TRAFICOM
Liikenne- ja viestintävirasto

Annual Railway Safety Report 2023

Traficom publications
21/2024

Contents

1 Introduction

1.1 Purpose, scope and target group of the Annual Railway Safety Report

This Annual Railway Safety Report by the Finnish Transport and Communications Agency Traficom (hereinafter safety report) describes the status of railway safety in Finland in 2023. In addition, the Annual Railway Safety Report describes the central issues in permit, supervisory and regulatory activities related to railways by Traficom during 2023. The Annual Railway Safety Report is Traficom's annual report on railways referred to in section 17 of the Rail Transport Act (1302/2018). Under the Rail Transport Act, Traficom must each year prepare a report on its operations and the development of railway safety in Finland in the previous year and submit the report to the European Union Agency for Railways (ERA) by the end of September. The report is also submitted to the Ministry of Transport and Communications and published on Traficom's website. The main sources of the safety information presented in this report include the safety reports of infrastructure managers and railway undertakings, railway operators' accident and occurrence reports, and the Safety Investigation Authority's accident investigation reports. Information on Traficom's operations has been gathered from its public officials and by reviewing documents relevant to its operations. The structure of the Annual Railway Safety Report follows the latest version of ERA's reporting guidelines issued in April 2020.

1.2 Summary of the safety situation in 2023

The volume of train transport grew in 2023 compared to the previous year. In 2023, 47.4 million kilometres were travelled by train on the Finnish railways, while a year earlier the same figure was 48.7 million[1]. The number of kilometres by train in goods transport continued decreasing as in the previous year, while in passenger transport, the traffic volume increased, and it has returned very close to the kilometres travelled by passengers during the years before the COVID-19 pandemic.

Passenger safety in Finland remains at an excellent level. No fatal accidents involving passengers or personnel occurred in train transport or track maintenance, or during shunting in 2023.

In 2023, there were 21 significant accidents as defined by the EU[2] in Finnish railways (Figure 1), in which four people died and three were seriously injured. The number of significant accidents was higher than in the previous year and was revealed to be higher than the average for the previous ten years when examined over a longer term. Compared to 2022, the number of accidents resulting in personal injuries caused by rolling stock in motion decreased (7 in 2022 vs. 1 in

[1] Source: Statistics Finland, railway statistics. Key train performances, 2005–2023.

[2] Significant accident: any accident involving at least one rail vehicle in motion, resulting in at least one killed or seriously injured person, or in significant damage to stock, track, other installations or environment (causing costs of at least EUR 150,000), or extensive disruptions to traffic (lasting at least six hours), excluding accidents in workshops, warehouses and depots.

2023). Meanwhile, there was an increase in several types of accidents, which was highest in collisions.

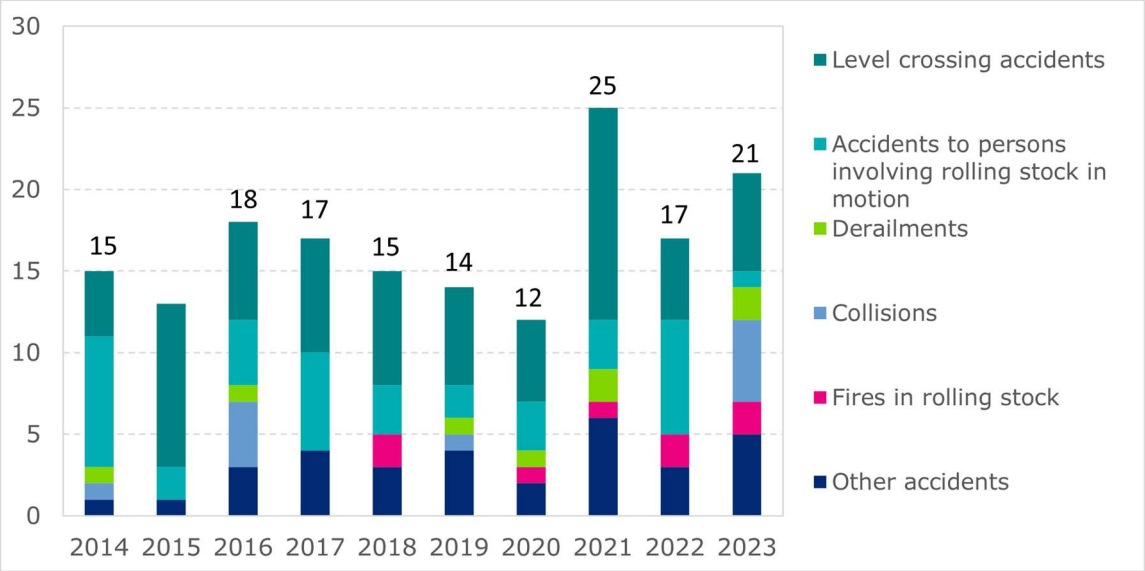

Figure 1. Number of significant railway accidents by accident type in 2014–2023.

In 2023, most (n = 6) of the significant accidents were level crossing accidents, resulting in three fatalities and three people suffering serious injuries. There were a total of 14 level crossing accidents in 2023, which is the lowest figure in the monitoring history.

Of the significant accidents, five were collisions and five were other types of accidents. The number of collisions was considerably higher than in previous years and the collisions that occurred varied widely. One of the collisions that occurred in 2023 was a collision between railway vehicles where a reversing train collided with another train. In four other cases, the train collided with an obstacle within the structure gauge. In one case, the collision involved a train hitting a hanging suspension rod, another involved a train pulling down the catenary, a third involved the locomotive pantograph hitting a broken section of the catenary and breaking apart, and a fourth involved the train hitting electric railway structures under construction that had fallen down. The collision between railway rolling stock units was classified as a significant accident due to the costs incurred (costs exceeding EUR 150,000) and the other collisions were considered significant accidents due to their traffic-related consequences (train service downtime exceeding 6 hours). Of the other accidents, four were derailments during shunting and, in one case, a chain hanging from a freight train snagged a loose rail on the railway embankment, causing damage to the railway infrastructure.

In addition, two fires in rolling stock, two derailments in train traffic (both involving freight trains) and one case of a person being run over, resulting in one fatality were classified as significant accidents.

The annual number of accidents and incidents during shunting decreased compared to the previous year, and the annual number of shunting occurrences has also decreased when examining the figures for the last 10 years. This decrease can be seen especially in the number of collisions and cases involving the passing

of signals at danger. One of the key background factors in the decline in the number of shunting occurrences in 2023 is thought to be a shunting speed reduction trial launched in 2022. Several factors are thought to contribute to long-term positive development, such as promoting a good safety culture and ensuring safe working methods.

Most of the fatalities on Finnish railways are caused by a person being run over by a train due to trespassing on railway premises. These accidