differences arising on translation of the following items are recognised in other comprehensive income:

- financial liabilities that are designated as a hedge of the net investment in a foreign operation;
- qualifying cash flow hedges, insofar as the hedge is effective.

Foreign operations

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising on consolidation, are translated into euros at the exchange rates prevailing on the reporting date. The revenues and expenses of foreign operations are translated into euros at the average exchange rate, which approximates the exchange rate on the transaction date.

Currency translation differences are included in the other comprehensive income and accounted for in the translation reserve. If the Group ceases to have control, significant influence or joint control due to the disposal of a foreign operation, the cumulative amount in the translation reserve will be reclassified to profit or loss when the profit or loss from the disposal is recognised. If the Group only sells part of its interest in a subsidiary, while retaining control, a proportionate share of the cumulative amount will be reassigned to the minority interest. If the Group only sells part of its interest in an associate or joint venture, while retaining significant influence or joint control, a proportionate share of the cumulative amount will be re-allocated to the income statement.

Determination of fair value

A number of the Group's accounting policies and disclosures require the determination of fair value, for both financial and non-financial assets and liabilities. Fair values for measurement and/or disclosure purposes were determined using the following methods.

Investment property

In view of the nature, diversity and locations (station areas), the fair value of the investment property portfolio is not determined on a regular basis unless impairment is indicated. The fair value is expected to exceed the carrying amount of the investment property. Investment property is measured at cost, less accumulated depreciation and accumulated impairment losses.

Investments in non-current financial assets

The fair value of investments in debt instruments is determined using the price on the reporting date. The fair value of the equity investment (Eurofima) has been determined on the basis of the latest available financial statements.

Prepayments on shares

The fair value of prepayments on PTS and WestfalenBahn shares were determined on the basis of expected future cash flows of these entities.

Derivatives

The fair value of derivatives is based on derivative market quotations, taking account of current interest rates and the estimated creditworthiness of the contract counterparties.

Assets held for sale

The assets held for sale are stated at fair value, with the fair value being based on the direct realisable value less expected costs to sell.

Non-derivative financial liabilities

The fair value of non-derivative financial liabilities is determined for disclosure purposes and is calculated based on the present value of future repayments and interest payments, discounted at the market interest rate as at the reporting date.

Segmented information

The Group is under no obligation to comply with the requirements of IFRS 8 because it is not listed on a stock exchange. Segment information with a breakdown of revenue and FTEs by geographical area has been included in order to comply with the requirements of Dutch legislation and regulations.

Accounting policies for the consolidated cash flow statement

The cash flow statement is drawn up using the indirect method, using a comparison between the initial and final balances for the financial year in question. The result is then adjusted for changes that did not generate revenue or expenses during the financial year. The cash flows from discontinued operations are included separately in the cash flow statement in order to reconcile with the various items in the financial statements.

Section 2 Result for the year

1. Business acquisitions

On 1 February 2022 and 1 March 2022 respectively, all shares in PTS and WestfalenBahn were reacquired by the new German holding company (ATH Rail Transport Beteiligungsgesellschaft Deutschland GmbH) within the Group after the insolvency proceedings had ended. On 1 July 2022, the shares in Abellio Rail Mitteldeutschland were reacquired by the same German holding company, after the insolvency proceedings had been closed.

Acquired assets and liabilities

The fair values of the entities' identifiable assets and liabilities at the acquisition date were:

(in millions of euros)	WestfalenBahn GmbH	PTS GmbH	Abellio Rail Mittel- deutschland GmbH	Total
Assets				
Property, plant and equipment	4	-	19	23
Intangible non-current assets	19	-	9	28
Right-of-use assets	208	1	165	374
Other financial assets, including investments	20	-	24	44
Inventories	4	-	17	21
Trade and other receivables	43	7	171	221
Cash and cash equivalents	7	1	5	13
	305	9	410	724
Liabilities				
Loans and other financial liabilities, including derivatives	1	-	-	1
Lease liabilities	208	1	155	364
Provisions	21	2	52	75
Trade and other liabilities	28	4	138	170
	258	7	345	610
Net assets and liabilities	47	2	65	114
Goodwill/(negative goodwill) at the time of acquisition	-38	-	-61	-99
Purchase price *	9	2	4	15

* The purchase price of € 9 million was prepaid at year-end 2021 and stated at fair value and written down to zero at that time. At the time of acquisition, the fair value was reassessed and upward revaluation of the prepaid purchase price of € 9 million took place to the benefit of the 2022 financial result. The purchase price was paid in cash.

The initial recognition of assets and liabilities of the German entities in 2022 resulted in an accounting upward revaluation of € 108 million (including fair value adjustment of the purchase price of WestfalenBahn of € 9 million) due to acquisition accounting, whereby assets and liabilities are reassessed and former shareholder loans as well as a portion of accounts payable are released as agreed in the insolvency plan. This income in 2022 is accounted for as net financing result and must be seen in conjunction with the financial expenses in 2021 when NS lost control. This resulted in negative results due to a write-down of the investment and shareholder loans and the contribution to the restructuring costs. The determination of the fair value is mainly based on unobservable market data (level 3).

The purchase price allocation is based on preliminary information, whereby any future adjustments may have a positive or negative effect on the amount of negative goodwill.

The acquired cash is intended to be able to settle the liabilities from the insolvency period that were also acquired.

The Group has recognised the acquired lease liabilities at the present value of the remaining lease payments at the acquisition date. Right-of-use assets were recognised at an amount equal to the lease liabilities and adjusted to reflect favourable terms of the lease relative to market conditions.

The fair value of the trade receivables amounts to € 221 million and is in line with the gross amount of the trade receivables. It is expected that the full contractual amounts can be collected.

As of the dates of acquisitions, the entities contributed to the result from operating activities for 2022 as follows:

(in millions of euros)	WestfalenBahn GmbH	PTS GmbH	Abellio Rail Mittel- deutschland GmbH	Total
Revenue	108	13	139	260
Result from operating activities	4	-	-6	-2

If the combination had taken place at the beginning of the year, the activities would contribute:

(in millions of euros)	WestfalenBahn GmbH	PTS GmbH	Abellio Rail Mitteldeutschland GmbH	Total
Revenue	130	13	278	421
Result from operating activities	4	-	-11	-7

2. Assets and liabilities held for sale/Discontinued operations

In line with its strategy, which dictates that international activities should be in the interest of passengers in the Netherlands, NS has been preparing its departure from the British market with the consent of the shareholder. As at 31 May 2022, Abellio Transport Group Ltd and its group companies are presented as 'held for sale'.

On 31 August 2022, NS and the current UK management signed a Share Purchase Agreement for the transfer of the shares for an initial sale price of £ 15 million (€ 17 million). Additional agreements have been made on the following subjects:

- Settlement of potential benefits arising from past outstanding claims by local management. After settlement, these benefits mainly accrue to NS.
- Earn-out scheme. Under an earn-out scheme over the period 2022-2025, NS is entitled to a share of the joint profits achieved on the Merseyrail franchise and London Bus business up to a maximum of £ 10 million.
- Settlement and transfer of assets of the terminated franchises and settlement of the associated guarantees for a guarantee value of € 0.3 billion.

NS will be entitled to the value of the old franchises and claims that will be settled for NS by the local management. In addition, the local management will take care of the settlement of the terminated franchises on behalf of NS. A successful settlement will result in the release of guarantees issued by NS. This process may take several years.

The assessment of the fair value of Abellio Transport Group Ltd and its group companies takes into account all expected cash flows from the transaction, potential benefits from outstanding claims and the earn-out.

It is expected that the sale transaction will be completed by the end of February 2023.

The assets and liabilities of the entities held for sale can be broken down as follows:

(in millions of euros)	31 December 2022
Assets held for sale	
Property, plant and equipment	24
Intangible non-current assets	-
Right-of-use assets	681
Investments recognised using the equity method	12
Other financial assets, including investments	15
Deferred tax assets	19
Total non-current assets	751
Inventories	13
Trade and other receivables	388
Income tax receivable	18
Other financial assets, including investments	2
Cash and cash equivalents	304
Total current assets	725
Total assets	1,476
Liabilities held for sale	
Loans and other financial liabilities, including derivatives	41
Lease liabilities	497
Employee benefits	-
Provisions	10
Deferred tax liabilities	1
Total non-current liabilities	549
Loans and other financial liabilities, including derivatives	1
Lease liabilities	219
Income tax payable	3
Trade and other liabilities	538
Deferred income	28
Provisions	9
Total current liabilities	798
Total liabilities	1,347

As at 31 May 2022, the Group ceased to depreciate all the property, plant and equipment of Abellio UK. The effect of stopping depreciation amounts to € 146 million positive. The assets and liabilities have been measured at the carrying amount. The Group has intercompany loans (receivables) outstanding to Abellio UK of € 171 million, which are not presented in the above overview because they were eliminated in the consolidation.

Prior to the qualification as 'assets and liabilities held for sale', the carrying amount of Abellio Transport Group Ltd and its group companies was determined in accordance with the reporting system applied by the Group. Subsequently, as of 31 December 2022, it was determined that there was an impairment loss, as the net carrying amount of assets and liabilities of Abellio Transport Group Ltd and its group companies was higher than the expected realisable value (minus expected costs to sell). This led to an impairment loss of € 157 million.

The results for 2022 of Abellio UK and its group companies have been classified as discontinued operations. The comparative figures have been restated accordingly. The recognised result from discontinued operations for the whole of 2022 and 2021 amounts to € 54 million and € 417 million respectively and is made up as follows:

(in millions of euros)	2022	2021
Revenue	2,460	3,294
Operating expenses	2,251	2,887
Share in result of investments accounted for according to the equity method	10	4
Result from operating activities	219	411
Net finance income	-7	-18
Impairment recognised in the remeasurement at fair value less costs to sell*	-157	-
Result before income tax	55	393
Income tax	-1	24
Net result from discontinued operations	54	417

* No income tax has been recognised on this impairment.

The financing costs of discontinued operating results in 2022 include an intercompany interest expense of € 10 million (2021: € 16 million). This interest expense is not included in the above overview because it was eliminated in the consolidation.

In summary, the result from discontinued operations can be presented as follows:

(in € millions)	2022
Result Abellio UK 2022 before depreciation stop	55
Effect of depreciation stop	146
Impairment to fair value	-157
Intercompany interest	10
	54

3. Revenue

In the following table, revenues are broken down into a combination of transport type and geographic area.

(in millions of euros)	External revenue	Additional government contributions related to COVID-19	2022
Train-related transport in the Netherlands	2,362	274	2,636
Station development and exploitation in the Netherlands	437	12	449
Train-related transport in Germany	256	-	256
Total revenue	3,055	286	3,341

(in millions of euros)	External revenue	Additional government contributions related to COVID-19	2021
Train-related transport in the Netherlands	1,547	925	2,472
Station development and exploitation in the Netherlands	327	15	342
Train-related transport in Germany	378	-	378
Total revenue	2,252	940	3,192

Public transport availability payment/main rail network (train-related transport in the Netherlands)

By virtue of the public transport availability fee arrangement (BVOV) as enacted by the Ministry of Infrastructure and Water Management, NS is entitled to compensation for loss of revenue suffered by NS as a result of COVID-19. The compensation amounts to 93% of the indexed 2019 cost level for the 2021 and 2022 availability fee, minus 100% of the realised revenues. For 2021 and 2022, NS is entitled to BVOV for the entire year. Based on a calculation, NS has accounted for the compensation in the amount of € 274 million (2021: € 925 million). Conditions apply to claiming the public transport availability fee, such as operating a suitable timetable (at least comparable with 2021) and complying with tender legislation, a dividend ban, a ban on severance payments to Dutch executives and a bonus ban for executives and board members within the Dutch entities. NS has come to the conclusion that the availability fee for 2021 and 2022 can be justified by assessing it against the conditions. Due to the scaling down of rolling stock in 2022, the timetable is sometimes less than in 2021. To this end, NS has applied a proportional correction to the BVOV for 2022. The BVOV contribution for 2022 has not yet been finalised.

Temporary emergency bridging measure for sustained employment (Noodfonds Overbrugging Werkgelegenheid; NOW)

For the activities relating to station development and operation in the Netherlands, so-called NOW compensation (operating company scheme) was applied for and recognised as revenue for an amount of € 12 million (2021: € 15 million). In order to claim the NOW compensation, conditions apply, such as the ban on management bonuses, dividend payments and agreement by the employee representative body. NOW 1.0 and 2.0 have now been definitively adopted. The applicable conditions have been reviewed by NS and on this basis NS has concluded that the NOW compensation can be justified in 2021 and 2022.

Miscellaneous

Station development and operation in the Netherlands includes an amount of € 42 million (2021: € 31 million) relating to development activities.

Accounting policy

Revenue

Revenue is recognised on the basis of the fee established in a contract with a customer. The Group recognises revenue when it transfers control of a good or service to a customer. Revenue includes transport revenue including additional contributions from governments within the framework of COVID-19 and revenue from other business activities after deduction of discounts and VAT.

Provision of services and sale of goods

Revenue from the sale of travel rights is recognised when the travel right arises. Subscription revenue is recognised in the income statement over time and distributed over the validity of the subscription period.

Revenue from the sale of goods is recognised in the income statement when control of the goods has been transferred to the buyer, recovery of the consideration due is probable and the associated costs or any returns of goods can be reliably estimated.

Fees from the government or similar bodies arising from transport contracts or transport franchises are recognised in the income statement over the period to which the fee relates.

Additional government contributions in the context of COVID-19

Government contributions in the context of COVID-19 are determined on the basis of individual arrangements with various government agencies and are intended to cover costs incurred or if compensate for loss of revenue during (part of) the financial year. The final amount of these contributions for 2022 will be finalised in 2023, but the contributions are sufficiently certain to be recognised in the financial statements on the basis of IAS 20. Contributions have been allocated to the period to which they apply. The availability fee in the Netherlands was determined on the basis of the technical memorandum and the audit protocol.

Rental income

Rental income from property is recognised in the income statement over time, based on the duration of the rental period. Commitment costs incurred as an incentive to enter into lease arrangements are recognised as an integral part of the total rental income and spread on a straight-line basis over the contract period. Rent reductions granted as a result of COVID-19 during current contracts for services to be provided are spread on a straight-line basis over the contract period. Rent reductions granted retroactively for services already rendered are not deducted from revenue but are included in the assessment of expected credit losses under IFRS 9.

Development revenues

Development revenues are recognised in proportion to the performance contractually agreed with the customer.

4. Personnel expenses

(in millions of euros)

	2022	2021
Wages and salaries	1,016	999
Social security contributions	180	163
Contributions to defined contribution plans	87	84
Contributions to defined benefit plans	3	16
Other personnel expenses	51	72
Staff hired in	129	70
Total	1,466	1,404

The average staffing level was as follows, with personnel expenses in the UK in 2021 and 2022 being included in result from discontinued operations:

(in FTEs)	2022	2021
The Netherlands	16,973	17,241
The United Kingdom	11,908	15,834
Germany*	921	1,521
Total	29,802	34,596

* Germany's average staffing level is based on the average staffing level for 2021 and 2022, extrapolated to the full year.

The average staffing level at the end of the financial year was as follows, with personnel expenses in the UK in 2021 and 2022 being included in result from discontinued operations:

(in FTEs)	2022	2021
The Netherlands	17,074	17,071
The United Kingdom	10,563	15,658
Germany	1,457	-
Total	29,094	32,729

Remuneration of directors

(in euros)

	Basic salary	Alternative for the cap on pension accrual*****	Payment of lease amounts	Allowance for additional tax liability for director's car	Various fees	Pension costs	Total 2022
Mr. W. Koolmees*	73,913	7,558	2,820	609	728	2,668	88,296
Ms. M.E.F. Rintel**	221,741	24,563	-	1,827	2,184	8,005	258,320
Mr. H.L.L. Groenewegen***	356,526	33,753	16,920	3,958	4,368	16,010	431,535
Mr. T.B. Smit	356,526	33,753	-	3,958	4,368	16,010	414,615
Ms. A.M.E. de Vries	356,526	33,753	3,102	3,958	4,368	16,010	417,717
Mr. E.F.W. van Asch	356,526	33,753	-	3,958	4,368	16,010	414,615
Total	1,721,758	167,133	22,842	18,268	20,384	74,713	2,025,098

(in euros)

	Basic salary	Alternative for the cap on pension accrual*****	Payment of lease amounts	Allowance for additional tax liability for director's car	Various fees	Pension costs	Total 2021
Ms. M.E.F. Rintel	426,425	47,010	-	3,806	4,368	15,623	497,232
Mr. H.L.L. Groenewegen	334,451	31,131	16,920	3,806	4,368	15,623	406,299
Mr. T.B. Smit	334,451	31,131	-	3,806	18,829	15,623	403,840
Ms. A.M.E. de Vries	334,451	31,131	3,102	3,806	4,368	15,623	392,481
Mr. E.F.W. van Asch****	278,709	25,942	-	3,045	3,640	13,019	324,355
Total	1,708,487	166,345	20,022	18,269	35,573	75,511	2,024,207

* Mr. Koolmees took office as CEO with effect from 1 November 2022.

** Ms. Rintel stepped down as CEO on 19 May 2022 and left NS on 1 July 2022.

*** At his own request, Mr. Groenewegen did not receive any additional remuneration for the period as deputy CEO.

**** Mr. Van Asch was appointed Director of Operations effective 1 April 2021

***** Calculated on the fixed salary

From 1 July 2020 to 31 December 2021, the fixed income was temporarily reduced by 10% at the voluntary request of the Executive Board. This reduction has continued in 2022. In accordance with the remuneration policy, these pay increases were resumed from 1 January 2022.

The members of the Executive Board jointly use two company cars. Messrs. Koolmees and Groenewegen do not have a lease car and the mobility budget (which also applies to the other board members) has been paid out in full to them. The other directors have a leased car. The remainder of the mobility budget, which was not used for the lease car, was paid to Mrs. De Vries.

Please refer to the chapter 'Remuneration of the Executive Board' in the directors' report for more details of the remuneration policy for the Executive Board.

Remuneration of key management personnel (excluding the Executive Board)

(in euros)	Fixed and variable remuneration	Pension costs	Total
2022	2,218,778	108,753	2,327,531
2021	1,617,236	107,404	1,724,640

For 2022, this concerns the managers with powers under the articles of association and managers with a specific portfolio. The remuneration of the Abellio UK manager, which is recognised as result from discontinued operations, is included in the table for 2021 and 2022. The remuneration to Transport Holding Germany managers will be included in the remuneration during the course of 2022.

Remuneration of the Supervisory Board

The remuneration of members of the Supervisory Board for 2022 paid by the company totalled € 232,370 (2021: € 218,350). The remuneration consists of a fixed fee and an allowance for participating in one or more committees. The amounts for each member of the Supervisory Board are as follows:

(in euros)	2022	2021
G.J.A. van de Aast <i>Chair of the Supervisory Board, member of the Risk and Audit Committee, member of the Remuneration and Nomination Committee</i>	45,226	42,512
H.H.J. Dijkhuizen <i>Member of the Risk and Audit Committee, chair of the Risk and Audit Committee from 26 January 2020</i>	37,372	35,112
N. Albayrak <i>Member of the Risk and Audit Committee and member of the Remuneration and Nomination Committee</i>	34,702	32,608
M.E. van Lier Lels <i>Member of the Risk and Audit Committee, deputy chair of the Supervisory Board, member of the Remuneration and Nomination Committee</i>	40,327	37,894
J.L. Stuijt <i>Member of the Risk and Audit Committee, chair of the Remuneration and Nomination Committee</i>	40,041	37,616
W.J. van der Feltz <i>Member of the Risk and Audit Committee and member of the Remuneration and Nomination Committee</i>	34,702	32,608
Total	232,370	218,350

The average allowances for the various roles (excluding expense allowances) are as follows:

(in euros)	2022	2021*
Chair of the Supervisory Board	37,377	35,056
Deputy chair of the Supervisory Board	33,105	31,049
Member of the Supervisory Board	27,766	26,042
Chair of the Risk and Audit Committee	8,009	7,512
Member of the Risk and Audit Committee	2,670	2,504
Chair of the Remuneration and Nomination Committee	8,009	7,512
Member of the Remuneration and Nomination Committee	2,670	2,504

* From 1 July 2020 to 31 December 2021, the remuneration of the Supervisory Board was temporarily reduced by 10% at its own request. This reduction has continued in 2022. In accordance with the remuneration policy, these pay increases were resumed from 1 January 2022.

No loans, advances or guarantees have been provided by the company for the benefit of members of the Executive Board or Supervisory Board.

All shares of NV Nederlandse Spoorwegen are held by the State of the Netherlands.

Members of the Executive and Supervisory Boards and staff members have not been granted rights to hold or acquire shares in the company.

5. Depreciation costs and (reversal of) impairment losses

(in millions of euros)	Note	2022	2021
Depreciation of property, plant and equipment	13	231	216
Depreciation of investment property	14	7	7
Amortisation of intangible assets	15	131	63
Cost of depreciation of right-of-use assets	32	59	69
Total cost of depreciation and amortisation		428	355
Reversal of impairments of property, plant and equipment	13	-340	-
Reversal of impairments of intangible assets	15	-33	-
Reversal of impairments of right-of-use assets	32	-12	-
Total reversal of impairments	16	-385	-
Total		43	355

For information on the reversal of impairments of non-current assets, please refer to note 16.

6. Use of raw materials, consumables and inventories

(in millions of euros)	2022	2021
Materials used	179	152
Energy consumption	113	105
Total	292	257

7. Own capitalised production

The own capitalised production in 2022 of € 68 million (2021: € 99 million) refers mainly to the refurbishment of trains.

Accounting policy

The own capitalised production comprises the directly attributable personnel expenses, costs of materials and attributable indirect costs incurred in the construction of assets for own use.

8. Subcontracted work and other external costs

(in millions of euros)	2022	2021
Costs of subcontracted work	42	54
Remediation costs	93	85
Maintenance	86	72
Automation costs	210	180
Total	431	391

The costs of subcontracted work are the costs relating to the execution of assignments by third parties that are not covered by the other items in this category.

9. Infrastructure levies and franchise fees

(in millions of euros)	2022	2021
Dutch train franchises	421	414
German train franchises	94	172
Total	515	586

Accounting policy

Adjustment mechanisms for main rail network franchise

The implementation agreement with the Ministry of Infrastructure and Water Management includes a number of adjustment mechanisms for determining the franchise price. The adjustment relating to the average profitability during the franchise is recognised as a receivable when the right arises in accordance with the calculation system, as laid down in the implementation agreement. The adjustment is recognised on a straight-line basis over the term of the franchise. Other payments, one-off or otherwise, under the agreement are recognised on a straight-line basis over the term of the franchise.

10. Other operating expenses

Other operating expenses include insurances, costs of accommodation and inventory, auditor's fees, publicity costs, maintenance costs of operating assets and additions to provisions.

Auditor's fees

(in millions of euros)	2022	2021
Statutory audits	4.4	4.0
Other assurance engagements	0.5	0.6
Tax advisory services	-	-
Other services	-	-
Total	4.9	4.6

The auditor's fees include the fees of both the services in the Netherlands and those of the foreign network (including the United Kingdom, which is presented as results from discontinued operations). The share of the foreign network in the statutory audits for 2022 is € 2.0 million (2021: € 1.8 million).

11. Income tax

(in millions of euros)	2022	2021
<i>Reconciliation with effective tax rate</i>		
Profit before tax from continuing operations	569	-260
Income tax at Dutch tax rate for corporation tax (2022: 25.8% and 2021: 25%)	-147	65
Addition of mixed costs, investment credit, etc.	-1	-1
Recognition of deferred tax assets	74	335
Effect of the tax rate in foreign jurisdictions (different rate)	-	2
Permanent difference: Untaxed results of restructuring and settlement in Germany	40	-75
Changes in rates for deferred tax positions	-	17
Other effects	-3	-
Total income tax	-37	343

Corporation tax is calculated based on the applicable tax rates in the Netherlands and Germany, taking into account the tax rules that give rise to permanent differences between the determination of the profit for commercial purposes and the determination for tax purposes. The tax provisions include the participation exemption and the limitation of deductible expenses.

The effective tax rate for profit before corporation tax was 7% (2021: -132%). This low effective tax burden compared to the nominal tax burden is mainly caused by:

- Upward revaluation of the deferred tax assets for temporary differences as a result of changed insights into expected tax results (amounting to € 74 million).
- Untaxed results of the restructuring of the German operations.

For the Dutch fiscal unity, there is agreement with the tax authorities on the tax returns up to and including 2020. A final assessment has been received for 2020, but not yet for the subsequent years. In the financial statements for this year and previous years, tax is recognised on the basis of the tax returns submitted up to and including 2021, the underlying principles adopted in those tax returns and any adjustments to previous years.

Accounting policy

Tax on the profit or loss for the financial year comprises the income tax that is payable or can be offset in the reporting period and deferred taxation. Income tax is recognised in the income statement except to the extent that it relates to items recognised directly in equity through other comprehensive income, in which case it is recognised in equity through other comprehensive income. All tax items are stated at nominal value.

The tax to be paid or offset for the financial year is the expected tax charge on taxable profit for the financial year, calculated using the tax rates prevailing on the balance sheet date, plus adjustments to tax payable for prior years.

Almost all subsidiaries belonging to the Group are included in the NS fiscal unity for corporate income tax purposes, with the exception of foreign group companies.

12. Deferred income tax

The changes in deferred tax assets and liabilities are as follows.

(in millions of euros)	Net balance as at 1 January 2022	Recognised in profit or loss	Recognised in other comprehensive income	Held for sale	Net positions as at 31 December 2022	Deferred tax assets	Deferred tax liabilities
Property, plant and equipment	298	-53	-	-3	242	242	-
Intangible non-current assets	27	2	-	-	29	29	-
Right-of-use assets	-172	1	-	134	-37	-37	-
Non-current financial assets	-3	3	-	-	-	17	17
Receivables	-2	-1	-	-	-3	-3	-
Provisions	2	-3	-	1	-	-	-
Deferred credits	-7	17	-	-	10	10	-
Loans and other financial liabilities	-	-	-	-	-	-	-
Lease liabilities	180	-23	-	-134	23	23	-
Other items	3	-1	2	-	4	4	-
Loss set-off	39	26	-	-17	48	48	-
Deferred tax assets (liabilities)	365	-32	2	-19	316	333	17
Set-off of receivables and liabilities						-17	-17
Deferred tax assets (liabilities) after set-off						316	-

(in millions of euros)	Net balance as at 1 January 2021	Recognised in profit or loss	Recognised in other comprehensive income	Other movements	Net positions as at 31 December 2021	Deferred tax assets	Deferred tax liabilities
Property, plant and equipment	22	276	-	-	298	322	24
Intangible non-current assets	-17	61	-	-17	27	27	-
Right-of-use assets	-500	328	-	-	-172	-160	12
Non-current financial assets	-6	8	-5	-	-3	5	8
Receivables	-2	-	-	-	-2	3	5
Provisions	5	-3	-	-	2	2	-
Deferred credits	18	-29	-	4	-7	-6	1
Loans and other financial liabilities	-	-	-	-	-	-	-
Lease liabilities	502	-324	-	2	180	180	-
Other items	3	-1	-	1	3	3	-
Loss set-off	15	39	-	-15	39	39	-
Deferred tax assets (liabilities)	40	355	-5	-25	365	415	50
Set-off of receivables and liabilities						-48	-48
Deferred tax assets (liabilities) after set-off						367	2

An assessment has been carried out of the projected profits for the years up to and including 2024 and projected profits over the term of the new franchise. This has led to an upward revaluation of the tax asset temporary differences and losses offset against tax in the amount of € 74 million. The total amount of recognised deferred tax assets in the Netherlands is € 316 million. For an explanation of the tax rate, see note 11.

Unrecognised deferred tax assets

Deferred tax assets have not been recognised in respect of the following items because it is unlikely that there will be taxable profit in the future against which the Group can utilise the benefits. The unrecognised deferred tax assets by country are as follows:

(in millions of euros)	Offsettable losses	Temporary differences	Total
The Netherlands	-	508	508
Germany	-	10	10
Total	-	518	518

Accounting policy

The deferred tax assets and deferred tax liabilities arise from temporary differences between the carrying amount of assets and liabilities in the financial reporting and their tax base. These are calculated on the basis of the tax rates that are expected to apply when the temporary differences are reversed, using tax rates enacted or substantively enacted as at the reporting date.

Deferred tax assets, including those deriving from tax loss carry-forwards, are measured if it is probable that sufficient tax profits will be available for setting off the losses and if possibilities for offsetting losses can be utilised.

Deferred tax assets and liabilities are offset if the entity has a legally enforceable right to set off current tax assets against current tax liabilities; and the deferred tax assets and the deferred tax liabilities relate to income taxes levied by the same taxation authority on the same taxable entity.

Section 3 Non-current assets and investments

13. Property, plant and equipment

(in millions of euros)

	Land	Buildings	Other fixed installations	Rolling stock	Parts	Plant and equipment	Assets under construction	Total
Composition as at 1 January 2021								
Cost	129	928	209	6,863	58	549	1,105	9,841
Accumulated depreciation and impairments	52	476	147	5,376	45	440	386	6,922
Carrying amount as at 1 January 2021	77	452	62	1,487	13	109	719	2,919
Changes in 2021								
Investments	-	-	-	-	-	-	416	416
Capitalisations	24	15	4	291	-	25	-359	-
Deconsolidation	-	-34	-	-2	-	-24	-5	-65
Depreciation and amortisation	-2	-27	-12	-161	-2	-57	-	-261
Exchange differences	-	-	-	-	-	1	2	3
Disposals	-4	-8	-1	-6	-	-	-1	-20
Impairment losses	-	-	-	-	-	-2	-	-2
Reversal of impairments	-	5	-	-	-	92	1	98
Other movements	-4	-17	32	-	1	-88	-39	-115
Total changes during the financial year	14	-66	23	122	-1	-53	15	54
Composition as at 31 December 2021								
Cost	143	850	281	6,699	59	368	734	9,134
Accumulated depreciation and impairments	52	464	196	5,090	47	312	-	6,161
Carrying amount as at 31 December 2021	91	386	85	1,609	12	56	734	2,973
Changes in 2022								
Investments	-	-	-	-	-	-	389	389
Capitalisations	6	15	16	265	-	22	-324	-
Business acquisitions	-	13	-	-	-	10	-	23
Held for sale	-4	-12	-	-4	-	-4	-3	-27
Depreciation and amortisation	-2	-24	-12	-180	-2	-15	-	-235
Exchange differences	-	-	-	-	-	-	-	-
Disposals	-1	-	-1	-1	-	-	-	-3
Impairment losses	-	-	-	-	-	-	-	-
Reversal of impairments	3	12	7	217	2	5	94	340
Other movements	1	-2	4	1	-	-12	-10	-18
Total changes during the financial year	3	2	14	298	-	6	146	469
Composition as at 31 December 2022								
Cost	145	881	272	6,836	58	297	880	9,369
Accumulated depreciation and impairments	51	493	173	4,929	46	235	-	5,927
Carrying amount as at 31 December 2022	94	388	99	1,907	12	62	880	3,442

For information on the reversal of impairments, please refer to note 16.

Accounting policy

Property, plant and equipment are measured at cost, less accumulated depreciation and accumulated impairment losses. The cost of self-produced assets includes the cost of materials, direct labour costs, a reasonable portion of the indirect production costs and capitalised borrowing costs. Where relevant, the estimated costs of dismantling and removing the asset and the costs of restoring the site where the asset was located are added to the total cost.

Computer software that is an integral part of the computer equipment is capitalised as part of the equipment in question. Only assets for which the Group holds the beneficial ownership are recognised on the balance sheet.

Gains and losses on the sale of an item of property, plant and equipment are determined by comparing the sales proceeds with the carrying amount of the item of property, plant and equipment and are recognised net under income in the income statement.

Components

If property, plant and equipment consist of components with different useful lives, these components are accounted for as separate items under property, plant and equipment.

The carrying amount of an item of property, plant and equipment is adjusted for the cost of replacing all or part of that asset when such costs are incurred and if it is likely that the replacement will result in future economic benefits. All other costs of maintaining the assets are recognised as an expense in the income statement as incurred.

Depreciation

Depreciation of property, plant and equipment is applied on a straight-line basis, less residual value and on the basis of the estimated useful life of each individual item of property, plant and equipment. Depreciation is charged to the income statement.

Land is not depreciated, with the exception of street paving. The estimated useful life for different types of property, plant and equipment is as follows.

Asset type	Depreciation period
Buildings	broken down into components (15 to 100 years); average of 40 years
Other fixed installations	10-25 years
Trains	20 years
Buses	6 to 15 years
Plant and equipment	3 to 10 years

The specified useful life is an average for the assets concerned and for any components of which those assets consist. The depreciation method, remaining useful life and residual value are reviewed each year.

If an item of property, plant and equipment is designated as a real estate asset due to a change in use, or if an item of property, plant and equipment is designated for own use, transfers are made to real estate assets or property, plant and equipment respectively. Since the measurement of both categories of non-current assets is the same, the transfer is made at the carrying amount.

14. Investment property

(in millions of euros)

**Total investment
property**

Composition as at 1 January 2021

Cost	260
Accumulated depreciation and impairments	-131
Carrying amount as at 1 January 2021	129

Changes in 2021

Investments	1
Depreciation and amortisation	-7
Disposals	-
Impairment losses	-
Reversal of impairments	-
Other movements	1
Total changes during the financial year	-5

Composition as at 31 December 2021

Cost	263
Accumulated depreciation and impairments	-139
Carrying amount as at 31 December 2021	124

Changes in 2022

Investments	2
Depreciation and amortisation	-7
Disposals	-1
Impairment losses	-
Reversal of impairments	-
Other movements	1
Total changes during the financial year	-5

Composition as at 31 December 2022

Cost	263
Accumulated depreciation and impairments	-144
Carrying amount as at 31 December 2022	119

In addition to business premises on behalf of third parties, the real estate assets include other properties that are leased to third parties or held as strategic real estate. In addition, the Group has real estate for its own use and is recognised under property, plant and equipment. The rental agreements usually contain a period of several years during which notice of termination is not possible. These real estate objects and property, plant and equipment (real estate for own use) are not part of the Main Rail Network cash-generating unit (as described in note 16).

In view of the nature, diversity and locations (station areas), the fair value of the real estate portfolio is not determined periodically, unless there is an indication of impairment. Based on management estimates, there are no indications of impairment on this portfolio. Further impairment analyses have therefore not been performed.

As a result of the effects of COVID-19, discounts of € 9 million were granted for 2022 (2021: € 17 million). These discounts are amortised over the remaining term of the rental contracts.

The total contractual rent until the end of the leases amounts to approximately € 299 million at the end of 2022 (2021: € 200 million). No contingent rent is charged. The term of the contracts is broken down as follows:

(in € millions)	< 1 year	1-2 years	2-3 years	3 to 4 years	4-5 years	> 5 years	Total
Rental income	2	23	17	16	6	235	299

The direct rental income was € 27 million (2021: € 26 million). Direct rental costs include maintenance costs, property charges and direct management costs totalling € 9 million (2021: € 9 million).

Accounting policy

Real estate assets include real estate held to earn rental income, for capital appreciation, or both. Real estate assets are measured at cost less accumulated depreciation and accumulated impairment losses. The cost of self-produced assets includes the cost of materials, direct labour costs, a reasonable portion of the indirect production costs and borrowing costs. Where relevant, the estimated costs of dismantling and removing the asset and the costs of restoring the site where the asset was located are added to the total cost.

The following accounting policies apply to investment property:

Components

If real estate assets consist of components with different useful lives, then these components are accounted for as separate items under real estate assets.

The carrying amount of a real estate asset includes the cost of renewing (part of) the asset when that cost is incurred and when it is probable that the renewal will lead to future economic benefits. All other costs of maintaining the assets are recognised as an expense in the income statement as incurred.

Depreciation

Depreciation of real estate assets is applied on a straight-line basis, less residual value and on the basis of the estimated useful life of each individual item of property, plant and equipment. Depreciation is charged to the income statement.

The estimated useful life for different types of investment property is as follows:

Asset type	Depreciation period
Foundations and underlying land	100 years
Structure and core	50 years
Façades and outer walls	33 years
Roofing	15 years
Interior finishing	15 years
Technical equipment	15 years

The specified useful life is an average for the assets concerned and for any components of which those assets consist. The depreciation method, remaining useful life and residual value are reviewed each year.

15. Intangible assets

(in millions of euros)

	Goodwill	Software	Total
Composition as at 1 January 2021			
Cost	39	806	845
Accumulated amortisation and impairments	-	469	469
Carrying amount as at 1 January 2021	39	337	376
Changes in 2021			
Investments	-	138	138
Deconsolidation	-28	-57	-85
Depreciation and amortisation	-	-74	-74
Disposals	-	-	-
Impairment losses	-	-1	-1
Reversal of impairments	-	3	3
Other movements	-	-12	-12
Total changes during the financial year	-28	-3	-31
Composition as at 31 December 2021			
Cost	11	827	838
Accumulated amortisation and impairments	-	493	493
Carrying amount as at 31 December 2021	11	334	345
Changes in 2022			
Investments	-	46	46
Business acquisitions	-	28	28
Held for sale	-11	-1	-12
Depreciation and amortisation	-	-133	-133
Disposals	-	-2	-2
Impairment losses	-	-	-
Reversal of impairments	-	33	33
Other movements	-	14	14
Total changes during the financial year	-11	-15	-26
Composition as at 31 December 2022			
Cost	-	898	898
Accumulated amortisation and impairments	-	579	579
Carrying amount as at 31 December 2022	-	319	319

For information on the reversal of impairments, please refer to note 16.

For an explanation of the change of accounting estimate, please refer to the general information.

Accounting policy

Goodwill

All business combinations are accounted for using the acquisition method. Goodwill is the amount resulting from the acquisition of subsidiaries. Goodwill represents the difference between the cost of the acquisition and the fair value of the identifiable assets and liabilities acquired at the time of the acquisition. Goodwill is measured at cost less accumulated impairment.

Negative goodwill arising on an acquisition is recognised directly in the income statement.

Other intangible assets

Other intangible assets with a finite life acquired or produced by the Group are stated at cost less accumulated amortisation and accumulated impairment losses.

After initial recognition, expenditure on capitalised intangible assets is only capitalised if it leads to an increase in the future economic benefits embodied in the specific asset involved. All other expenditure, including internally generated goodwill and trademarks, is recognised as an expense in the income statement as incurred.

Amortisation is charged to the income statement on a straight-line basis over the estimated useful life of the intangible assets, except goodwill, from the date they are available for use. The estimated useful lives are as follows:

- Software 3 - 10 years

16. (Reversal of) impairments of non-current assets/onerous contracts

Given the substantial impact of COVID-19 on passenger revenues, the Group has determined that there are indicators for (reversal of) impairment of assets of some of the Group's cash generating units (CGUs). First of all, the various CGUs were identified by the Group, after which the assets of these CGUs were assessed for possible impairment. It was then assessed whether, in addition to the possible impairment to be recognised, the formation of a provision for onerous contracts was necessary.

The recoverable amount of the CGU was then determined based on the higher of the value in use or the fair value less costs to sell. The value in use was determined by discounting the expected cash flows at the balance sheet date.

The discount rate is determined after tax on the basis of the interest rate of government bonds issued by the most creditworthy government in the relevant market and in the same currency as the cash flows, adjusted by a risk premium to reflect both the increased risk of investing in shares in general and the risk of the specific CGU.

For each country, the following discount rate after taxation was employed:

	31 December 2022	31 December 2021
The Netherlands	7.0%	5.2%
United Kingdom	N/A	6.0%
Germany	7.0%	N/A

On balance, in the Netherlands the assessment led to reversals of impairments.

(Reversal of) impairments 2022

(in millions of euros)	2022
Property, plant and equipment	-340
Intangible non-current assets	-33
Right-of-use assets	-12
Receivables	-
Total	-385

There were no (reversals of) impairments in 2021.

The Netherlands

The COVID-19 crisis forced the Group to perform an impairment analysis in 2020. This led to an impairment loss of € 1,562 million at the end of 2020. This impairment is attributed to all non-current assets on a straight-line basis. In 2022, due to the impairment an amount of € 150 million less was written off compared to the situation before this impairment.

As a result of the changed assumptions in terms of BVOV commitments and passenger forecast estimates, there is a trigger to reassess the impairment at year-end 2022. An impairment test based on the most likely scenario was performed at the end of 2022. At both year-end 2021 and year-end 2022, the impairment test was performed on the basis of the following assumptions:

- for the Netherlands, the main rail network (HRN) contract has been designated as one cash-generating unit;
- the current franchise runs until the end of 2024;
- in June 2020, the Ministry of Infrastructure and Water Management announced its intention to award the franchise directly to NS from 2025. This was confirmed by the House of Representatives in September 2020. In October 2022, the Ministry sent the Programme of Requirements to the House of Representatives. In November, the House of Representatives debated this, with the result that the scope of the main rail network franchise remains unchanged in principle. For the period after 2024, it is therefore assumed that the main rail network contract will be awarded under conditions that enable NS to earn the 'cost of capital'.
- the fair value of the assets in question cannot be reliably determined as the assets are strongly linked to the HRN contract, the trains are specifically produced for the Dutch railway network and no active market exists for these specific trains;
- expected revenues from passenger transport over the remaining contract term. The development of passenger transport partly depends on macroeconomic factors such as economic growth, congestion and trends in travel behaviour;
- the income from passenger transport partly depends on the choices regarding the timetable, which are coordinated with the Ministry of Infrastructure and Water Management;
- continuation of the current student public transport passes contract.

At year-end 2022, the following key assumptions were also used:

- estimates regarding the outcomes of adapting the organisation to the lower passenger income with related cost savings and reduction of investments;

- the Ministry of Infrastructure and Water Management has made a so-called public transport transition safety net (TVOV) available for the entire sector for 2023. NS is expected to be entitled to an amount of € 45 million.

The sensitivity of the cost of capital and recovery of passenger revenue/BVOV is as follows:

- Increase in the cost of capital by one percentage point has a negative effect of approximately € 26 million in relation to the recognised impairment;
- lower passenger revenue of 10% in the coming years will lead to a negative effect of approximately € 442 million compared to the recognised impairment;
- for the period after 2024, it is assumed that the main rail network contract will be awarded under conditions that enable NS to earn the 'cost of capital'. An increase/decrease in the cost of capital or higher/lower passenger revenues have no influence on the (reversal of the) impairment.

The Group notes in this connection that the underlying analyses include significant estimation uncertainties. These uncertainties have been increased by uncertainties regarding the final financial arrangements with regard to the new main rail network franchise. The realisation may differ and the impairment may have to be adjusted in the future with a positive or negative result effect.

The reassessment as at 31 December 2022 led to a reversal of the recognised impairment loss for an amount of € 385 million. This is mainly caused by advancing insights into the passenger forecast and additional contributions from the Dutch government. At year-end 2022, the carrying amount of the impairment is € 879 million (2021: € 1,413 million).

The recognised impairments have been proportionally deducted from the carrying amounts of the assets of the main rail network. The revised carrying amounts are depreciated over the remaining life of the assets.

No impairments have occurred in the other activities in the Netherlands (station development and operation) and in Germany.

Accounting policy

The carrying amount of the Group's non-current assets is reviewed on every reporting date in order to determine whether there are indications of impairment. If such indications are found, an estimate is made of the recoverable amount of the asset concerned. For goodwill and intangible assets that are not yet available for use the recoverable amount is estimated at each reporting date.

The recoverable amount of an asset or a cash-generating unit is the higher of the value in use and the fair value less costs to sell. In assessing the value in use, the present value of the estimated future pre-tax cash flows is calculated using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. For the purpose of impairment testing, assets are grouped together into identifiable groups of assets that generate cash flows from continuing use and that are largely independent of other assets or groups of assets ('cash-generating units'). In impairment testing, the goodwill acquired in a business combination is allocated to the cash-generating units that are expected to benefit from the synergies of the combination.

An impairment loss is recognised if the carrying amount of an asset or the cash-generating unit to which it belongs exceeds its estimated recoverable amount. Impairment losses are recognised in the income statement. Impairment losses recognised in respect of cash-generating units are first deducted from the carrying amount of any goodwill allocated to the units, and then deducted from the carrying amount of the other assets in the unit or group of units on a pro rata basis.

After impairment, the remaining carrying amount is written down over the expected useful life of the related asset.

Impairment losses in respect of goodwill are not reversed. In respect of other assets, impairment losses recognised in prior periods are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

17. Investments recognised using the equity method

The investments that are accounted for using the equity method, with a carrying amount of € 12 million (2021: € 26 million), are included below. As at 31 December 2022, Merseyrail is included in Assets held for sale.

Name of entity (in millions of euros)	Merseyrail Ltd	Other participating interests	Total
Share percentage	50.00%		
2022			
Current assets	-	14	
<i>of which Cash and cash equivalents</i>	-	7	
Fixed assets	-	9	
Current liabilities	-	3	
<i>of which current financial liabilities</i>	-	-	
Non-current liabilities	-	-	
<i>of which non-current financial liabilities</i>	-	-	
Net equity (based on 100%)	-	21	
Carrying amount of investments accounted for using the equity method	-	12	12
Revenue	-	19	
Additional government contributions related to COVID-19			
Depreciation, amortisation and impairments	-	2	
Result from operating activities	-	-3	
Finance income	-	-	
Finance expense	-	-	
Income tax	-	-	
Profit for the reporting period	-	-	
Total recognised profit for the reporting period	-	1	
Share in result of investments accounted for using the equity method	-	-	-
Share in other comprehensive income	-	-	-
Share in total comprehensive income of investments accounted for using the equity method	-	-	-
Dividend received	-	-	-

Name of entity (in millions of euros)	Merseyrail Ltd	Other participating interests	Total
Share percentage	50.00%		
2021			
Current assets	51	20	
<i>of which Cash and cash equivalents</i>	25	16	
Fixed assets	13	7	
Current liabilities	38	3	
<i>of which current financial liabilities</i>	6	-	
Non-current liabilities	3	-	
<i>of which non-current financial liabilities</i>	3	-	
Net equity (based on 100%)	22	19	
Carrying amount of investments accounted for using the equity method	11	15	26

Revenue	189	22
Additional government contributions related to COVID-19		
Depreciation, amortisation and impairments	6	1
Result from operating activities	10	-3
Finance income	-	1
Finance expense	-	-
Income tax	2	-
Profit for the reporting period	8	-1
Total recognised profit for the reporting period	8	1

Share in result of investments accounted for using the equity method	4	1	5
Share in other comprehensive income	-	-	-
Share in total comprehensive income of investments accounted for using the equity method	4	1	5
Of which under Result from discontinued operations	-4	-	-4
Share in total comprehensive income of investments accounted for using the equity method	-	1	1
Dividend received	-	-	-

Merseyrail Services Holding Company Ltd

The Merseyrail franchise is operated under a 50:50 joint arrangement with Serco, a listed British company. NS and Serco have joint control, each with a 50% financial interest in the holding entity. The franchise is held by an independent entity in which the holding company concerned has a 100% interest. The profits of the holding company are distributed to NS and Serco in equal shares. As at 31 December 2022, Merseyrail is included in Assets held for sale.

Miscellaneous

As regards the investments accounted for using the equity method, there are no material contingent assets and/or liabilities. As regards the valuation of the interests in the joint ventures, there are no significant estimates or assessments.

Pursuant to Sections 379 and 414 of Book 2 of the Dutch Civil Code, a complete list of the Group's subsidiaries, associates and joint ventures has been filed with the office of the Trade Register in Utrecht.

From 1 June 2021 to October 2021, the equity interest in Abellio GmbH was accounted for as an investment using the equity method. The measurement of this capital interest for the period 1 June 2021 to October 2021 was kept unchanged at zero. As of 1 October 2021, the equity interest no longer meets the definition of an asset as it is no longer entitled to economic benefits. This position is unchanged as at 31 December 2022.

Accounting policy

The Group's interests in investments accounted for using the equity method consist of interests in associates and joint ventures.

Associates are entities in which the Group has significant influence on the financial and operational policy, but which it does not control. A joint venture is an agreement through which the Group shares in the control and in which the Group has rights to the net assets of the arrangement rather than rights with respect to the assets and obligations with respect to the liabilities.

Associates and joint ventures over which control is exercised jointly are accounted for using the equity method and measured at cost upon initial recognition. The cost of the investment includes the transaction costs. After initial recognition, the consolidated financial statements include the Group's share in the total comprehensive income of the investments accounted for using the equity method, up to the date on which it ceases to exercise significant influence.

Section 4 Working capital

18. Inventories

(in millions of euros)

	31 December 2022	31 December 2021
Maintenance materials	148	152
Projects under construction, unsold	18	11
Trade goods	54	13
Total	220	176

The inventories of maintenance materials consist of raw materials and other materials for the production and the maintenance of finished and semi-finished products for the maintenance centres. In 2022, the write-down of inventories to the net realisable value, which was recognised as an expense, amounted to € 7 million (2021: € 20 million). The accumulated impairment, after withdrawals, came to € 101 million at the end of 2022 (2021: € 100 million).

Accounting policy

Inventories are stated at the lower of cost and net realisable value. The net realisable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the costs to make the sale.

The cost of the inventories is based on the purchase prices or costs and includes expenses incurred in acquiring the inventories and the associated costs of purchase. The cost of inventories of finished products and work in progress includes a reasonable portion of the indirect costs based on normal production capacity.

19. Trade and other receivables

(in millions of euros)

31 December 2022 31 December 2021

Receivables	276	192
Unbilled revenue	130	182
Other taxes and social security charges	36	89
Other receivables	234	756
Total	676	1,219

Trade and other receivables includes an amount of € 117 million (2021: € 493 million) relating to ProRail and the Dutch central government. Of this amount, € 69 million (2021: € 481 million) relates to public transport availability payments to be received in the Netherlands (see note 3).

The ageing of receivables as at the reporting date was as follows.

(in millions of euros)

31 December 2022

31 December 2021

	Gross	Provided for	Gross	Provided for
Not past due	240	2	120	5
Past due 0-30 days	28	6	65	13
Past due 31-120 days	8	-	72	59
Past due 121-180 days	2	-	8	3
Past due 181-360 days	3	-	6	3
Past due more than one year	5	2	8	4
Total	286	10	279	87

Impairment losses

Movements in the provision for impairments of trade receivables during the year were as follows:

(in millions of euros)

2022

2021

Balance as at 1 January	87	59
Additions	10	76
Use	-11	-39
Release	-64	-12
Held for sale	-8	-
Exchange differences	-4	3
Balance as at 31 December	10	87

The release of the provision for impairments is mainly related to the termination of a dispute with a supplier in the United Kingdom. The result is included in the result from discontinued operations.

Other receivables

For the acquisition of the shares in Westfalenbahn GmbH and PTS GmbH, the Group paid € 9 million and € 1.75 million respectively in December 2021. These share prepayments were stated at fair value via the income statement as at 31 December 2021 and have been set at a value of zero for WestfalenBahn. The fair value was determined on the basis of expected cash flows from the companies to be acquired. This fair value was then included in 2022 in the amount sacrificed upon the actual acquisition of the shares (see note 1). At that time it appeared that the write-down of WestfalenBahn had to be reversed in full.

Accounting policy

Trade and other receivables are stated at fair value plus any directly attributable transaction costs upon initial recognition. After initial recognition, they are recognised at amortised cost using the effective interest method.

The Group has formed a provision for impairment equal to the size of the estimated credit losses from trade and other receivables. The most important elements of this provision are a specific loss provision for significant individual positions and a group loss provision for groups of comparable assets concerning losses that are expected but have not yet been identified. The group loss provision is determined on the basis of historic payment data for comparable financial assets.

Provisions for trade receivables are made in the case of an impairment, unless the Group is certain that it will not be possible to recover the amount owed. In that case, the amount is considered irrecoverable and is written off directly against the financial asset concerned.

20. Cash and cash equivalents

(in millions of euros)

31 December 2022 31 December 2021

Cash and bank balances	396	680
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The cash and bank balances are at the free disposal of the company (31 December 2021: € 28 million not at the free disposal of the company).

In the United Kingdom (held for sale), € 16 million is not at the free disposal of the company as at 31 December 2022. This relates to season ticket payments received in advance.

The Group's interest rate risk and a sensitivity analysis for financial assets and liabilities are given in note 27.

Accounting policy

Cash and cash equivalents are stated at fair value, which is normally the same as the nominal value.

21. Accrued and deferred items

Accruals and deferred income as at 31 December 2022 amounted to € 9 million (31 December 2021: € 10 million).

22. Trade and other payables

(in millions of euros)

	31 December 2022	31 December 2021
Trade payables	219	446
Current portion of deferred credits	35	35
Other taxes and social security charges	103	107
Other liabilities	839	771
Accruals and deferred income	110	288
Total	1,306	1,647

Trade and other payables includes an amount of € 24 million (2021: € 36 million) related to ProRail and the Dutch central government, of which € zero relates to the NOW scheme (as at 31 December 2021: € 8 million). As at year-end 2022, NS had received € 360 million (year-end 2021: € 313 million) in collateral in the form of margin money from Eneco, which is recognised under other liabilities.

The Group's liquidity risk due to trade and other payables is stated in note 27 and the continuity section.

23. Deferred income

The deferred income of € 565 million (2021: € 645 million) consists mainly of amounts for student public transport passes received in advance and season ticket payments received in advance in the Netherlands.

Accounting policy

This income concerns amounts received in a single payment under agreements with terms extending to future years. The income is credited to the income statement over the term of the agreements to which the income relates. The income is measured at amortised cost.

Section 5 Financing, financial risk management and financial instruments

24. Other financial assets, including investments

(in millions of euros)	31 December 2022	31 December 2021	Measurement basis
Other financial assets included in fixed assets			
Interest in Eurofima	90	89	Fair value through other comprehensive income – equity investment
Interest in bonds	27	25	Fair value through other comprehensive income – investment in debt instruments
Interest rate derivatives	38	-	Derivatives - fair value
Commodity derivatives	-	2	Derivatives - fair value
Other financial fixed assets	42	15	Amortised cost
Total	197	131	
Other current financial assets			
Interest in money market funds	745	448	Fair value through profit or loss
Other financial fixed assets	-	24	Amortised cost
Commodity derivatives	-	6	Derivatives - fair value
Total	745	478	

The interest in Eurofima is measured at fair value. The net asset value based on the most recently available financial statements of this interest has been used as the best approximation of the fair value.

The carrying amounts of the financial assets and liabilities recognised in the balance sheet do not differ materially from the fair values.

The interest rate derivatives are forward starting swaps to hedge the interest rate risk on future financing (see note 27).

The amount of the interest in money market funds must be seen in conjunction with the size of the cash balance. The choice of the money market fund instrument, which is highly liquid and can therefore be withdrawn on a daily basis, to hold surplus funds is related to a desired diversification of funds as well as the expectations of when funds must be deployed.

Accounting policy

On initial recognition, loans, receivables and deposits are accounted for by the Group from the date on which they first arose. All other financial assets are initially recognised on the transaction date. The Group derecognises a financial asset in the balance sheet once the contractual rights to the cash flows from the asset have expired. If the Group transfers the contractual rights to the cash flows from the financial asset by means of a transaction in which virtually all risks and rewards of ownership of the asset are transferred or not retained, and control of the asset transferred is not retained either, the Group no longer includes the financial asset in the balance sheet. If the Group retains or creates an interest in the financial assets being transferred, that interest is recognised as a separate asset or liability.

The Group derecognises a financial liability if the contractual obligations have been discharged, cancelled or have expired

Financial assets and liabilities are offset and the resulting net amount is recognised in the statement of financial position only if the Group has a legally enforceable right to set off the amounts and if it intends either to settle on a net basis or to realise the asset and settle the liability simultaneously.

The Group uses the following financial instruments:

Non-derivative financial instruments

Non-derivative financial instruments include investments in equity securities, deposits and bonds, trade and other receivables, cash and cash equivalents. Non-derivative financial instruments are initially recognised at fair value. After initial recognition, non-derivative financial instruments are measured as described below.

Financial assets at fair value through profit or loss (including money market funds)

These assets are subsequently measured at fair value. Net gains and losses, including any interest or dividend income, are recognised in the income statement.

Financial assets at amortised cost

These assets are subsequently measured at amortised cost using the effective interest method. Amortised cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairments are recognised in the income statement. Any gain or loss arising on derecognition is recognised in the income statement.

Fair value through other comprehensive income – investment in debt instruments

These assets are subsequently measured at fair value. Interest income is calculated using the effective interest method, foreign exchange gains and losses and impairments are recognised in the income statement. Other net gains and losses are recognised in other comprehensive income. On derecognition, the gains and losses accumulated in other comprehensive income are reclassified to the income statement.

Fair value through other comprehensive income - equity investment (interest in Eurofima)

These assets are subsequently measured at fair value. Dividends are recognised as income in the income statement, unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognised in other comprehensive income and are never reclassified to the income statement.

Impairment of financial assets

At each reporting date, financial assets are assessed to determine whether they might be impaired on the basis of expected credit losses.

The Group recognises a provision for expected credit losses for all debt instruments that are not held at fair value through profit or loss. The expected credit losses are based on the difference between the contractual cash flows and all cash flows expected to be received by the Group, discounted at an approximation of the original effective interest rate.

Financial assets that are significant are individually tested for impairment. Other financial assets are assigned to groups with similar credit risk characteristics and are assessed collectively.

Fair value

For bonds, the fair value is calculated using the available current market prices/closing prices. In principle, the interest in Eurofima is measured at fair value. The net asset value of this interest was used as the best approximation of fair value.

When determining the value of interest swaps, currency derivatives and money market funds, the Group uses measurement methods in which all significant data required are derived from observable market data (Level 2).

The Group's credit risks, currency risks and interest rate risks associated with the other investments are explained in more detail in note [27](#).

25. Equity

See the consolidated statement of changes in equity for the movements in equity.

The authorised capital as at both 31 December 2022 and 31 December 2021 consisted of 4 million ordinary shares with a nominal value of € 453.78 (originally NLG 1,000). There are 2,230,738 issued and fully paid up shares. All issued shares are held by the State of the Netherlands. The shareholders are entitled to a dividend, which is declared annually based on the resolution of the Annual General Meeting of Shareholders regarding the profit appropriation. The shareholders have the right to cast one vote per share at meetings of the company.

The financial statements for 2021 and the appropriation of the profits were adopted at the shareholders' meeting on 3 March 2022. In accordance with the proposal, the result attributable to the company's shareholders of € 339 million was added to the general reserve.

The movements in the other reserves were as follows:

(in millions of euros)	Reserve for translation differences	Hedging reserve	Fair value reserve	Actuarial reserve	Revaluation reserve for associates	Reserve for discontinued operations held for sale	Total other reserves
Balance as at 1 January 2021	-21	-23	53	-1	13	-	21
Non-realised profit	-14	29	-	-	-	-	15
Other movements	-	-	-	-	-	-	-
Balance as at 31 December 2021	-35	6	53	-1	13	-	36
Non-realised profit	1	36	1	-4	-	-	34
Discontinued operations	32	-4	-	-3	-13	-12	-
Other movements	2	-	-	-2	-	-	-
Balance as at 31 December 2022	-	38	54	-10	-	-12	70

The other movements are related to the transfer of the other reserves of the discontinued operations held for sale to a separate reserve (see note 2).

Profit appropriation as stipulated by the Articles of Association

In accordance with Article 21(2) of the Articles of Association of NV Nederlandse Spoorwegen, the Annual General Meeting of Shareholders decides on the appropriation of any positive balance in the income statement.

Proposal for profit appropriation

It will be proposed to the Meeting to add the positive result of € 579 million to the general reserve.

Accounting policy

Translation reserve

The translation reserve consists of all exchange rate differences arising as a result of the translation of the financial statements of foreign operations and the translation of liabilities hedging the company's net investment in a foreign group company.

Hedging reserve

The hedging reserve consists of the cumulative change in the fair value of hedging instruments (derivatives) where the hedged transaction has not yet taken place or the hedged position has not yet been settled.

Fair value reserve

The fair value reserve comprises the cumulative change in the fair value of investments measured at fair value - total comprehensive income and the cumulative change in the fair value of investments measured fair value - debt investment, until the investment is derecognised.

Actuarial reserve

The actuarial reserve relates to the actuarial gains and losses, which comprise the difference between the actual and projected changes in the pension liabilities and investment returns on pension assets (see note 30).

Revaluation reserve for associates

The revaluation reserve for associates comprises the cumulative unrealised results, recognised directly in the equity of associates accounted for using the equity method.

Reserve for discontinued operations held for sale

The other reserves relating to discontinued operations are transferred to this reserve. The nature of the reserves remains unchanged.

26. Loans and other financial liabilities, including derivatives

This note contains information concerning the contractual provisions for the Group's interest-bearing loans and other financial liabilities that are measured at amortised cost.

(in millions of euros)

31 December 2022 31 December 2021

Non-current liabilities

Private loans	1,504	1,593
Currency derivatives	1	5
Total	1,505	1,598

Current liabilities

Private loans	294	170
Current account financial institutions	-	18
Currency derivatives	2	8
Total	296	196

Total liabilities	1,801	1,794
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In 2022, the Group had a net amount of € 129 million in new private loans.

The 'Private loans' item includes a debt payable by the Group to the Ministry of Infrastructure and Water Management of € 49 million (2021: € 83 million) associated with the deferred payments of franchise fees. Of that amount, € 16 million has been included under 'Non-current liabilities', for the portion that is due to be paid after 2023. The portion that will be paid in 2023 (€ 33 million) is recognised in 'Current liabilities'. The interest rate is fixed at 3.027%. The terms and conditions of the loan were agreed in detail with effect from 1 January 2015 under the main rail network franchise.

The private loans have terms expiring between 2022 and 2032 and interest rates ranging from 0% to 3.7%. The reconciliation of changes in liabilities resulting from financing activities is as follows:

(in millions of euros)	Private loans	Bank overdrafts	Currency derivatives	Commodity derivatives	Lease liabilities	Total
Balance as at 1 January 2021	1,163	17	2	29	2,066	3,277
Repayment of borrowings	-49	-	-	-	-88	-137
Addition of loans	651	-	-	-	-	651
Discontinued operations	-4	-	-	-	-390	-394
Total net cash flow from financing activities 2021	598	-	-	-	-478	120
New leases	-	-	-	-	277	277
Movements in working capital	-	1	-	-	-	1
Currency differences	3	-	-	-	51	54
Deconsolidation	-	-	-	-	-993	-993
Other movements	-1	-	11	-29	7	-12
	2	1	11	-29	-658	-673
Balance as at 31 December 2021	1,763	18	13	-	930	2,724
Repayment of borrowings	-50	-	-	-	-72	-122
Addition of loans	129	-	-	-	-	129
Discontinued operations	1	-	-	-	-292	-291
Total net cash flow from financing activities 2022	80	-	-	-	-364	-284
New leases	-	-	-	-	289	289
Business acquisitions	-	-	-	-	364	364
Currency differences	-2	-	-	-	-39	-41
Held for sale	-42	-	-	-	-716	-758
Other movements	-1	-18	-10	-	-	-29
	-45	-18	-10	-	-102	-175
Balance as at 31 December 2022	1,798	-	3	-	464	2,265

Accounting policy

Non-derivative financial instruments

On initial recognition, these instruments are measured at fair value plus any directly attributable transaction costs. After initial recognition, loans and receivables are measured at amortised cost using the effective interest method.

Derivative financial instruments (derivatives)

The Group holds derivatives to hedge its foreign currency, interest rate and commodity risks. On initial recognition, derivatives are measured at fair value, which is the same as the cost applicable on that date. Attributable transaction costs are charged to the income statement when they are incurred. After initial recognition, derivatives are measured at fair value and any changes are accounted for as described below.

Hedge accounting

The method for recognition of the result depends on whether hedge accounting is used and, if so, whether the hedging relationship is effective. If the hedging relationship is effective, hedge accounting is used for these derivatives. When a hedging transaction is entered into, the hedging relationship is documented. Regular assessments are performed to determine if the hedging transaction was effective throughout the past period and whether the hedging transaction is expected to be effective throughout the coming period. If the hedging instrument expires, is sold, terminated or exercised or no longer meets the criteria for hedge accounting, application of hedge accounting ends with immediate effect.

Cash flow hedges

If a derivative is classified as a hedge for variability in cash flows ensuing from a particular risk associated with a recognised asset or liability, or if a highly probable forecast transaction could affect profit or loss, the effective portion of the changes in the fair value of the derivative is recognised in other comprehensive income and presented in the hedging reserve in equity. Any ineffective portion of the changes in the fair value of the derivative is recognised directly in the income statement. The accumulated amount is reclassified to the income statement in the same period in which the hedged position affects the income statement.

If a hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, hedge accounting is discontinued prospectively. The cumulative gain or cumulative loss that was previously recognised in equity remains in equity until the forecast transaction has occurred. The amount recognised in equity is reclassified to the income statement (under net change in the fair value of the cash flow hedges reclassified from equity) in the same period in which the hedging instrument affects the income statement.

Fair value hedges

Changes in the fair value of a derivative hedging instrument that is classified as a fair value hedge are charged or credited to the income statement together with the changes in the fair value of the assets and liabilities (or groups thereof) insofar as they are attributable to the hedged risk.

Economic hedges

Hedge accounting is not applied to derivatives that are used as economic hedges of assets and liabilities denominated in foreign currencies. Changes in the fair value of such derivatives are recognised in the income statement as part of exchange rate gains and losses.

Energy hedging

The Group uses accrual accounting for commodity derivatives intended for its own use, under the exception allowed by IFRS 9.2.4 insofar as the requirements of IFRS 9.2.4 are met. This is applicable to purchases of diesel and fuel oil and energy in the Netherlands and is discussed in the section on risks and in 'Off-balance sheet commitments'. The other commodity derivatives, which do not meet the criterion of being intended for the Group's own use, are measured at fair value, and hedge accounting is used where possible.

27. Financial instruments – Risk management and fair value

Because financial instruments are used, the Group is exposed to the following risks:

- market risks, consisting of:
 - Interest rate risk
 - Currency risk
 - Energy price risk
- Credit risk
- Liquidity risk
- Insurance risks

Risk management framework

The Executive Board bears the final responsibility for the design and supervision of the Group's risk management framework. The Risk and Audit Committee and the Supervisory Board ensure that the risk management framework is adequate in view of the risks to which the Group is exposed. The Group's Risk and Audit Committee is supported in its supervisory role by NS Audit, NS Risk and the Group Control & Expertise department. NS Audit provides additional assurance concerning effective control of all NS business processes by performing regular and ad hoc evaluations. The findings of NS Audit are reported to the Risk and Audit Committee.

The Group's risk policy aims to identify and analyse the risks confronting the group, establish suitable risk limits and controls and monitor compliance with the limits. Policy and systems for financial risk management are regularly assessed and, where necessary, adjusted to allow for changes in market conditions and the Group's activities. Financial risk management is one element of the NS risk framework.

In order to ensure adequate risk management, additional policies have been defined for a number of business units. For instance, NS Insurance and Abellio have specific risk controls reflecting the nature of their activities, unlike the other business units, where Corporate Treasury determines the substance of the financial risk management.

The Group is involved in transport franchises abroad (the United Kingdom and Germany) through Abellio. These operations are primarily in the United Kingdom, mainly on an independent basis or with minority shareholders, and in part through a joint venture with the partner Serco, in which both partners have an equal share. The results from the activities in the United Kingdom are recognised as results from discontinued operations. The activities in Germany were deconsolidated as of 30 June 2021, as predominant control over these group companies has been lost. As a result, these activities no longer fall under Abellio's financial risk management. However, the activities of the entities acquired in 2022 in Germany will

return to the financial risk management of the Group with effect from the acquisition. The financial risk management of Abellio and Transport Holding Germany is part of the risk framework of foreign activities and therefore of the NS risk framework. Agreements were reached in 2016 with the shareholder about the amount of the financial resources permitted to be involved in the Group's activities abroad.

Market risks

Market risk is the risk that the Group's income and expenditure, or the value of investments in financial instruments, will be negatively affected by changes in market prices, such as commodity prices, currency exchange rates and interest rates. The management of market risk aims to keep the market risk position within acceptable limits while optimising return on investment. Market risk comprises three types of risk: interest rate risk, currency risk and price risk.

Interest rate risk

The Group's policy is aimed at ensuring that at least 50% of the interest rate risk on borrowings is based on a fixed rate of interest. When determining the interest rate risk on borrowings, the Group can take account of the cash and cash equivalents available that can neutralise the interest rate risk of loans at variable rates. The Group uses derivatives such as interest rate swaps to limit the interest rate risks. Interest rate risks are predominantly managed centrally. Regulations and defined position limits apply to interest rate positions held with regard to foreign units within the Group. No speculative positions are held.

Exposure to interest rate risks

The interest rate profile of the interest-bearing financial instruments is as follows:

(in millions of euros)	31 December 2022	31 December 2021
Liabilities with a variable interest rate		
Financial liabilities	350	350
Effect of interest rate swaps	-	-
	350	350
Liabilities with a fixed interest rate		
Financial liabilities	1,448	1,431
Lease liabilities	464	930
Effect of interest rate swaps	-	-
	1,912	2,361
Financial assets		
Financial assets with a fixed interest rate	69	39
Financial assets with a variable interest rate (especially cash and cash equivalents)	1,141	1,128

The increase/decrease in interest rates by 100 basis points results in a higher/lower interest expense of € 4 million.

In 2022, the Group concluded a number of forward starting interest rate swaps to hedge the interest rate risk of future financing (cash flow hedge accounting). The nominal value of the forward contracts at year-end 2022 is € 350 million. The loans are expected to be contracted in 2023. The carrying amount of these instruments as at 31 December 2022 is € 38 million positive.

Currency risk

The Group is exposed to currency risks on purchases, trading activities, cash and cash equivalents, borrowings, other balance sheet positions and off-balance sheet commitments denominated in currencies other than the euro. Because of its business activities, the Group mainly has currency positions in pounds sterling (GBP) and Swiss francs (CHF).

The risk of fluctuations in exchange rates on repayments, interest and dividend flows within the Group is hedged by means of forward exchange contracts, spot and/or forward purchases and sales and swaps, thereby hedging one or more of the risks to which the primary financial instruments are exposed. Purchases and sales, investment and financing commitments and settling accounts with foreign railway companies mainly take place using the functional currencies of the Group's business units, namely euros (EUR) and pounds sterling (GBP).

The currency risk on the capital interests denoted in a foreign currency (pounds sterling and Swiss francs) is not hedged. The foreign exchange gains or losses for the regular balance sheet items in the value of the participating interest are recognised in equity through the legal reserve for exchange differences.

At the end of 2022 and 2021, no materially significant positions were held in currencies other than the functional currency of the business units concerned.

At the end of 2022, the Group entered into a number of forward contracts and currency swaps in GBP to hedge specific currency positions relating to loans to group companies and expected cash flows from the United Kingdom. The nominal value of the hedged positions as at the end of 2022 was € 133 million (year-end 2021: € 216 million). The fair value of these currency derivatives at the end of 2022 was € 3 million (2021: € 13 million negative).

Sensitivity analysis for foreign currencies

Given that no materially significant items in financial instruments were held in foreign currencies at the end of 2022 or the end of 2021, other than those referred to above, a change in the value of the euro with respect to a foreign currency at the end of the year will not have any material impact on equity and profits over the reporting period.

Energy price risk

The Netherlands

The Group is affected by market fluctuations in the price of energy. In 2014, the Group signed a ten-year contract (2014-2024) with Eneco for the supply of 'green' traction electricity for the rolling stock fleet in the Netherlands. From 2015 onwards, 50% of the trains in the Netherlands ran on 'green' electricity. Since 2017, the Group's traction has been entirely green. The contract covers the following risks (in whole or in part):

- Price risk: the fees for the Programme for Responsibility and Guaranteed Origins are fixed for the entire contractual period. The contract offers the option of purchasing the requisite electricity for future years based on a hedging strategy, which limits the exposure to market prices.
- Credit risk: the credit risk is limited to the thresholds that depend on the credit rating. If the exposure (which allows for aspects such as the difference between market values and contract values of electricity covered using a hedging strategy) exceeds a certain threshold (that depends on the credit rating), the Group or Eneco must give the other party guarantees or provide cash collateral.

- Volume risk: the volume risk is limited because the volume for the previous year is given as the volume required in each new year. In addition, a range also applies in the year in question, within which fluctuations in the volume consumed do not affect the price.

The contract complies with the 'own use' criteria and is not classified as a derivative.

Credit risk

Credit risk is the risk of financial loss by the Group if a customer or counterparty to a financial instrument does not meet its contractual obligations. Credit risks mainly arise from receivables from customers and from investments. There was no significant concentration of credit risks as at the balance sheet date.

The carrying amounts of the financial assets represent the maximum credit risk. For details of the credit risk regarding Eurofima, see note 31. The maximum exposure to credit risk at the reporting date was as follows:

(in millions of euros)	Note	31 December 2022	31 December 2021
Interest in Eurofima	24	90	89
Interest in bonds	24	27	25
Interest in money market funds	24	745	448
Interest rate derivatives	24	38	-
Commodity derivatives	24	-	8
Other financial fixed assets	24	42	15
Trade and other receivables	19	510	948
Cash and cash equivalents	20	396	680
Total		1,848	2,213

Investments

The Group limits its credit risk in its investments by only investing with other parties that comply with the policy drawn up by the Group. Regular checks are performed to establish whether the contractual parties still comply with the policy or whether further action is needed.

Given the creditworthiness of the counterparties, the Group expects that those counterparties will fulfil their obligations. No impairment losses were incurred on the investments, bonds and deposits in 2022 or 2021. Investments, except investments in money market funds, are in principle made with counterparties that have a credit rating of at least A- from Standard & Poor's and a long-term credit rating of at least A3 from Moody's, or with a number of Dutch municipalities. If a counterparty only has a single credit rating, it must satisfy Standard & Poor's or Moody's rating requirements as stated above. Investments that no longer comply with this policy are either permissible as exceptions and monitored frequently or reduced (generally through normal progression), which may persist for some time after the balance sheet date. For investments in money market funds there is no rating requirement, the fund is selected on the basis of the investment policy of the fund and NS periodically monitors the developments of the money market fund. The Group's foreign companies do not have significant long-term material cash surpluses, unless this is the result of their normal business activities (monies received in advance).

Trade and other receivables

The Group's credit risk relating to trade and other receivables is mainly determined by the individual characteristics of the separate customers. The demographic features of the customer base, including the risk of non-payment in the sector and the country in which the customers are active, have less impact on the credit risk. About 17% (2021: 16%) of the Group's revenues are from sales transactions with the Dutch Education Executive Agency (DUO). As part of the credit policy applied by the business units, the individual creditworthiness of each new customer is assessed before standard payment and delivery conditions are offered to the customer. In the case of contract renewals, figures from the business unit's own experience are also used in assessing creditworthiness. In the assessment of the credit risk, customers are divided into groups based on credit characteristics; these groups include government, companies, private individuals and customers with possible financial problems in the past. Deliveries to customers with a high risk profile are only made after approval by the Executive Board. Business has been conducted with the majority of customers for many years, with only occasional (non-material) losses having been incurred.

Liquidity risk

The liquidity risk is the risk that the Group will have difficulty meeting its obligations. Based on the principles underlying liquidity risk management, sufficient liquid assets must be retained, as far as possible, to be able to meet the current and future financial obligations in the short term, under both normal and difficult circumstances, without any unacceptable risks being incurred or the Group's reputation being jeopardised. The Group has sufficient cash or assets that are readily convertible into cash. In addition, the Group can make use of credit facilities totalling € 950 million. Of these credit facilities, € 500 million relates to a so-called revolving credit facility (available until 20 December 2027), a € 200 million credit facility that will be used before 31 December 2023 to contract a long-term loan, and a financing facility is available under which one or more long-term loan(s) can be contracted for a maximum cumulative amount of € 250 million until 17 December 2024. In addition, the Group expects to be able to make use of alternative financing options if the situation so requires.

For the assumptions regarding the availability of cash, please refer to the section 'Impact of COVID-19 and important (result) developments' and the going concern assumptions used.

The Group manages the cash and cash equivalents on the basis of regular liquidity forecasts using a bottom-up approach. On the basis of this forecast, financing limits are set for the business units that are clients of Corporate Treasury's in-house bank. The bank monitors these limits and they cannot be exceeded unless authorisation has been obtained. This gives Corporate Treasury an early warning system. The liquidity forecast and the aforementioned financing limits lets Corporate Treasury manage the cash and cash equivalents by lending and withdrawing funds.

The following table shows the contractual maturities of the financial liabilities, including the estimated interest payments. The sums are gross amounts and have not been discounted.

	31 December 2022						
(in millions of euros)	Carrying amount	Contractual cash flows	< 6 months	6-12 months	1-2 years	2-5 years	> 5 years
Non-derivative financial liabilities							
Private loans	1,798	1,857	67	239	742	208	601
Lease liabilities	464	483	46	55	88	151	143
Bank overdrafts	-	-	-	-	-	-	-
Trade and other liabilities	1,058	1,058	1,058	-	-	-	-
Derivative financial liabilities							
Currency derivatives	3	3	3	-	-	-	-
Total	3,323	3,401	1,174	294	830	359	744

	31 December 2021						
(in millions of euros)	Carrying amount	Contractual cash flows	< 6 months	6-12 months	1-2 years	2-5 years	> 5 years
Non-derivative financial liabilities							
Private loans	1,763	1,803	121	58	276	637	711
Lease liabilities	930	965	161	162	209	347	86
Bank overdrafts	18	18	18	-	-	-	-
Trade and other liabilities	1,217	1,217	1,217	-	-	-	-
Derivative financial liabilities							
Currency derivatives	13	13	13	-	-	-	-
Total	3,941	4,016	1,530	220	485	984	797

When calculating the future cash flows, it is assumed that the future variable interest rates are the same as the last known variable interest rates.

As regards the risks relating to capital, the Group has agreed a dividend policy with the shareholder.

Insurance risks

In the course of its operational activities, the Group is exposed to risks that can be insured against. Risks beyond the scope of the business units are managed via the subsidiary NS Insurance. This refers to the risk of losses due to collisions, fire and liability as well as direct trading loss. The maximum extent of these losses is calculated by external specialists once every three years, or more often if changed circumstances make this necessary. The subsidiary, NS Insurance, insures the above risks for the business units. It does not insure third parties. If the total claims burden in any year exceeds NS Insurance's own internal cover, the additional cover required is provided by reinsurance. The Group's loss claims are paid from the premium income and investment income of NS Insurance. If the total costs including the claims burden exceed the revenue, these costs are paid from the distributable reserve of NS Insurance (if this is sufficient).

NS Insurance uses stop-loss reinsurance contracts for reinsurance. MPL (maximum possible loss) studies are carried out regularly to determine limits for the insurance. Provided market conditions allow, NS Insurance only takes out reinsurance with parties that have at least an A- rating. If the rating drops below A-, it has the option of cancelling the reinsurance agreement. This has as yet never happened. The reinsurers of NS Insurance had ratings of at least A- as at the end of 2021.

NS Insurance is an insurance company and is supervised by De Nederlandsche Bank and the Netherlands Authority for the Financial Markets (AFM). Insurers must hold sufficient capital reserves to satisfy the minimum solvency requirement of Solvency II (SCR, the Solvency Capital Requirement). Insurers are also required to determine their own standard solvency requirement. NS Insurance has determined its standard solvency requirement in such a way that it will still be able to satisfy the SCR even if the stress scenario arises. Its standard solvency requirement is € 46 million. NS Insurance comfortably meets this requirement. NS Insurance is fully consolidated in the Group figures.

28. Net financing result

(in millions of euros)	2022	2021
Interest income from financial assets	10	1
Exchange differences	4	2
Other financial income	192	-
Finance income	206	3
Interest expense on financial liabilities measured at amortised cost	-10	-10
Interest expense on lease liabilities	-4	-7
Exchange differences	-11	-
Interest expense from discounting of provisions/other employee benefits	-1	-5
Other financial expenses	-2	-312
Finance expense	-28	-334
Net finance result included in the income statement	178	-331

An accounting upward revaluation of € 108 million has been recognised under other financial income as a result of acquisition accounting, whereby assets and liabilities have been reassessed. Shareholder obligations as well as part of the creditor obligations are released, as agreed in the insolvency plan, and are set off against the purchase price. This positive result in 2022 should be seen in conjunction with the financing costs recognised in 2021 for the write-down of the loan and restructuring costs related to the termination of a number of franchises. In addition, the guarantees of € 77 million provided for in 2021 in connection with the uncertainties in the acquisition of the Mitteldeutschland franchises were released in 2022 and recognised as financial income.

Accounting policy

Finance income includes the interest income from monies invested, lease income, gains from the sale of available-for-sale financial assets and gains on hedging instruments that are recognised in the income statement. Interest income is recognised in the income statement as it accrues, using the effective interest method. Dividend income is recognised in the income statement when the right to the dividend payment is established.

Finance expenses include the interest expenses on borrowings, lease contracts, interest accrual on provisions and losses on hedging instruments that are recognised in the income statement. All borrowing costs that are not directly attributable to the acquisition, construction or production of a qualifying asset are recognised in the income statement using the effective interest method. No borrowing costs were capitalised in 2022 or 2021.

Exchange rate gains and losses are included in the finance income and expense respectively.

Section 6 Other notes

29. Deferred credits

(in millions of euros)

	31 December 2022	31 December 2021
Lump sum payments	125	142
Adjustment mechanism for franchise fee	37	54
Deferred credits	162	196
Less: current	-34	-35
Total non-current as at 31 December	128	161

The lump-sum payment for wage increases resulting from making the Railway and Public Transport Pension Fund independent in 1994 is expected to be released up to 2035, and to be credited to the income statement. The franchise fee adjustment mechanism is included in the implementation agreement for the main rail network franchise (see note 33). The amounts will be released in equal instalments and be credited to the income statement during the term of the franchise (up to and including 2024).

Accounting policy

This income concerns amounts received in a single payment under agreements with terms extending to future years. The income is credited to the income statement over the term of the agreements to which the income relates. The income is measured at amortised cost.

30. Employee benefits

The non-current employee benefits comprise:

- obligations relating to defined benefit plans;
- liabilities arising from early retirement schemes (RVU scheme);
- other long-term employee benefits, including long-service awards.

(in millions of euros)

31 December 2022 31 December 2021

Defined benefit plans	-	6
Obligation in connection with temporary early retirement scheme	28	17
Long-service award obligations	27	31
Total	55	54

Pension liabilities

The staff of the NS Group companies are covered by the pension plans of the following pension funds. The table also shows the numbers of active members.

(numbers)

31 December 2022 31 December 2021

Rail and Public Transport pension fund	16,063	16,328
Hotel & Catering industry pension fund	1,231	1,187
Food business industry pension fund	1,008	569
Servex supplementary pension plan	44	41
ScotRail	-	5,170
East Anglia/Greater Anglia	1,768	1,768
Abellio Transport Holdings	16	16
Abellio London & Surrey	1,941	1,941
Abellio East Midlands	2,349	2,349
Abellio West Midlands	2,832	2,832

Railway and Public Transport Pension Fund pension plan (defined contribution plan)

The pension plan for the railway industry is administered by the Railway and Public Transport Pension Fund (*Pensioenfonds Rail en OV*). As of 1 April 2020, the Railway Pension Fund (*Spoorwegpensioenfonds*) merged into the Railway and Public Transport Pension Fund. The plan qualifies for recognition in the financial statements as a defined contribution plan. A fixed annual contribution, which is expressed as a percentage of the pensionable earnings, has been agreed in advance with the Railway and Public Transport Pension Fund. In 2022, NS paid the nominal pension contribution of 24% to the pension fund. Two-thirds of the pension contributions paid to the Railway and Public Transport Pension Fund are paid by the company and one-third is paid by the employees. After payment of the agreed contribution, the company has no obligation to pay additional amounts should there be a deficit in the pension fund. The actuarial risks and investment risks are borne by the pension fund and its members.

At the end of 2015, the Group made new agreements with the pension fund for dealing with the contribution build-up that came into effect on 1 January 2016. The employee portion of the contribution build-up (one third of the amount) was settled in full with the employees at year-end 2022. The employer's part of the contribution build-up (two thirds of the amount) has been added to the lump-sum payment for wage increases and will be credited to the pension costs up to 2035 (note 29).

There is a defined contribution plan for Abellio London & Surrey and the Servex supplementary pension plan.

Industry pension funds (hotel and catering, food)

The basic pension for each employee is covered by multi-employer funds in which other companies also participate on the basis of legal obligations. These funds have an indexed average salary scheme and are therefore defined benefit plans. Since these funds are not equipped to provide the required information on the Group's proportionate share of the pension liabilities and plan assets, the defined benefit plans are accounted for as defined contribution plans. The Group is obliged to pay the predetermined contribution for these plans. The Group is not allowed to not recover any surplus. The Group cannot recover excess payments and is not obliged to make up any shortfall except through adjustment of future contributions.

United Kingdom defined benefit plans (Discontinued operations/Liabilities held for sale)

Abellio Greater Anglia, Abellio ScotRail, Abellio West Midlands, Abellio East Midlands and Abellio Transport Holdings have arranged for pensions for their staff to be administrated by the Railways Pension Scheme. The fund in question can be considered as a company pension fund and the pension plan as a defined benefit plan. As a result of the termination of the ScotRail franchise on 1 April 2022, the pension liabilities have been transferred to the new franchisee.

Every company is a designated employer for one or more cost-sharing agreements within the Railways Pension Scheme. Such cost-sharing agreements are geared to a lifelong pension. The amount of the pension depends on how long an employee was an active member of the pension plan and on their salary when leaving the plan (final salary plan).

Because of the nature of the cost-sharing agreements, the amounts payable to cover both the costs of the accrued pension entitlements and any shortfall between the value of the assets and the value of the pension liabilities are borne jointly by the employer and the contributing members in a ratio of 60% to 40% respectively. As a consequence, the employer recognises 60% of the total pension costs and pension liabilities in the balance sheet. The Railways Pension Scheme is administered by the Trustee, the Railways Pension Trustee Company Limited. The plans' assets are invested via investment funds, each with a different risk and return profile.

The pension liabilities and the pension assets are based on actuarial calculations that were performed as at 31 December. At year-end 2022, the net liabilities of Abellio Transport Holdings Limited were € zero (year-end 2021: € 6 million). At year-end 2022, this was presented as liabilities held for sale.

To reflect the nature of the franchise, the shortfalls between the pension liabilities and the pension assets for Abellio Greater Anglia, Abellio ScotRail, Abellio East Midlands and Abellio West Midlands have been included in 'Non-current liabilities' to the extent that they concern the term of the franchise. The remaining amount at the end of the term of the franchise is not recognised in the balance sheet because it will constitute part of the debts of the next franchise holder. At year-end 2022, the net liabilities were nil (year-end 2021: nil). The average term for both pension liabilities is about 20 years.

In determining the pension costs, only the costs that are expected to be borne by the franchisee (the Group) during the term of the franchise are recorded in the income statement. These net pension costs are therefore calculated while taking into account that part of the costs that will be borne by the employees (40%) and by other parties after the end of the current term of the franchise. This net calculation also takes into account any allocation within the term of the franchise that may possibly occur in connection with the triennial assessments during the term of the franchise, as well as any adjustments to the annual contributions over the term of the franchise. The pension costs are recognised under Result from discontinued operations.

Early Retirement Scheme

The temporary Early Retirement Scheme (RVU) was introduced in 2021. Employees who are employed and who reach the statutory retirement date before 1 January 2028 may retire a maximum of three years earlier, in which case an amount of € 22,164 gross will be paid out in either monthly instalments or as a lump sum. In 2022, this scheme was extended by one year (before 1 January 2029) and increased to € 24,444 for the scheme to take effect from 1 January 2023.

This scheme is regarded as a so-called 'post-employment' plan, whereby the service costs are recognised through the income statement and the unrealised actuarial results through the statement of comprehensive income.

Basic assumptions for defined benefit plans

The following assumptions were used for determining the pension liabilities and the pension assets (based on a weighted average):

	31 December 2022	31 December 2021
Discount rate	4.9%	1.7%
Total wage increase	2.9%	3.0%
Increase of pension benefits	2.9%	3.0%
Inflation	3.3%	3.5%

Mortality table: S3NA tables with CMI 2019 projections plus long-term expectation of +1.25% per year.

Breakdown

The breakdown of the pension liabilities is as follows.

(in millions of euros)	31 December 2022	31 December 2021
Fair value of plan assets	1,958	3,519
Present value of defined benefit obligations	1,872	5,746
Difference	-86	2,227
Employees' share	35	-891
Difference at the end of the franchise period	51	-1,330
Group's net commitments concerning franchise period	-	6

Sensitivity analysis

Reasonably likely changes in one of the relevant actuarial assumptions on the balance-sheet date, while keeping all other assumptions constant, would have the following effect on the gross liability pursuant to the defined benefit entitlements.

(adjustment by 0.25%) (in millions of euros)	Increase	Decrease
Discount rate	-83	88
Inflation	88	-82
Future salary increases	26	-25

A change in life expectancy of one year would lead to a change in the gross liability of about € 38 million (31 December 2021: € 160 million).

The impact of these changes on the Group's net liabilities during the term of the franchise is expected to be limited, given the transfer of liabilities at the end of the franchise.

Movement

The changes in the pension assets and liabilities are as follows.

(in millions of euros)	2022	2021
Plan assets as at 1 January	3,519	2,767
Interest income	41	45
Pension contributions (including employees' share)	52	79
Pension benefits paid	-70	-119
Administration fee	-7	-10
Return on plan assets, excluding interest income	-227	581
Exchange results	-178	176
Franchise termination	-1,172	-
Plan assets as at 31 December	1,958	3,519
Defined benefit obligations as at 1 January	5,746	4,694
Pension costs	167	218
Interest expenses	67	77
Pension benefits paid	-70	-119
Net actuarial gain or loss	-2,122	578
Exchange results	-291	298
Franchise termination	-1,625	-
Defined benefit obligations as at 31 December	1,872	5,746

Breakdown of pension assets

The breakdown of the pension assets is as follows.

(in millions of euros)	31 December 2022	31 December 2021
Equities	1,531	2,518
Fixed-income securities	133	19
Property	162	274
Cash	-	482
Miscellaneous	132	226
Total	1,958	3,519

Pension costs recognised in the income statement

(in millions of euros)	2022	2021
Pension costs (employer's share)	100	128
Interest expenses	-	-
Administration fee	4	6
Adjustment due to limitation of franchise period	-72	-87
Total pension costs of discontinued operations	32	47

Unrealised actuarial gains and losses

(in millions of euros)	2022	2021
Net actuarial gain or loss due to:		
- Demographic assumptions	-2	-10
- Financial assumptions	-2,190	589
- Experience adjustments	-383	-
Return on plan assets, excluding interest income	227	-581
Adjustment due to limitation of franchise period	1,402	2
Changes in members' share	939	-
Total	-7	-

Early Retirement Scheme

The changes in the provision were as follows:

(in millions of euros)	2022
Long-service award obligation as at 1 January	16
Service costs through income statement	-
Service costs due to plan adjustment through income statement	3
Payments	-4
Unrealised actuarial gains and losses via the statement of comprehensive income	13
Liabilities as at 31 December	28

The service costs as a result of plan adjustments are related to the increase in the benefit amount and the extension of the scheme by one year, which result from the collective labour agreement.

The actuarial result that has been recognised through the statement of comprehensive income is caused by the change in the market interest rate, the adjustment of the mortality table and the change in estimates with regard to the probability of participation in the early retirement scheme.

The sensitivities are as follows.

	2022	2021
Discounting (-0.5%)	1.0%	1.1%
Participation rate (+10%)	8.8%	21.9%

Long-service award obligations

The AG2020 mortality table is used for the calculation of the long-service award obligations.

The changes in the provision were as follows:

(in millions of euros)	2022	2021
Long-service award obligation as at 1 January	31	32
Service costs through income statement	2	2
Payments	-2	-3
Actuarial gains and losses costs through income statement	-4	-
Liabilities as at 31 December	27	31

The current portion of this provision is € 3 million.

The sensitivities are as follows.

	2022	2021
Discounting (-0.5%)	3.6%	4.4%
Total wage increase (0.5%)	3.3%	4.5%
Career opportunities (+25%)	2.0%	2.5%
Probability of resignation/dismissal (+25%)	-5.2%	-6.2%

31. Provisions

(in millions of euros)	Provisions for reorganisation costs	Provision for soil remediation	Provision for the continued payment of unsocial hours during holidays	Provision for onerous contract	Provisions Abellio Germany and other provisions	Total
Balance as at 1 January 2022	26	77	67	-	254	424
Addition	15	2	4		24	45
Business acquisitions				14	61	75
Accrued interest	-	-	-		-	-
Held for sale	-	-	-		-25	-25
Withdrawal	-17	-	-	-4	-17	-38
Exchange differences	-	-	-		-1	-1
Release	-16	-3	-		-77	-96
Balance as at 31 December 2022	8	76	71	10	219	384
Presented under:						
Non-current	6	72	71	6	155	310
Current	2	4	0	4	64	74

Provision for reorganisation costs

The purpose of the provision for reorganisation costs is to cover the costs arising from reorganisation measures. Most of the provision is needed for redundancy schemes, bridging payments and the redeployment of staff whose jobs have been eliminated as a result of reorganisations. Important starting points for determining the provisions for reorganisation costs at year-end 2022 and 2021 in the Netherlands are:

- the final collective bargaining offer submitted by NS to the parties to the collective labour agreement was accepted by the trade unions in February 2021 and the new collective labour agreements for the period from 1 July 2022 to 1 January 2024;
- estimates with respect to advancement and outflow during the reorganisation.

Provision for soil remediation

The provision for soil remediation is for managing and remedying environmental damage. The provision is calculated using an average discount rate of 2.5% (2021: 1.5%).

Provision for the continued payment of unsocial hours during holidays

The Group has made a provision for the claimed unsocial hours allowance during holidays over the non-statutory holiday entitlement. The legal proceedings with respect to this topic have not yet been completed.

Provision for onerous contract

This concerns the provision for onerous contract for the DISA (Abellio Mitteldeutschland GmbH) franchise with a term up to and including 15 December 2024.

Provisions Abellio Germany and other provisions

As of 30 June 2021, the Group has estimated the expected outflow of funds arising from the termination and winding up of the activities in Germany. Provisions have been made for this. In 2021, these provisions, with the exception of € 10 million (which was charged to other operating expenses), were charged to its financing result and are included in provisions for Abellio Germany and other provisions. These provisions are made for outflows of funds in respect of guarantees and settlement of other possible liabilities related to the insolvency proceedings. In addition, a provision has been made for expected legal and litigation costs. The guarantees of € 77 million provided for in 2021 in connection with the uncertainties in the acquisition of the Mitteldeutschland franchises were released in 2022. This release was recognised under the net financing result. Furthermore, these provisions were reassessed at year-end 2022 and determined virtually unchanged. The provision for guarantees is part of the total guarantees issued as disclosed in note 31 of the financial statements.

The Group's legal negotiating position is expected to be severely damaged if further information is provided on the nature and extent of the Abellio Germany provisions and other provisions made. The Group therefore makes use of the provisions of IAS 37.92 and confines itself to the above explanation.

The outcome of the solvency proceedings in Germany is inherently uncertain and it is possible that cash flows or operating results in future years could be materially affected positively or negatively as a result of an outcome that is favourable or unfavourable to the Group compared to the current estimates made in these financial statements.

Other provisions

Chromium 6

On Thursday, 31 January 2019, the National Institute for Public Health and the Environment (RIVM) presented the results of the Chromium-6 investigation into the municipal reintegration project tROM in Tilburg. In that project, people on unemployment benefit worked on trains belonging to the Dutch Railway Museum at the then NedTrain workshop in Tilburg between 2004 and 2011. The RIVM carried out an investigation in which NS cooperated. An independent committee drew conclusions on the basis of the results of the investigation and formulated ad hoc recommendations. The committee drew firm conclusions, including about the role of NS in the Tilburg project. According to the committee, the municipality of Tilburg, NS and the Railway Museum all cut corners. At the beginning of February 2019, the parties announced that they would come to an arrangement jointly and each on the basis of its own responsibility, with the aim to provide clarity to those involved as quickly as possible. NS had already provided for its share of the expected costs as at 31 December 2019 and updated this figure based on its understanding as at 31 December 2022.

Furthermore, the police carried out a criminal investigation on the instructions of the Public Prosecution Service, in which NedTrain was one of the suspects. NedTrain and the municipality of Tilburg were prosecuted for violations of the Working Conditions Act (*Arbeidsomstandighedenwet*) and the Environmental Management Act (*Wet milieubeheer*). The court delivered judgement on 1 February 2023. With regard to the violation of the Working Conditions Act, the Court ruled that the Public Prosecution Service is barred from prosecuting because the alleged violation has expired. NedTrain has however been fined € 250,000 for complicity in violation of the Environmental Management Act, which has been included in the results for 2022. NS will study the ruling before deciding whether to appeal.

Chromium-6 NS Staff

In 2022, NS established a scheme for colleagues and former colleagues who have become ill due to working with chromium-6. The amount of the compensation depends on the medical condition, the activities performed and the duration of the exposure. If applicable, surviving dependants may also apply for a surviving dependant's benefit. At the end of 2022, 231 applications had been made. At the end of December, NS made a provision for this.

'Other provisions' include provisions for losses arising from accidents and fire, provisions for maintenance in connection with lease contracts in Germany and provisions for staff-related matters.

Accounting policy

A provision is recognised in the balance sheet whenever the Group has a legal or constructive obligation as a consequence of a past event and it is probable that the settlement of that obligation will entail an outflow of funds.

Provisions are determined by calculating the net present value of expected future cash flows based on a pre-tax discount rate that reflects both the current market valuations of the time value of money and, where necessary, the specific risks relating to the liability.

Reorganisation costs and non-activity schemes

Provisions are made in connection with reorganisations if a formal, detailed plan has been drawn up for the reorganisation, and the reorganisation is either under way or has been publicly announced. No provision is made for future operating expenses. Provisions for reorganisations relate mainly to redundancy schemes, bridging payments and the redeployment of redundant staff.

Provision for soil remediation

The provision for soil remediation work is intended to cover the costs incurred for the upkeep or repair of operating assets. In line with the Group's published environmental policy and the applicable legal requirements, provisions for the control and remediation of environmental contamination are formed when the contamination occurs or is found to have occurred.

Onerous contracts

A provision for onerous contracts is included in the balance sheet if the economic benefits that the Group expects to derive from a contract are exceeded by the unavoidable costs of meeting the obligations under the contract.

The provision is measured at the present value of the anticipated net costs of continuing the contract or, where this is lower, the present value of the anticipated costs of termination of the contract, being any compensation or penalty entailed by the breach of contract. Before the provision is formed, an impairment loss is applied to the assets to which the contract relates.

Other provisions

Provisions are formed for losses arising from fire, accidents, guarantees issued, claims, provisions for maintenance costs in connection with lease agreements and other matters such as outflow of funds with regard to guarantees and settlement of possible other liabilities related to insolvency proceedings, legal and litigation costs.

32. Leases

Group as lessee

The Group has lease contracts for rolling stock, real estate and other operating assets that are used in its operations. The Group's obligations under the leases are safeguarded by the lessor's right to the ownership of the leased assets. Generally, the Group's possibilities for subleasing the leased assets are restricted. There are various lease contracts that contain renewal and termination options. These are discussed in more detail below.

The Group also has certain lease contracts for machines with a lease term of 12 months or less and lease contracts for low value office equipment. The Group applies the recognition criteria for exemptions for 'short-term leases' and 'leases of low-value assets' for these lease contracts.

The carrying amounts of the recognised right-of-use assets and the changes during the period are stated below.

(in millions of euros)	Rolling stock	Real estate	Miscellaneous	Total
Composition as at 1 January 2021				
Cost	2,977	214	27	3,218
Accumulated depreciation and impairments	1,254	86	13	1,353
Carrying amount as at 1 January 2021	1,723	128	14	1,865
Changes in 2021				
Additions	255	15	8	278
Disposals	-1	-	-1	-2
Deconsolidation	-890	-	-	-890
Depreciation and amortisation	-458	-15	-3	-476
Impairment losses	-13	-	-	-13
Reversal of impairment	-	-	-	-
Exchange differences	44	2	-	46
Other movements	37	-17	-1	19
Total changes during the financial year	-1,026	-15	3	-1,038
Composition as at 31 December 2021				
Cost	2,006	195	26	2,227
Accumulated depreciation and impairments	1,309	82	9	1,400
Carrying amount as at 31 December 2021	697	113	17	827
Changes in 2022				
Additions	121	35	2	158
Disposals	-	-30	-2	-32
Business acquisitions	360	14	-	374
Held for sale	-615	-32	-14	-661
Depreciation and amortisation	-169	-13	-1	-183
Impairment losses	-	-	-	-
Reversal of impairment	5	7	-	12
Exchange differences	-34	-2	-1	-37
Other movements	-1	2	2	3
Total changes during the financial year	-333	-19	-14	-366
Composition as at 31 December 2022				
Cost	473	160	3	636
Accumulated depreciation and impairments	109	66	-	175
Carrying amount as at 31 December 2022	364	94	3	461

The carrying amounts of the lease liabilities and the changes during the period are stated below.

(in millions of euros)	2022	2021
Lease liabilities as at 1 January	930	2,066
Additions	132	277
Business acquisitions	364	-
Deconsolidation	-	-993
Interest allocated	4	21
Payments	-220	-499
Held for sale	-707	7
Currency differences	-39	51
Lease liabilities as at 31 December	464	930
Presented under:		
Non-current	377	634
Current	87	296

The lease liabilities can be subclassified into the following countries:

(in millions of euros)	31 December 2022	31 December 2021
The United Kingdom	-	784
Germany	331	-
The Netherlands	133	146
Total	464	930

The maturity analysis of lease liabilities is disclosed in note 25.

The following amounts are recognised in the income statement:

(in millions of euros)	2022	2021
Cost of depreciation of right-of-use assets	59	69
Reversal of impairments	-12	-
Interest expense on lease contracts	4	7
Total recognised in the income statement	51	76

The Group has no lease arrangements with material variable lease payments.

Accounting policy

The Group recognises a right-of-use asset and a lease liability at the commencement date of the lease arrangement. The right-of-use asset is initially measured at cost, comprising the initial amount of the lease liability, adjusted for any lease payments made at or before the commencement date of the lease arrangement, plus any initial direct costs incurred and an estimate of the costs of dismantling and removing the underlying asset or restoring the underlying asset or restoring the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated on a straight-line basis from the commencement date until the end of the lease term. The average depreciation periods are as follows:

- Rolling stock 6 years
- Real estate 11 years
- Other 9 years

In addition, the right-of-use asset is periodically reduced by any impairment losses and adjusted for certain remeasurements of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the Group's incremental borrowing rate. The incremental borrowing rate of interest consists of the risk-free rate plus a surcharge for country risk with account being taken of the object. The lease liability is measured at amortised cost using the effective interest method. It is remeasured if there is a change in the future lease payments as a result of a change in an index or rate, if there is change in the Group's estimate of the amount expected to be payable under a residual value guarantee or if the Group changes its assessment of whether it will exercise a purchase, extension or termination option.

33. Off-balance sheet arrangements

A number of investigations are under way against NS and/or group companies and various claims have been submitted that are being contested by NS. Where deemed necessary, provisions have been made for this. A number of important subjects are explained below.

Long-term contracts

There were a number of long-term financial commitments to third parties at year-end 2022, mainly concerning lease arrangements for trains, company cars and copiers. There are also long-term contracts for services by third parties in the areas of IT, maintenance and cleaning.

The Group has various lease contracts for continuing operations that had not yet commenced as at 31 December 2022. The future payments under these non-cancellable lease contracts amount to € 13 million within no more than one year, € 74 million within no more than five years and € zero thereafter.

Energy contracts

As at the end of 2022, the purchase commitments under the energy contract in the Netherlands for the volumes already covered, the payments for the Programme for Responsibility and the surcharge for green electricity for the 2023-2024 period (the remainder of the 10-year contract) came to € 141 million (compared with € 176 million at the end of 2021). The amount expected to be required for 2023 and 2024 is fully covered. Transport costs and energy taxes are not included in the purchase commitments shown. If

the difference between the market values and the contract value exceeds a given threshold, the Group or Eneco has to give the other party guarantees or provide cash collateral. Any payments and liabilities are set off against each other, as they are both inextricably linked. As at year-end 2022, NS had received € 360 million (year-end 2021: € 313 million) in collateral in the form of margin money, which is recognised under other liabilities.

For more detailed information about the energy contracts, see note [27](#).

Tax group

For the purpose of corporation tax, all the Dutch subsidiaries belonging to the Group are part of the NV Nederlandse Spoorwegen tax entity. As a result, the Group is jointly and severally liable for all tax liabilities of the subsidiaries included in the fiscal unity.

Investment commitments

At the end of 2022, the Group had outstanding investment commitments of € 1,346 million (2021: € 911 million), primarily for purchasing and upgrading trains and investments in the areas around the stations.

Contingent liabilities

The Group has paid € 30 million (translated) of its share in the issued share capital (€ 152 million after translation) of EUROFIMA AG. The Group has a liability for full payment on demand of the shares and other guarantee commitments totalling € 274 million (after translation). Payment of the liability can be demanded if EUROFIMA AG's own equity position gives reason to do so.

As a result of the agreements made with the Belgian carrier regarding the IC Brussels service in the context of the main rail network, the Group is making allowances for a negative balance for the Group in the settlement of the costs of commercial operation for this route. The amount of that negative balance depends on the commercial results on that route. The expected outcomes are part of the main rail network impairment test as explained in note [16](#).

Contingent assets

The Group has various outgoing claims and/or disputes that have not been valued because the outcome of these matters is uncertain, with the exception of the claims and disputes that have been valued in the context of Abellio UK's fair (see note [2](#)).

Guarantees

The Group has issued guarantees totalling € 504 million (31 December 2021: € 781 million) relating to the operation of the franchises in the United Kingdom and Germany. Some of the guarantees relating to Abellio Germany have been provided for (see note [31](#)).

Franchises

The Group had the following franchises during 2022. The ScotRail franchise expires in 2022 and has not been continued by the Group.

The Netherlands

Main Rail Network/HSL South	31 December 2024
Gouda-Alphen aan den Rijn train service	11 December 2031

United Kingdom

Merseyrail	20 July 2028
Greater Anglia	19 September 2026
ScotRail	31 March 2022
West Midlands	19 September 2026
East Midlands*	16 October 2026
London bus	various contracts

Germany

EMIL (WestfalenBahn)	15 December 2030
Saale-Thüringen-Südharz	15 December 2030
Dieselnetz Sachsen-Anhalt	15 December 2024

* With a possible extension of four years until 2030.

Main rail network in the Netherlands

The main rail network franchise is awarded by the Ministry of Infrastructure and Water Management. It covers passenger transport by rail on the main rail network in the Netherlands. The old main rail network franchise and the HSL franchise (see the paragraph below) ended in 2014 and the ministry decided in December 2014 to award a new integrated main rail network franchise to NS for the period from 1 January 2015 to 31 December 2024. The train services on the HSL South have also been covered by this franchise from 1 January 2015 onwards. The franchise agreement stipulates that performance must improve during the term of the franchise. The evaluation will take place during 2024. If NS does not achieve the target values for 2024, NS will be obliged to pay a sum of € 1.5 million for each performance indicator not attained up to a maximum of € 19.5 million per evaluation. If NS does meet the conditions, a maximum bonus of € 10 million can be earned for each evaluation. In addition, the Ministry can impose a fine of up to € 6.5 million a year on NS if NS does not achieve the minimum baseline values for the franchise performance indicators. The performance indicators are measured for the following performance areas: general (customer satisfaction), the door-to-door journey, ease of travelling (transport capacity at peak times), journey information (in the event of disruptions), safety (including personal safety) and reliability (punctuality for passengers).

The agreements made with the government include agreements on the production assets (rolling stock in particular) that are to be used for operating the main rail network franchise. Depending on the ownership situation and the form of tender, the production assets may be leased in the event of complete or partial loss of the main rail network franchise to a subsequent franchise holder, or sold at the carrying amount, and/or their leases may be transferred unchanged to the subsequent franchise holder.

The overall fees for track use and the franchise for the integrated main rail network/HSL South franchise were € 183 million in 2022. The negotiation agreement of 2011 included an adjustment mechanism to avoid the liquidation of HSA. This adjustment mechanism has been included in the implementation agreement for the franchise. It works as follows. If the average return on investment for the franchise holder over a fixed period turns out to be lower than the threshold value (4%), the holder will be entitled to an adjustment to the

franchise price (equal to the difference between the actual return and 4%, with the adjustment over the entire duration of the franchise being capped at the equivalent of € 144 million at 2010 prices). There was no entitlement to any such adjustment over 2015. Any entitlement to an adjustment was first calculated in 2016 using the average return on investment for 2015 and 2016, and thereafter on a rolling basis using the previous three years. An entitlement to an adjustment to the franchise price deriving from the implementation agreement does not lapse if at any point in subsequent years the return on investment exceeds the threshold value. Payment of any entitlement that may have arisen through an adjustment to the franchise price will be spread in instalments, as per the implementation agreement. The adjustment mechanism for the average profitability is recognised during the franchise on a straight-line basis covering the entire franchise term.

The franchise also includes an adjustment mechanism for a settlement of any windfalls in energy price changes over the franchise period. This adjustment will be calculated cumulatively, with NS owing the Ministry of Infrastructure and Water Management 75% of the difference between the actual energy prices and the forecast energy prices according to the business case, with no adjustment being made if the cumulative actual return on investment falls below the cumulative norm return. Apart from the calculation outlined above, NS owes an unconditional one-off sum of € 56 million to the ministry for 2016. This payment is amortised on a straight-line basis over the entire term of the franchise. This arrangement is capped at € 290 million (including the one-off payment) and will never result in a payment to NS by the Ministry of Infrastructure and Water Management. No energy cost adjustment is owed for 2022 and previous years.

In June 2020, the Ministry of Infrastructure and Water Management announced its intention to award the franchise directly to NS from 2025. This was confirmed by the House of Representatives in September 2020. In October 2022, the Ministry sent the Programme of Requirements to the House of Representatives. In November, the House of Representatives debated this, with the result that the scope of the main rail network franchise remains unchanged in principle.

34. Related parties

Transactions with related parties are conducted on an arm's-length basis.

All issued shares are held by the State of the Netherlands. One significant transaction with an enterprise that has a relationship with the State (DUO, the Dutch Education Executive Agency) concerns the consideration received for student public transport cards (2022: € 576 million, 2021: € 525 million).

Payments of the infrastructure charge for the Dutch infrastructure are made to ProRail BV, a State-affiliated company. This is explained in note 33.

Furthermore, the Group received a sum of € 328 million (2021: € 962 million) in grants from the State in 2022 through various schemes (availability payments, NOW and other schemes). These have been recognised under revenue for an amount of € 308 million (2021: € 962 million) and deducted from costs for an amount of € 16 million (2021: zero).

Translink Systems BV is wholly owned by Coöperatie Openbaar Vervoerbedrijven, of which NS is a member. Translink is therefore a related party. For the performance of the activities by Translink, the Group paid Translink an amount of € 0.1 million in 2022 (2021: € 0.1 million) for products and services provided. Translink engages in the development, implementation and use of the electronic registration and payment system for public transport in the Netherlands.

The transactions with the Executive Board and the Supervisory Board members are disclosed in note 4.

There were no significant transactions in 2022 or 2021 with joint ventures and other participating interests.

Group companies

The main companies included in the consolidated financial statements are:

	Percentage interest		Registered office
	2022	2021	
Subsidiaries			
NS Groep NV*	100.0	100.0	Utrecht
NS Reizigers BV*	100.0	100.0	Utrecht
Abellio Transport Holding BV	100.0	100.0	Utrecht
NedTrain BV*	100.0	100.0	Utrecht
NS Stations BV*	100.0	100.0	Utrecht
NS Vastgoed BV*	100.0	100.0	Utrecht
NS Insurance NV	100.0	100.0	Utrecht
NS Opleidingen BV*	100.0	100.0	Utrecht
NS Innovatiefonds BV	100.0	100.0	Utrecht
Thalys Nederland NV*	100.0	100.0	Utrecht
NS Internationaal BV*	100.0	100.0	Utrecht
NS Stations Retailbedrijf BV*	100.0	100.0	Utrecht
NS Fiets BV*	100.0	100.0	Utrecht
NS OV-Fiets BV*	100.0	100.0	Utrecht
Stationsfoodstore BV*	100.0	100.0	Utrecht
NS Poort Ontwikkeling BV	100.0	100.0	Utrecht
Abellio Transport Group Ltd***	100.0	100.0	Glasgow
Abellio Transport Holdings Ltd***	100.0	100.0	London
Abellio Greater Anglia Ltd***	100.0	100.0	London
Abellio East Anglia Ltd***	60.0	60.0	London
Abellio West Midlands Ltd***	85.1	85.1	Birmingham
Abellio East Midlands Ltd***	100.0	100.0	London
Abellio ScotRail Ltd***	100.0	100.0	Glasgow
Abellio West London Ltd***	100.0	100.0	London
Abellio London Ltd***	100.0	100.0	London
Transport Holding Germany BV	100.0	100.0	Utrecht
ATH Rail Beteiligungsgesellschaft Deutschland GmbH	100.0	100.0	Berlin
WestfalenBahn GmbH**	100.0	-	Bielefeld
Abellio Rail Mitteldeutschland GmbH**	100.0	-	Halle
PTS GmbH**	100.0	-	Essen
Joint ventures			
Merseyrail Services Holding Company Ltd	50.0	50.0	Hampshire
Other interests			
Reisinformatiegroep BV	41.7	41.7	Utrecht
Eurofima AG	5.8	5.8	Basel
NS Mobiliteitsdiensten BV	90.0	90.0	Utrecht
Rivier BV	46.7	46.7	Rotterdam
Hely Holding BV	40.0	40.0	Amersfoort

* NV Nederlandse Spoorwegen has assumed liability in respect of the debts arising from legal acts in accordance with the provisions of Section 403 of Book 2 of the Dutch Civil Code.

****** The German entities are no longer included in the consolidation with effect from 30 June 2021. During the course of 2022, these entities were acquired and included in the consolidation again. For an explanation, see the general information.

******* The UK entities are classified as held for sale as of 31 May 2022 and the results for 2021 and 2022 are presented as results from discontinued operations (see note 3).

Pursuant to Sections 379 and 414 of Book 2 of the Dutch Civil Code, a complete list of the Group's subsidiaries, associates and joint ventures has been filed with the office of the Trade Register in Utrecht.

35. Events after the balance sheet date

Abellio Transport Group Ltd and its group companies are presented as held for sale as of 31 May 2022. Completion of the sales transaction is possible after obtaining approval from external authorities. This approval was obtained in February 2023 and the transaction is expected to be completed by the end of February 2023.

Company financial statements

Company balance sheet as at 31 December 2022

(before profit appropriation)

(in millions of euros)	31 December 2022	31 December 2021
Non-current financial assets	2,308	1,695
Total assets	2,308	1,695
Equity		
Issued share capital	1,012	1,012
Legal hedging reserve	42	6
Legal fair value reserve	54	53
Actuarial reserve	-7	-1
Legal reserve for development costs	287	302
Legal revaluation reserve for participating interests	61	64
Legal reserve for translation differences	-32	-35
General reserve	312	-45
Unappropriated result	579	339
	2,308	1,695
Total liabilities	2,308	1,695

Company income statement 2022

(in millions of euros)

	2022	2021
Other result	-	-
Result of group companies after tax	579	339
Net result	579	339

Accounting policies applied for the financial statements

General

In determining the accounting policies for the valuation of assets and liabilities and determining the result for the company financial statements, NV Nederlandse Spoorwegen makes use of the option provided by Section 362(8) of Book 2 of the Dutch Civil Code. This means that the accounting policies for the valuation of assets and liabilities and determination of the result (hereinafter the 'accounting policies') for the company financial statements of NV Nederlandse Spoorwegen are the same as those used for the consolidated financial statements. Participating interests in which significant influence is exercised are valued using the equity method.

In accordance with Section 2:402(1) of the Dutch Civil Code, the separate financial statements of NV Nederlandse Spoorwegen only include an income statement in abbreviated form.

Participating interests in group companies

The participating interests in group companies are measured according to the equity method, whereby, at the time the participating interest is written down, losses are only taken into account to the extent that the shareholder is obliged to make good these losses.

Result of group companies

The result of group companies consists of the result after income tax.

Notes to the company balance sheet and income statement

The amounts included in the notes are in millions of euros, unless stated otherwise.

Non-current financial assets

Participating interests in group companies

(in millions of euros)

	2022	2021
Balance as at 1 January	1,695	1,352
Share in result	579	339
Dividend distributed for the previous reporting period	-	-
Other movements	34	4
Balance as at 31 December	2,308	1,695

The other movements concern direct movements in the equity of participating interests in group companies.

Equity

(in millions of euros)	Shareholders' equity	Legal hedging reserve	Legal fair value reserve	Actuarial reserve	Legal reserve for development costs	Legal revaluation reserve of participating interests	Legal reserve for translation differences	General reserve	Unappropriated result	Total equity
Balance as at 1 January 2021	1,012	-23	53	-1	240	64	-21	2,406	-2,378	1,352
Changes in revaluation reserves	-	29	-	-	62	-	-14	-62	-	15
Dividend paid to shareholder	-	-	-	-	-	-	-	-	-	-
Result for the financial year	-	-	-	-	-	-	-	-	339	339
Other movements	-	-	-	-	-	-	-	-2,389	2,378	-11
	-	29	-	-	62	-	-14	-2,451	2,717	343
Balance as at 31 December 2021	1,012	6	53	-1	302	64	-35	-45	339	1,695
Changes in revaluation reserves	-	36	1	-4	-15	-3	1	18	-	34
Dividend paid to shareholder	-	-	-	-	-	-	-	-	-	-
Result for the financial year	-	-	-	-	-	-	-	-	579	579
Other movements	-	-	-	-2	-	-	2	339	-339	-
	-	36	1	-6	-15	-3	3	357	240	613
Balance as at 31 December 2022	1,012	42	54	-7	287	61	-32	312	579	2,308

The legal reserve was formed for software development costs. The legal revaluation reserve was formed for direct changes to the equity in joint ventures and for the non-distributable portion of the equity of NS Insurance. The legal reserve for translation differences comprises all foreign exchange differences arising from the translation of the financial statements of foreign operations, as well as from the translation of liabilities that hedge the company's net investment in a foreign group company.

The legal hedging reserve consists of the cumulative change in the fair value of hedging instruments (derivatives) where the hedged transaction has not yet taken place or the hedged position has not yet been settled.

The legal fair value reserve comprises the cumulative change in the fair value of investments measured at fair value - total comprehensive income and the cumulative change in the fair value of investments measured at fair value - debt investment, until the investment is derecognised.

Off-balance sheet commitments

No claims have been brought against NV Nederlandse Spoorwegen and the consolidated participating interests, other than as indicated in note 32, that have not been recognised appropriately in the balance sheet.

For the purpose of corporation tax, both NV Nederlandse Spoorwegen and its Dutch subsidiaries are part of the NV Nederlandse Spoorwegen tax entity. Consequently, NV Nederlandse Spoorwegen is jointly and severally liable for the tax liabilities of the subsidiaries included in the tax entity.

Key participating interests

NV Nederlandse Spoorwegen is the holding company of NS Groep NV. NS Groep NV is the sole subsidiary of NV Nederlandse Spoorwegen. Please refer to note [34](#) for an overview of the participating interests

Utrecht, 22 February 2023

Supervisory Board

Mr. G.J.A. van de Aast
Chair

Ms. M.E. van Lier Lels

Mr. H.H.J. Dijkhuizen

Ms. N. Albayrak

Ms. J.L. Stuijt

Mr. W.J. van der Feltz

Executive Board

Mr. W. Koolmees
CEO

Mr. H.L.L. Groenewegen
Finance Director

Mr. E.F.W. van Asch
Director of Operations

Ms. A.M.E. de Vries
Stations and Risk Management Director

Mr. T.B. Smit
Commerce & Development Director

Other information

The following is an English translation of the independent auditor's report issued 22 February 2023

Combined independent auditor's report and assurance report

To: the shareholder and supervisory board of N.V. Nederlandse Spoorwegen

Our conclusions

We have audited the financial statements 2022 of N.V. Nederlandse Spoorwegen based in Utrecht. The financial statements comprise the consolidated and company financial statements.

In our opinion:

- the accompanying consolidated financial statements give a true and fair view of the financial position of N.V. Nederlandse Spoorwegen as at 31 December 2022 and of its result and its cash flows for 2022 in accordance with International Financial Reporting Standards as adopted by the European Union (EU-IFRS) and with Part 9 of Book 2 of the Dutch Civil Code
- the accompanying company financial statements give a true and fair view of the financial position of N.V. Nederlandse Spoorwegen as at 31 December 2022 and of its result for 2022 in accordance with Part 9 of Book 2 of the Dutch Civil Code

The consolidated financial statements comprise the statements and notes as indicated in section "The scope of our procedures".

Our conclusion on the sustainability information

We have reviewed the sustainability information in the annual report 2022 of N.V. Nederlandse Spoorwegen based in Utrecht. The scope of the review is described in the section "The scope of our procedures". A review is aimed to obtain limited level of assurance.

Based on our review procedures performed, nothing has come to our attention that causes us to believe that the sustainability information does not present, in all material aspects, a reliable and adequate view of:

- The policy and business operations with regard to Corporate Social Responsibility;
- The thereto related events and achievements for the year 2022;

in accordance with the reporting criteria as indicated in section "Reporting criteria sustainability information".

Basis for our conclusions

We conducted our audit of the financial statements and our review of the sustainability information in accordance with Dutch law, including the Dutch Standards of Auditing and the Dutch Standard 3810N "Assurance-opdracht inzake maatschappelijke verslagen" (Assurance engagements relating to sustainability reports). Our responsibilities under those standards are further described in the "Our responsibilities" section of our report.

We believe the assurance evidence we have obtained is sufficient and appropriate to provide a basis for our conclusions.

Our independence

We are independent of N.V. Nederlandse Spoorwegen in accordance with the Wet toezicht accountantsorganisaties (Wta, Audit firms supervision act), the Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. This includes that we do not perform any activities that could result in a conflict of interest with our independence assurance procedures. Furthermore, we have complied with the Verordening gedrags- en beroepsregels accountants (VGBA, Dutch Code of Ethics).

Appointment

We were engaged by the supervisory board as auditor of N.V. Nederlandse Spoorwegen on 3 September 2013 as of the audit for the year 2014 and we have operated as statutory auditor ever since that date.

The scope of our procedures

The consolidated financial statements comprise:

- The consolidated statement of financial position as at 31 December 2022
- The following statements for 2022: The consolidated income statement, consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated cash flow statement
- The notes comprising a summary of the significant accounting policies and other explanatory information

The company financial statements comprise:

- The company statement of financial position as at 31 December 2022
- The company statement of income 2022
- The notes comprising a summary of the significant accounting policies and other explanatory information

The sustainability information consists of the information included in the following chapters in the 2022 annual report of N.V. Nederlandse Spoorwegen: "About NS", "Our activities and achievements in the Netherlands", "Our impact on the Netherlands" and the sections "Our strategy", "How NS adds value to society", "Dialogue with our stakeholders in the Netherlands", "About the scope of this report" and "Scope and reporting criteria".

Limitations to the scope of our review of the sustainability information

The sustainability information includes prospective information such as ambitions, strategy, plans, expectations and estimates and risk assessments. Inherent to this prospective information the actual future results are uncertain. We do not provide any assurance on the assumptions and achievability of prospective information in the sustainability information.

In the section "Our impact on the Netherlands" the calculations were mostly made using sources from external parties, and on the basis of various assumptions. The sources and assumptions used are explained in the document "NS Methodologie maatschappelijke impactanalyse Handboek 2022" on www.ns.nl/mvoberekeningen. We have not performed any work with respect to the content of these external sources and assumptions, other than assessing their suitability and plausibility.

The references to external sources or websites in the sustainability information are not part of the sustainability information as reviewed by us. Therefore, we do not provide assurance on this information.

Our conclusion on the non-financial information has not been modified as a result of these matters.

Reporting criteria sustainability information

The reporting criteria used for the preparation of the sustainability information are the Sustainability Reporting Standards of the Global Reporting Initiative (GRI Standards) and the applied supplemental reporting criteria as disclosed in chapter "Scope and reporting criteria" of the annual report.

The sustainability information is prepared in accordance with the GRI Standards. The GRI Standards used are listed in the GRI Content Index as disclosed in chapter "Scope and reporting criteria" of the annual report.

The absence of an established practice on which to draw, to evaluate and measure sustainability information allows for different, but acceptable, measurement techniques and can affect comparability between entities and over time

Consequently, the sustainability information needs to be read and understood together with the reporting criteria used.

Information in support of our opinion on the financial statements

We designed our audit procedures in the context of our audit of the financial statements as a whole and in forming our opinion thereon. The following information in support of our opinion was addressed in this context, and we do not provide a separate opinion or conclusion on these matters.

Our understanding of the company

The activities of N.V. Nederlandse Spoorwegen mainly consist of passenger transport, the management and development of property and the operation of station locations in the Netherlands, Germany and the United Kingdom. The activities in Germany are no longer included in the consolidation as of 30 June 2021 due to insolvency procedures initiated per that date. In 2022 a number of franchise contracts have been repurchased from the insolvency process and included in the consolidation of the N.V. Nederlandse Spoorwegen from the moment control was regained. The activities in the UK classify as of 31 May 2022 as discontinued operations due to an expected sale and are therefore presented as assets held for sale as of 31 May 2022.

The group structure consists of several group entities and we have designed our procedures accordingly. We have paid special attention in our procedures to a number of issues based on the Group's activities and our risk analysis, which are explained in more detail in the section "Key audit matters".

We determined materiality and identified and assessed the risks of material misstatement of the financial statements, whether due to fraud or error in order to design audit procedures responsive to those risks and to obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

The risk of not detecting a material misstatement resulting from fraud is higher than for errors

Materiality

Materiality	€ 45 million (2021: € 50 million)
Benchmark applied	0.8% of operating expenses (€ 5.8 billion), including the operating expenses of the discontinued operations in the United Kingdom in 2022 (€ 2.3 billion) and excluding the reversal of impairments (€ 0.4 billion).
Explanation	Given the nature of the activities of NS, its objectives, and the importance of its operating performance in the Netherlands and abroad, operating expenses are considered to be the most relevant activity base for materiality, taking into account the exceptional items referred to in 'applied benchmark'. The way in which we have determined materiality is consistent with the previous financial year.

We have also taken into account misstatements and/or possible misstatements that in our opinion are material for the users of the financial statements for qualitative reasons.

We agreed with the supervisory board that misstatements in excess of €2.25 million, which are identified during the audit, would be reported to them, as well as smaller misstatements that in our view must be reported on qualitative grounds.

Scope of the group audit

N.V. Nederlandse Spoorwegen is at the head of a group of entities. The financial information of this group is included in the consolidated financial statements.

Because we are ultimately responsible for the opinion, we are also responsible for directing, supervising and performing the group audit. In this respect we have determined the nature and extent of the audit procedures to be carried out for group entities. Decisive were the size and/or the risk profile of the group entities or operations. On this basis, we selected group entities for which an audit or review had to be carried out on the complete set of financial information or specific items.

Our group audit mainly focused on significant parts of the main rail network (HRN) and NS Stations (operations of station locations) in the Netherlands and Abellio in the United Kingdom and Germany. For the Dutch group entities we have performed the audit procedures ourselves.

By performing the procedures mentioned above at components of the group, together with additional procedures at group level, we have been able to obtain sufficient and appropriate audit evidence about the group's financial information to provide an opinion on the consolidated financial statements. We used auditors from our international network during the audit of the foreign group entities. In total, the above-mentioned activities represent 88% of total assets and 87% of operating expenses of the group in our applied benchmark.

By performing the procedures mentioned above at group entities, together with additional procedures at group level, we have been able to obtain sufficient and appropriate audit evidence about the group's financial information to provide an opinion about the consolidated financial statements.

Engagement team and use of the work of specialists

We ensured that the audit teams both at group and at component levels included the appropriate skills and competences which are needed for the audit of N.V. Nederlandse Spoorwegen. We have included specialists in the engagement team or we have deployed our experts in the fields of:

- IT audit and data-specialists
- Cybersecurity

- Forensic audit
- Sustainability reporting
- Taxes
- Pensions
- Valuation and disclosures of financing and derivatives
- Valuation of the main rail network (HRN) concession related assets and liabilities including the cost of capital used
- Testing the forecasts for passenger revenues in the Netherlands

Our focus on fraud and non-compliance with laws and regulations

Our responsibility

Although we are not responsible for preventing fraud or non-compliance and we cannot be expected to detect non-compliance with all laws and regulations, it is our responsibility to obtain reasonable assurance that the financial statements, taken as a whole, are free from material misstatement, whether caused by fraud or error. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

Our audit response related to fraud risks

We identified and assessed the risks of material misstatements of the financial statements due to fraud. During our audit we obtained an understanding of the N.V. Nederlandse Spoorwegen and its environment and the components of the system of internal control, including the risk assessment process and executive board's process for responding to the risks of fraud and monitoring the system of internal control and how the supervisory board exercises oversight, as well as the outcomes.

We refer to the "risk management" section in the annual report, in which the executive board has included its risk analysis, including risks related to fraud or non-compliance with laws and regulations.

We evaluated the design and relevant aspects of the system of internal control and in particular the fraud risk assessment, as well as, for example, the NS code of conduct, whistle blower procedures and incident registration. We evaluated the design and the implementation and, where considered appropriate, tested the operating effectiveness, of internal controls designed to mitigate fraud risks.

As part of our process of identifying fraud risks, we evaluated fraud risk factors with respect to financial reporting fraud, misappropriation of assets and bribery and corruption in conjunction of compliance with relevant procurement regulation in close co-operation with our forensic and legal specialists. We evaluated whether these factors indicate that a risk of material misstatement due to fraud is present.

We incorporated elements of unpredictability in our audit. We also considered the outcome of our other audit procedures and evaluated whether any findings were indicative of fraud or non-compliance.

As in all of our audits, we addressed the risks related to management override of controls. For these risks we have performed procedures among others to evaluate key accounting estimates for management bias that may represent a risk of material misstatement due to fraud, in particular relating to important judgment areas and significant accounting estimates as disclosed in the sections “Estimates and Assessments” in chapter 1 of the financial statements. We have also used data analysis to identify and address high-risk journal entries and evaluated the business rationale (or the lack thereof) of significant extraordinary transactions, including those with related parties.

These risks did however not require significant auditor’s attention

We did not identify a risk of fraud in revenue recognition.

The following fraud risks identified did require significant attention during our audit.

Risk of management override of internal control

Fraud risk	<p>In identifying and assessing fraud risks, we assume that management can override internal controls. In our audit approach, we take into account that this fraud risk would primarily manifest itself in:</p> <ol style="list-style-type: none">1. Valuation of the main rail network (HRN) franchise assets and the future profitability of the HRN franchise.2. Abellio United Kingdom: valuation and presentation of legacy assets and claims, the audit of a proposed management buy-out and the recognition, valuation and disclosures in the 2022 financial statements.3. Abellio Germany: Valuation and presentation of the results and provisions related to the insolvency proceedings. <p>We also considered whether judgements and assumptions in determining the above items indicate a management bias that may present a risk of material misstatement.</p>
Our audit approach	<p>We describe our audit approach to these fraud risks as part of the key audit matters of the same name.</p>

We considered available information and made enquiries of relevant executives, directors, supervisory board, internal audit, legal, compliance and human resources.

The fraud risks we identified, enquiries and other available information did not lead to specific indications for fraud or suspected fraud potentially materially impacting the view of the financial statements.

Our audit response related to risks of non-compliance with laws and regulations

We performed appropriate audit procedures regarding compliance with the provisions of those laws and regulations that have a direct effect on the determination of material amounts and disclosures in the financial statements. Furthermore, we assessed factors related to the risks of non-compliance with laws and regulations that could reasonably be expected to have a material effect on the financial statements from our general industry experience, through discussions with the executive board and legal department, reading minutes, inspection of internal audit and compliance reports and performing substantive tests of details of classes of transactions, account balances or disclosures.

We also inspected lawyers’ letters and correspondence with regulatory authorities and remained alert to any indication of (suspected) non-compliance throughout the audit. Finally we obtained written representations that all known instances of non-compliance with laws and regulations have been disclosed to us.

Our audit response related to going concern

The executive board made a specific assessment of NS's ability to continue as a going concern and to continue its operations for the foreseeable future. As disclosed in section "Continuity assumption" in Chapter 1 of the financial statements, based on financial forecasts and scenario analysis, NS concludes that there is no material uncertainty. The financial statements have been prepared on a going concern basis.

We discussed and evaluated the specific assessment with the executive board exercising professional judgment and maintaining professional skepticism. We considered whether management's going concern assessment, based on our knowledge and understanding obtained through our audit of the financial statements or otherwise, contains all relevant events or conditions that may cast significant doubt on NS's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion.

Based on our procedures performed, we did not identify material uncertainties about going concern. We refer to the explanation given in section "Key audit matters" for the reasoning of the liquidity forecast and going concern assumption not being a key audit matter in the 2022 audit. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause a company to cease to continue as a going concern.

Our key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements. We have communicated the key audit matters to the supervisory board. The key audit matters are not a comprehensive reflection of all matters discussed.

In 2021 liquidity forecast and going concern assumption was a key audit matter. The estimation uncertainty with regard to the liquidity forecast has decreased compared to prior year. Furthermore, in 2022 increased clarity existed on the support measures in the Netherlands. As such, the liquidity forecast and going concern assumption is no key audit matters in 2022.

In 2021 'Abellio Germany: Recognition and presentation of the restructuring and measurement of the provision related to financing, guarantees and claims and explanations thereto' was a key audit matter.

This is also a key audit matter in 2022 which we have made specific for the developments during 2022 and the applicable risk factors in 2022. The same applies to the 2021 included key audit matter: 'Abellio United Kingdom: Recognitions and valuation of legacy assets and claims'.

Valuation of main rail network assets (HRN) and estimated future profitability of the HRN franchise

Risk	Our audit approach	Key observations
In 2020 NS recorded an impairment loss in relation to the main rail network franchise (HRN) related assets of € 1.6 billion in the financial statement account 'depreciation costs and (reversal of) impairment losses'. In 2022 this	We have evaluated whether the accounting policies applied by NS are in accordance with IAS 36 Impairment of Assets and whether these accounting policies have been applied consistently. We have discussed the scenario analyses, cash flow forecasts and estimate of the cost of capital with NS and evaluated them with	We concur with the reversal of € 385 million of the impairment loss on the main rail network related assets as at 31 December 2022 and with the disclosures under note 16 of the financial statements.

Risk	Our audit approach	Key observations
<p>impairment loss was reassessed which resulted in a reversal of the in 2020 recognised impairment for an amount of € 385 million (2021: € 0).</p> <p>COVID-19 and the related measures have caused a significant decrease in passenger revenue compared to the period before COVID-19. As requested by the Ministry of Infrastructure and Water Management, NS largely continued its regular train services. The last COVID-19 measures have been lifted since the beginning of 2022. Passenger revenues have subsequently not returned to pre-COVID-19 levels. NS has adjusted the expected timing of the passenger demand.</p> <p>In addition, interest rates increased in 2022, resulting in an increase in the cost of capital for NS.</p> <p>All these developments have resulted in an indication of a reassessment of the impairment.</p> <p>As a consequence, NS calculated the recoverable amount of assets related to the main rail network franchise on the basis of multiple scenario analyses and compared the outcome with the carrying amount.</p> <p>The scenario analyses and cash flow forecasts involve inherent and/or significant uncertainties, resulting in significant possible range of outcomes. To this end, we have identified a specific fraud risk and designated this as a key audit matter.</p> <p>From 2025, the main rail network franchise has been awarded directly to NS, but the franchise conditions have not yet been finalised and are subject to inherent uncertainties. For the period after 2024, as in previous years, it is assumed that the main rail network contract will be awarded on the condition that NS can at least realise the cost of capital.</p> <p>In note 16 to the financial statements, NS disclosed the results and range of the impairment analysis of the assets related to the main rail network franchise. The main assumptions, estimation uncertainties and sensitivity of the analyses have been disclosed. Based</p>	<p>professional skepticism, devoting specific attention to the processes underlying the analyses and forecasts, retrospective outcomes, trends that pose potential risks, the impact of current events and circumstances on the scenarios and the projected cash flows.</p> <p>We performed substantive tests on the scenario analyses, cash flow forecasts and the estimate of the cost of capital to assess the reasonableness of the underlying assumptions.</p> <p>We have added specialists to our audit team to assess the assumptions concerning the forecasted passenger revenues, the calculation model used and the reasonableness of NS's cost of capital.</p> <p>We have assessed the results of our audit procedures exercising professional judgment and maintaining professional skepticism. Finally, we have reviewed the disclosure in note 16 of the financial statements and determined that the key assumptions and sensitivities are adequately disclosed.</p>	

Risk	Our audit approach	Key observations
on this reassessment, NS has reversed € 385 million of the impairment on the main rail network related assets as per 31 December 2022.		

Abellio United Kingdom: valuation and presentation of legacy assets and claims, the audit of a proposed management buy-out and the recognition, valuation and disclosures in the 2022 financial statements.

Risk	Our audit approach	Key observations
<p>The UK activities classify as discontinued operations and held for sale as of 31 May 2022 due to an anticipated sale to local management (management buy-out) in the first quarter of 2023. NS and its shareholder gave their approval related to the sale in 2022. The transaction was approved by external authorities after the balance sheet date. We have identified the recognition, valuation and disclosures in respect of this transaction as a key audit matter. The carrying amount of the assets and liabilities of Abellio UK is higher than the fair value (less costs to sell). This has resulted in an impairment loss of € 157 million as at 31 December 2022. Discussions and claims with franchise authorities (hereafter: legacy assets and claims) still remain at management in the United Kingdom, which largely relate to the period before COVID-19. Based on discussions that NS conducts with the franchise authorities, source documents and legal opinions and estimates, NS has made a best estimate with regard to these legacy assets and claims when determining the fair value of Abellio UK. Given that the legacy assets and claims comprise a higher degree of estimation uncertainty, in which management has an important role in the settlement and the proposed sale transaction to the management of Abellio UK is highly complex, we have identified a specific fraud risk for this and designated it as a key audit matter.</p> <p>The valuation of the assets and liabilities, including legacy assets and claims, of Abellio UK and the notes on the discontinued operations and assets held for sale are included in note 2 of the financial statements 'result from discontinued operations'.</p>	<p>Based on, among other things, the approval of (the shareholder of) NS, the sale and purchase agreements concluded and the approvals obtained from the franchise authorities, we assessed whether it is highly likely that the operations in the United Kingdom will be sold and, as a result, operations are discontinued and assets are held for sale with effect from 31 May 2022.</p> <p>We have evaluated whether the recognition, measurement and disclosures relating to the discontinuation of operations and assets held for sale have been correctly and fully applied and whether the accounting policies used by NS with regard to the determination of the fair value of Abellio UK, including the legacy assets and claims, have been applied correctly and consistently.</p> <p>Based on management and executive board inquiries, retrospective outcomes, inspection of source documents and legal opinions, we have tested the reasonableness of the assumptions underlying the estimates regarding the realisable value including the legacy assets and claims.</p> <p>We have also verified that no developments have taken place after the balance sheet date that have a significant impact on the estimates as at the balance sheet date.</p> <p>We have assessed the results of our audit procedures exercising professional judgment and maintaining professional skepticism. We paid specific attention to the impairment to fair value recognised by NS in accordance with IFRS 5.</p>	<p>We concur with the recognition and valuation as discontinued operations and assets held for sale of Abellio in the United Kingdom, as well as the related disclosures as included in note 2 and note 35 of the financial statements.</p>

Abellio Germany: Valuation and presentation of the results and provisions related to the insolvency proceedings.

Risk	Our audit approach	Key observations
<p>The insolvency proceedings initiated in 2021 resulted in Abellio Germany being deconsolidated from 30 June 2021. The section titled 'Important (result) developments' explains which activities have been continued by NS in the course of 2022 and the status of the various franchises in Germany in relation to the initiated insolvency proceedings.</p> <p>For the pending insolvency proceedings, NS has made a best estimate of the expected outflow of funds based on, among other things, correspondence with the trustee, negotiations with the creditors, opinions of internal and external lawyers, reports from external experts, applicable (conditional) obligations and guarantees already issued. Various scenarios have been prepared for this.</p> <p>For the operations that were reacquired from the insolvency proceedings in 2022, NS has estimated the fair value of the assets and liabilities of the various franchises on the acquisition date and included them as such in the consolidated financial statements with effect from the acquisition date. Under note 1 of the financial statements, NS has explained the consolidation of the repurchased activities, the negative goodwill arising on the acquisition and developments in Germany, and under note 31 of the financial statements, the provisions made have been disclosed in more detail.</p> <p>The estimates related to the provisions and initial valuation of the acquired operations inherently contain significant uncertainties and, as a result, have a significant range of outcomes. To this end, we have identified a specific fraud risk and identified this as a key audit matter.</p> <p>In the paragraphs 'Acquisition and disposal of companies' and 'Important (result) developments' of section 1 and notes 1 and 31 to the financial statements, NS has disclosed the developments with regard to Abellio Germany, the acquired assets and liabilities and</p>	<p>We have evaluated whether the accounting policies used by NS with regard to the acquired operations and the recognition and valuation of the provisions are in accordance with IFRS 3 'Business Combinations' and IAS 37 'Provisions, Contingent Liabilities and Contingent Assets' and whether these policies have been applied consistently.</p> <p>We have assessed the reasonableness of the initial recognition of the fair value accounting of assets and liabilities related to the reacquired entities, including substantive procedures on documents such as insolvency agreements. We paid specific attention to the positive result recognised in the 2022 income statement.</p> <p>With respect to the recognised provisions, we, among other things, obtained information from the executive board and management of Abellio, inspected internal and external legal opinions and agreements, external reports from experts and minutes of executive board and supervisory board meetings.</p> <p>We have also conducted a professional-critical assessment of the aforementioned reports as well as the correspondence with lawyers and the trustee, in which we paid specific attention to the (probability of) claims, contingent liabilities, guarantees issued and reasonableness of the positions taken.</p> <p>We have performed substantive procedures on the positive result recognised as a result of the reacquired operations, contingent liabilities and guarantees issued to test the reasonableness of the assumptions applied. We have assessed the results of our audit procedures exercising professional judgment and maintaining professional skepticism. Finally, we have reviewed the disclosures in the paragraphs 'Acquisition and disposal of companies' and 'Important (result) developments' of section 1 and the disclosures under notes 1 and 31 of the financial statements based on the requirements under EU-IFRS.</p>	<p>We concur with the accounting treatment and disclosures of NS in the chapters 'Acquisition and disposal of companies' and 'Important (result) developments' in section 1 and notes 1 and 31 to the financial statements.</p>

Risk	Our audit approach	Key observations
the results of the analysis with regard to the provisions. The main assumptions, estimation uncertainties and sensitivity of the analyses are also included.		

Revenue recognition from support measures in the Netherlands

Risk	Our audit approach	Key observations
<p>In the financial statements account Revenue under note 3 to the financial statements, the subsidy income from Dutch support measures for an amount of € 274 million Public Transport Availability Payment (BVOV) and € 12 million Emergency Bridging Measures for Sustained Employment (NOW) are included.</p> <p>NS will be entitled to an Availability Payment for Public Transport Companies for 2022. As a result of this scheme, 93% of the indexed cost level eligible for the scheme, less 100% of the realised revenue, is compensated. To claim the BVOV, further conditions apply, such as a restriction on dividends, severance payments, bonuses to key management and operating a 'minimum equivalent' timetable compared to 2021. Due to the scaling down of the timetable in 2022, NS has recorded a proportional adjustment to the BVOV for 2022. The final outcome of this adjustment is uncertain.</p> <p>NS Stations has applied for NOW on the basis of Article 6a of the NOW scheme (operating company scheme). As a result of this scheme, wage costs are reimbursed on the basis of the percentual decrease in revenues in the various NOW periods. To qualify for the NOW, further conditions apply, such as a group-wide restriction on dividends, severance pay and bonuses to key management</p> <p>There is a risk that NS will not meet all the conditions and obligations for BVOV and/or NOW, as a result of which the accounting for support measures in the financial statements is incorrect.</p> <p>There also exists an inherent risk that adjustments will be made as a result of audit procedures done on the BVOV and NOW statements for final applications.</p>	<p>We have taken note of the BVOV and NOW subsidy regulations and the conditions that apply to qualify for these compensation measures. Both BVOV and NOW depend on realised revenues. Our audit approach with regard to the recognition of passenger revenues in the Netherlands is included under the key item 'Revenue recognition and complexity and effectiveness of the NS IT environment in the Netherlands'.</p> <p>We have performed substantive procedures on the BVOV cost statement to determine that there no costs are included that do not qualify for the BVOV compensation measure. We have also performed substantive procedures to assess compliance with the other conditions that apply to qualify for the BVOV compensation measure. This includes determining whether no severance payments or bonuses have been paid to key management, whether the dividend restriction applicable to the BVOV has been complied with and whether a 'minimum equivalent' timetable compared to 2021 has been operated. For the scaling down of the timetable in 2022 and the proportional adjustment made to the recognised BVOV subsidy, we performed substantive procedures on the correspondence with the Ministry of Infrastructure & Water Management, the underlying assumptions and calculations that are based on the timetable operated in 2022 compared to 2021.</p> <p>For NOW, we tested whether NS correctly applies Article 6a (operating company scheme) within NS Stations. Taking into account the materiality that we apply for the financial statements audit, we have performed analytical procedures on the recognised decrease in revenues in the various NOW periods. We have also performed substantive procedures on the further terms and conditions that apply. This partly concerned the same activities as</p>	<p>We concur with the recognition and disclosures of the subsidy income from Dutch support measures in the financial statement item Revenue in Note 3 to the financial statements.</p>

Risk	Our audit approach	Key observations
	described above in the context of the BVOV, such as assessing if restrictions to severance pay and bonuses have been met. We performed additional procedures, among other things with regard to compliance with the group-wide restriction on dividends.	
	In order to examine the final application of the BVOV and NOW statements, further substantive procedures with a lower materiality have to be performed.	

Revenue recognition and complexity and effectiveness of the NS IT environment in the Netherlands

Risk	Our audit approach	Key observations
<p>In the financial statements account Revenue an amount of € 2.6 billion relates to revenue from passenger services in the Netherlands. This amount consists of revenue from the sale of various types of tickets entitling passengers to transport services (passenger revenue). The variety in ticket types, combined with the high volume of transactions that apply to various ticket types, results in high demands with respect to the reliability and continuity of transaction processing systems to safeguard that all individual transactions are correctly and completely recognized as revenues. Therefore we consider the complexity and effectiveness of the NS IT environment in conjunction with revenue recognition as a key audit matter. There also exists a risk that revenue recognition has not been applied consistently or not in accordance with IFRS 15 'Revenue from Contracts with Customers'. In recent years, NS has invested in the simplification, standardisation and improvement of its IT infrastructure, systems and processes, focusing on increasing the effectiveness, reliability and continuity of automated data processing. We refer to the section on 'Risk management' included in the NS annual report.</p> <p>The disclosure regarding revenue recognition for passenger transportation is included in note 3 to the financial statements.</p>	<p>Our procedures include:</p> <ul style="list-style-type: none"> • evaluating the design and existence of the internal controls that are in place to mitigate the risk of incomplete revenue recognition and the continuity of the IT environment; • performing data analytical procedures, such as trend analyses and assessment of manual journal entries; • performing sample testing on the complete processing of transactions; • assessment of third-party confirmations. <p>We have performed procedures related to the reliability and continuity of the automated data processing - also focusing on information security risks - only insofar as necessary within the scope of the audit of the financial statements. For this purpose, we included specialised IT auditors and data specialists in our audit team. Our procedures also consisted of assessing developments in the IT infrastructure and determining the design and existence of the internal controls relevant to our audit with regard to IT systems and processes.</p> <p>We further evaluated whether the accounting policies applied by NS with regard to revenue recognition are in accordance with IFRS 15 and whether these accounting policies have been applied consistently.</p>	<p>As a result of our procedures, we note that NS has further improved the quality of IT management and information security - insofar as we have examined these within the scope of our audit of the financial statements - during 2022. Our procedures have not revealed any significant shortcomings in the continuity and reliability of automated data processing.</p> <p>We concur with the accounting treatment by NS and the disclosures in Note 1 to the financial statements.</p>

Report on other information included in the annual report

The annual report contains other information in addition to the financial statements, sustainability information and our combined auditor's report thereon.

Based on the following procedures performed, we conclude that the other information:

- is consistent with the financial statements and does not contain material misstatements
- contains the information as required by Part 9 of Book 2 of the Dutch Civil Code for the management report and the other information

We have read the other information. Based on our knowledge and understanding obtained through our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements. By performing these procedures, we comply with the requirements of Part 9 of Book 2 of the Dutch Civil Code and the Dutch Standard 720. The scope of the procedures performed is substantially less than the scope of those performed in our audit of the financial statements and review of sustainability information.

The executive board is responsible for the preparation of the other information, including the management report in accordance with Part 9 of Book 2 of the Dutch Civil Code and other information required by Part 9 of Book 2 of the Dutch Civil Code.

Description of responsibilities regarding the financial statements and sustainability information

Responsibilities of the Executive Board and the Supervisory Board

The executive board is responsible for the preparation and fair presentation of the financial statements in accordance with EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code.

The executive board is also responsible for preparation of reliable and adequate sustainability information in accordance with the reporting criteria as included in the section 'Reporting criteria', including the identification of stakeholders and the definition of material matters. The executive board is also responsible for selecting and applying the reporting criteria and for determining that these reporting criteria are suitable for the legitimate information needs of stakeholders, taking into account applicable law and regulations related to reporting. The choices made by the executive board regarding the scope of the sustainability information and the reporting policy are summarised in the chapter "Scope and reporting criteria" of the annual report.

Furthermore, the executive board is responsible for such internal control as the executive board determines is necessary to enable the preparation of the financial statements and sustainability information that are free from material misstatement, whether due to fraud or error.

As part of the preparation of the financial statements, the executive board is responsible for assessing the company's ability to continue as a going concern. Based on the financial reporting framework mentioned, the executive board should prepare the financial statements using the going concern basis of accounting unless the executive board either intends to liquidate the company or to cease operations, or has no realistic alternative but to do so. The executive board should disclose events and circumstances that may cast significant doubt on the company's ability to continue as a going concern in the financial statements.

The supervisory board is responsible for overseeing the company's financial reporting process.

Our responsibilities

Our objective is to plan and perform an audit and review engagement in a manner that allows us to obtain sufficient and appropriate assurance evidence for our opinion.

Our audit of the financial statements has been performed with a high, but not absolute, level of assurance, which means we may not detect all material errors and fraud during our audit.

Our review of sustainability information has been performed with a limited level of assurance. Procedures performed to obtain a limited level of assurance are aimed to determine the plausibility of information and vary in nature and timing from, and are less in extent, than for a reasonable assurance engagement. The level of assurance obtained in review is therefore substantially less than the assurance obtained in an audit.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements or sustainability information. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

We apply the Regulations for Quality Systems (Nadere Voorschriften Kwaliteitssystemen: NVKS). This provides us with a coherent quality control system, including established guidelines and procedures regarding compliance with ethical requirements, professional standards and other relevant laws and regulations.

An informative summary of our work performed as a basis for our conclusions is included in the annex

Amsterdam, 22 February 2023

Ernst & Young Accountants LLP

F.J. Blenderman

Annex to the combined independent auditor's report

Work performed

The 'Information in support of our opinion on the financial statements' section of the combined auditor's report and assurance report provides an informative summary of our responsibilities and the work performed as the basis for our opinion.

Our audit to obtain reasonable assurance about the financial statements (consolidated and corporate) included:

- Obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion.
- Obtaining an understanding of the internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances. It is not the aim of these procedures to express an opinion on the effectiveness of the company's internal control.
- Evaluating the appropriateness of accounting policies used and the reasonableness of estimates made by the executive board and related disclosures in the financial statements;
- Evaluating the overall presentation, structure and content of the financial statements, including the disclosures.
- Evaluating whether the financial statements provide a true and fair view of the underlying transactions and events.

Our review to obtain limited assurance about the non-financial information included:

- Performing an analysis of the external environment and obtaining an understanding of relevant social themes and issues and the characteristics of N.V. Nederlandse Spoorwegen.
- Evaluating the appropriateness of the reporting criteria used, their consistent application and related disclosures in the sustainability information. This includes the evaluation of the results of the stakeholder dialogue and the reasonableness of estimates by management.
- Perform inquiry procedures obtaining a broad understanding of the internal control, reporting processes and information systems relevant to the preparation of the sustainability information, without obtaining assurance-evidence about the implementation or testing the effective operation of internal controls.
- Identifying areas in the sustainability information with a higher risk of misleading or imbalanced information or material misstatements as a result of errors or fraud. Designing and performing further procedures aimed at determining the plausibility of the sustainability information based on this risk analysis.

These review procedures included:

- interviewing the management responsible for the sustainability strategy, policies and results;
- interviewing relevant staff responsible for providing the information for, carrying out internal control procedures on and consolidating the data in the sustainability information;
- obtaining assurance information that the sustainability information reconciles with underlying records of the company;
- reviewing through a limited test of details of relevant internal and external documentation;
- evaluating the suitability and plausibility of the assumptions and the external sources used in the calculations on which the impact analysis is based as included in chapter 'Our impact on the Netherlands', which are included in the document 'NS Methodologie maatschappelijke impactanalyse Handboek 2022' on www.ns.nl/mvoberekeningen;
- evaluating the appropriateness of definitions of the performance indicators related to the transport franchise in the Transport Plan 2022 as included in the Downloads on nsjaarverslag.nl/jaarverslag-2022;
- performing an analytical review of the data and trends submitted for consolidation at group level;
- evaluating the consistency of the sustainability information with the information in the annual report that is not included in the scope of our review;

- evaluating the overall presentation and content of the sustainability information;
- considering whether the sustainability information as a whole, including the disclosures, reflects the purpose of the reporting criteria used.

Communication

We communicate with the supervisory board regarding, among other matters, the planned scope and timing of the audit and review procedures and significant findings, including any significant findings in internal control that we identify during our audit and review engagement.

We provide the Supervisory Board with a statement that we have complied with relevant ethical requirements regarding independence. We also communicate with them about all relationships and other matters that may reasonably be considered to bear on our independence, as well as, where applicable, related safeguards.

From the matters communicated with the supervisory board, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit and review matters. We describe these matters in our combined independent auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, not communicating the matter is in the public interest.

Other information

Profit appropriation as stipulated by the Articles of Association

In accordance with Article 21(2) of the Articles of Association of NV Nederlandse

Spoorwegen, the Annual General Meeting of Shareholders decides on the appropriation of any positive balance in the income statement.

NS ten-year summary

(in millions of euros)

Balance sheet

Assets

Property, plant and equipment	3,442	2,973	2,919	4,260	3,979	3,845	3,654	3,296	3,157	3,115	3,405
Real estate assets	119	124	129	135	151	170	197	194	196	169	314
Intangible non-current assets	319	345	376	484	416	357	257	225	174	125	117
Right-of-use assets	461	827	1,865	2,022	-	-	-	-	-	-	-
Investments recognised using the equity method	12	26	19	19	17	26	39	183	185	197	14
Other financial assets, including investments	197	131	160	159	159	158	267	340	226	205	176
Deferred tax assets	316	367	133	202	196	260	229	278	295	385	346

Total non-current assets

4,866 4,793 5,601 7,281 4,918 4,816 4,643 4,516 4,233 4,196 4,372

Inventories	220	176	194	184	169	161	139	138	119	109	134
Other investments	-	-	-	-	-	-	-	270	223	231	279
Trade and other receivables	676	1,219	1,175	1,144	830	648	724	659	499	545	509
Income tax receivable	-	22	13	13	16	24	4	32	32	30	11
Other current financial assets, including investments	745	478	35	8	-	-	-	-	-	-	-
Cash and cash equivalents	396	680	1,137	818	906	565	709	671	775	759	948
Assets held for sale	1,476	-	-	-	191	-	140	-	-	-	-

Total current assets

3,513 2,575 2,554 2,167 2,112 1,398 1,716 1,770 1,648 1,674 1,881

Total assets

8,379 7,368 8,155 9,448 7,030 6,214 6,359 6,286 5,881 5,870 6,253

Equity and liabilities

Equity	2,309	1,856	976	3,781	3,627	3,477	3,511	3,309	3,216	3,044	3,168
Deferred credits	128	161	197	240	275	314	328	263	112	122	134
Loans and other financial liabilities, including derivatives	1,505	1,598	1,130	656	740	551	293	440	867	730	577
Lease liabilities	377	634	1,601	1,676	-	-	-	-	-	-	-
Employee benefits	55	54	37	35	30	30	31	30	33	33	35
Provisions	310	216	179	126	119	114	100	155	140	182	277
Accruals	9	10	14	32	42	42	36	55	1	23	39
Deferred tax liabilities	-	2	93	54	48	59	160	168	169	158	153

Total non-current liabilities	2,384	2,675	3,251	2,819	1,254	1,110	948	1,111	1,322	1,248	1,215
Loans and other financial liabilities	296	196	81	99	98	201	77	488	60	57	48
Lease liabilities	87	296	465	433	-	-	-	-	-	-	-
Income tax payable	11	12	14	10	12	26	7	22	8	8	12
Trade and other liabilities	1,306	1,647	2,022	1,497	1,315	1,105	1,023	1,060	868	1,003	1,248
Deferred income	565	645	562	738	694	246	641	260	372	314	387
Provisions	74	208	581	71	24	49	37	36	35	196	175
Liabilities held for sale	1,347	-	-	-	6	-	115	-	-	-	-
Total current liabilities	3,686	3,004	3,725	2,848	2,149	1,627	1,900	1,866	1,343	1,578	1,870
Total equity and liabilities	8,379	7,535	8,155	9,448	7,030	6,214	6,359	6,286	5,881	5,870	6,253

in millions of euros

Consolidated income statement

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Revenue	3,341	6,486	6,601	6,661	5,926	5,121	5,093	4,973	4,144	3,873	4,638
Operating expenses	2,950	6,009	9,046	6,382	5,745	5,084	4,965	4,876	3,863	3,990	4,284
Share in result of investments accounted for using the equity method	-	5	2	8	14	20	142	70	40	47	-
Result from operating activities	391	482	-2,443	287	195	57	270	167	321	-70	354
Net finance income	178	-349	-21	-51	-14	-5	-9	-23	-35	-26	-25
Share in result of investments accounted for using the equity method	-	-	-	-	-	-	-	-	-	-	1
Result before income tax	569	133	-2,464	236	181	52	261	144	286	-96	330
Income tax	-37	367	-117	-21	-65	-5	-49	-26	-106	53	-67
Result for the period	532	500	-2,581	215	116	47	212	118	180	-43	263
Discontinued operations											
Result from discontinued operations after tax	54	-	-	-	-	-	-	-	-	-	-
Result for the period	586	500	-2,581	215	116	47	212	118	180	-43	263

List of definitions

5-minute norm

A European punctuality standard stating that a train is only deemed to have been delayed if it arrives at least five minutes late.

A2 corridor

The rail line between Eindhoven and Amsterdam.

Focus routes

Routes with systematic problems in terms of punctuality, connections or smooth progress of the journey for specific groups of passengers. NS and ProRail are jointly putting in extra effort on these routes to reduce the delays and improve customer satisfaction.

Modified timetable

Controlled changes in the train traffic when there is an impending threat of a situation to which it is vulnerable, e.g. snowfall, extreme cold or a major storm front. A modified timetable creates more space on the tracks. Fewer trains will be running, which reduces the chance of train traffic getting clogged up.

Punctuality of arrival

The extent to which train arrival times in practice match up with the timetable. In general, punctuality is an important way to measure the implementation of the planned process for the timetable.

ATB-vv

The ATB-vv (automatic train protection and warning system – improved version) is a system that also automatically stops trains in front of signals at danger at speeds of under 40 km/h. The system is an adaptation of the ATBEG (automatic train protection and warning system – first generation).

Minimum baseline

Value for the yearly minimum level of performance required for a performance indicator.

Withdrawal from service

A planned train-free period in the timetable for maintenance, renovation or repair work. This means infrastructure is allocated for track renovation and not for train traffic. Withdrawals from service are arranged by ProRail in consultation with the carriers.

Franchise

An agreement by which a governmental body outsources all or part of the commercial operation of an economic activity to a third party, which then bears the risk of that commercial operation. The Dutch authorities have awarded the commercial operation of the main rail network to NS for the period from 2015 to 2025.

Timetable

The planning of a transport service in terms of times and places.

Dossier Duurzaam

The 'Sustainability Dossier', an annual monitor that NS uses to assess its reputation for sustainability among consumers.

Energy efficiency

The objective is to reduce the amount of energy needed to supply products or services. NS is improving its energy efficiency by maximising the use of modern trains with lower energy consumption, such as the Sprinter Light Train (SLT), and by upgrading old trains to modern trains that are more economical in energy terms. Energy consumption is also reduced through energy-efficient driving and energy-efficient stabling of trains. To this end, we keep track of the Energy Efficiency Index.

ERTMS

European RailTraffic Management System. The new European safety system on the railways that will in the longer term replace the ATB (automatic train protection and warning) system.

E-ticket

An e-ticket or online ticket is an access or travel ticket that is ordered and provided over the Internet.

FLIRT

The NS FLIRT is an electrically powered type of train used by Nederlandse Spoorwegen. These trains were built by the Swiss train builder Stadler Rail and are based on that company's FLIRT 3 platform. The trains are intended in the first instance to relieve the rolling stock shortages and to cope with growth in passenger numbers on the main rail network. The FLIRT (*Flinker Lichter Innovativer Regionaltriebzug*) features light and space in the interior.

Main rail network

The rail network on which Nederlandse Spoorwegen (NS) has the exclusive right to run passenger trains.

HSL South

The 125-km line [suitable for high speeds](#), running from [Schiphol](#) to the Belgian border, with a branch to [Breda](#).

Boarding Zone

A delimited zone indicated by blue signs within which a train always stops. One sign shows the start of this boarding zone and the other sign shows the end. By placing this boarding zone differently at every station (at the front, middle or back of the train), it should be possible to distribute passengers much more effectively over the length of the train.

Intercity

A passenger train that provides a rapid connection between locations, stopping in principle only at the larger, more important stations. This means that the Intercity (IC) is highly suited to long-distance travel.

Impact analysis

By analysing our impact on the materially relevant themes and providing information about it, we can enter into a dialogue with our stakeholders about those themes and target our efforts to increase our positive impact and decrease our negative impact.

Integrity portal

A platform that NS staff can go to if they have any questions about integrity, compliance and risks, or where they can report any such issues.

Customer satisfaction

The opinions formulated by passengers about the services provided by NS.

Hub

A place where numerous roads, tracks or other modalities come together.

Long-Term Rail Agenda

A step forward in quality on the railways is needed if all these wishes and ambitions are to be met. With that in mind, the Ministry of Infrastructure and the Environment drew up the Long-Term Rail Agenda in 2012.

Level playing field

A fairness principle that focuses on creating conditions in which different bidders are able to make competitive bids based on their specific characteristics and starting from the same baseline.

Deregulation

Removal of limitations and barriers to access to the transport market by governmental bodies, which makes competition possible.

LOCOV

LOCOV, the national public transport users' forum, is where consumer organisations represent the interests of rail passengers. They do so by holding discussions with and advising Nederlandse Spoorwegen (NS), ProRail and the Ministry of Infrastructure and the Environment. The consumer organisations advise NS, ProRail and the ministry.

Market regulation

The entirety of legislation and regulations that describes which companies may be active on the market and under what conditions. Proper market regulation aims to set up the markets in such a way that their social functioning is optimised. The aim must be to find a balance between market forces and regulation.

Withdrawal of rolling stock

Taking rolling stock out of service for maintenance or repairs.

Materiality

The mix of the importance to stakeholders on the one hand and the actual impact that NS can have on the topic on the other.

Midterm review

A check to assess whether the execution of the franchise activities by NS has resulted in the improvements required for the Long-Term Rail Agenda.

Environmental profit and loss statement

A profit and loss statement in which the 'value' of environmental impacts on society is calculated.

NS Extra

A free programme for passengers with a personal public transport card (*OV-chipkaart*), allowing them to benefit throughout the year from personalised services, exclusive benefits and special offers.

NS Flex

Service enabling passengers to travel on all public transport without a balance. Payment is made in arrears via direct debit.

Public transport card (OV-chipkaart)

Means of payment for public transport in the Netherlands. The public transport card is valid for train, bus, tram and metro services.

OV Service Shop

A new service concept with service shops – information desks at stations where customers can get help with all their questions about travelling by train straight away. The various carriers are cooperating closely in the OV Service Shops.

Pit stop

A maintenance method in which fault repairs on a train take place in a specially configured rail pit, which shortens the throughput time of the repairs and increases seating capacity for passengers.

Pre-mobility

If there is a specific threat of redundancy for a group of employees or an individual employee, the pre-mobility phase will start based on a decision to be taken by the employer.

Performance indicator: general customer satisfaction with the domestic main rail network

The general customer satisfaction figure gives the percentage of passengers who give their journey a score of 7 out of 10 or higher.

The scope covers passengers in trains operated by NS under the franchise for the main rail network for 2015-2025. These are all domestic trains that serve the stations mentioned in the Main Rail Network Decree. The Intercity direct, Thalys, IC Berlin, IC Brussels and ICE trains are covered by a different customer satisfaction survey and are not included in this customer satisfaction figure.

Performance indicator: general customer satisfaction with HSL South services

The general customer satisfaction figure for HSL South services gives the percentage of passengers who give the services for their journey a score of 7 out of 10 or higher.

The scope covers trains that NS operates as HSL South services, namely Intercity direct and Thalys. Passengers are asked (only while on Dutch territory) whether they are prepared to take a customer satisfaction survey.

Performance indicator: customer satisfaction with personal safety on the train and at the station

The customer satisfaction figure for personal safety on the train and at the station is the percentage of customers who give a score of 7 out of 10 or higher for their perception of safety in the train and on the station respectively during daytime or in the evenings after 7:00 p.m. The scope covers passengers in trains operated by NS under the franchise for the main rail network for 2015-2025. These are all domestic trains that serve the stations mentioned in the Main Rail Network Decree. The Intercity direct, Thalys, IC Berlin, IC Brussels and ICE trains are covered by a different customer satisfaction survey and are not included in this customer satisfaction figure.

Performance indicator: passenger capacity at peak times

Passenger transport capacity at peak times gives an indication of the likelihood of a passenger finding a spot during the rush hour in any arbitrarily chosen train. The number of places available at peak times includes standing room in second class.

The scope of the indicator covers all trains operated by NS under the franchise for the main rail network for 2015-2025. These are all domestic trains that serve the stations mentioned in the Main Rail Network Decree, with the exception of Intercity direct, Thalys, IC Berlin, IC Brussels and ICE.

Performance indicator: focus routes for passenger capacity at peak times

This percentage indicates the probability of a passenger being unable to get a seat on one of the preselected 10 busiest routes during the rush hour.

Performance indicator: passenger capacity at peak times on HSL South services (domestic)

Passenger capacity at peak times on domestic HSL South services indicates the likelihood that passengers in the Intercity direct in second class can get a seat during rush hour in the busiest train on working days on the route used most by passengers (Schiphol to Rotterdam and vice versa). The chance of getting a seat is expressed as a percentage.

This indicator only applies to the Intercity direct. Seats can be reserved on the Thalys, so passengers are guaranteed a seat; this therefore falls outside the scope of this indicator.

Performance indicator: punctuality for passengers (indicator to be achieved jointly with the infrastructure operator)

Punctuality for passengers gives an indication of the percentage of passengers for whom the train journey went as scheduled in terms of the journey time. That means the train actually ran, that the train was delayed by less than five minutes on arrival at one of the 35 measured points and that people changing trains were able to make their connections.

The scope covers all trains operated by NS under the franchise for the main rail network for 2015-2025. These are all domestic trains that serve the stations mentioned in the Main Rail Network Decree, with the exception of Intercity direct and Thalys, but including IC Berlin, IC Brussels and ICE.

Performance indicator: punctuality for passengers on the HSL South services (insofar as attributable to NS)

Punctuality for passengers on the HSL South services gives an indication of the percentage of Intercity direct and Thalys (domestic part of the route) passengers for whom the train journey went as scheduled. That means the train actually ran and that it was not delayed by an amount of time exceeding the norm, insofar as this is attributable to NS.

The scope covers Intercity direct and Thalys at all stations where the arrival statistics are measured (Amsterdam Central Station, Schiphol, Rotterdam Centraal and Breda).

Performance indicator: information on the train and at the station about disruptions

This indicator is an unweighted average of the information provided about disruptions inside the train or at the station respectively and it gives the percentage of the total number of measured disruptions in train services for which information is given inside the train or at the station respectively through announcements and/or screens.

Scope: Quality measurements are also made for all trains and stations where the questionnaire staff go for customer surveys. Measurements are made for trains operated by NS under the franchise for the main rail network for 2015-2025. These are all domestic trains that serve the stations mentioned in the Main Rail Network Decree.

Performance indicator: journey information in the train travel chain

Journey information in the train travel chain gives a picture of the accuracy and timeliness of journey information that NS sends via the InfoPlus system to all subscribers, such as the screens at stations. Journey information in the train travel chain is specifically about delayed departures and changes to departure platforms.

This indicator states whether the journey information provided five minutes before the actual departure of the train was correct if there was a delayed departure or a platform change with respect to the annual plan. The information is deemed correct if it is determined after the event that the actual measured departure time deviated by less than three minutes from the information provided and the actual departure platform as measured matches the information provided. This performance indicator gives insights into the extent to which correct information is sent to the subscribers. This does not take account of any faults in the signs at the stations.

The scope covers all stops made by passenger trains of all operators in the Netherlands that have a planned departure time and departure track.

Punctuality

The extent to which train departure and/or arrival times in practice match up with the timetable. Punctuality is an important way to measure the implementation of the planned process for the timetable.

Travelling on account

A payment method for public transport in which passengers pay after the event and therefore do not need to have a balance on their public transport card.

Passenger-kilometre

A unit for the distance that an individual passenger covers using a particular mode of transport.

Punctuality for passengers

The journey time of the customer including all connections with respect to their journey plan (travel advice that was issued, for instance). This is measured at 47 points.

Risk appetite

The risk appetite of an organisation expresses the nature and scale of the risks that an organisation is prepared to accept in order to realise its business objectives.

Service Forum

The NS Service Forum is a place where customers can go with questions or tips about travelling with NS. They can discuss things with other passengers here. In addition, the NS social media team is present in order to answer questions.

Spoorslags Beter ('On track for improvement')

Name of the new strategy that was presented on 1 March 2016. With this strategy, we are focusing on our core activities with the aim of improving performance for passengers.

Spoorslags Beter focuses on achieving the agreed franchise KPIs by 2019.

New Generation Sprinter

Working title for the third generation of the NS Sprinter trains. These new trains will be available from 2018 onwards for passenger transport.

Stakeholders

The people or groups who are affected by our actions and whose actions have an effect on our organisation and services.

Stakeholder dialogue

A stakeholder dialogue is an essential element of the sustainability report. In a stakeholder dialogue, all the groups of stakeholders are asked questions based on influence. A stakeholder dialogue gives an organisation a clear picture of what is important for its stakeholders. On the one hand, it helps in determining the focus of accountability for social matters. On the other, it provides inspiration and input for further development of strategic sustainability policy.

Station Experience Monitor

A tool used for measuring how passengers perceive the stations. Passengers at all railway stations in the Netherlands are asked to give an assessment and perception of the stations and station areas.

Target value

Value for the level of performance required for a performance indicator in 2019 and 2024.

SPAD

An undesired, non-technical case of a red sign not being observed (signal passed at danger).

TechniekFabriek

The NedTrain vocational school for train technology where pupils work and learn at the same time, with a job as the end result.

Transparency Benchmark

The Transparency Benchmark is a tool provided by the Ministry of Economic Affairs and Climate Policy for improving reporting on social matters within the Netherlands. The Transparency Benchmark gives a picture of the way in which the largest Dutch businesses report their CSR activities.

Train Experience Monitor

A tool for studying how changing elements in the train can affect the scores passengers give for the quality of the trains.

TRR

This gives the number of accidents resulting in sickness absence (including those accidents where it was possible to find replacement work) expressed in numbers per million hours worked.

Transport capacity

The capacity of a train to carry a number of passengers.

Fourth European Railway Package

On 30 January 2013, the European commissioner Siim Kallas presented the Fourth European Railway Package. The European Commission is aiming to use the Fourth Railway Package for further reforms of the railway sector, which it believes is performing poorly, to promote innovation and encourage better services in order to stimulate growth.

WACC

The weighted average cost of capital.

Sickness absence

Sickness absence is the time during which a permanent employee is absent due to illness. The sickness absence commences on the first day on which the person concerned should be working but is absent. The sickness absence ends on the day on which the person concerned has recovered, or after 730 days. Working a limited number of hours (not under a therapeutic return to work programme) is not qualified as sickness absence but as a light shift.

Seating capacity

The capacity in terms of numbers of seats in a train for carrying passengers.

Seat availability

Standard in which the numbers of passengers are compared against the number of available seats in the train.

Seatfinder

Functionality in the NS Extra app that passengers can use to see where seats might still be available in the train.

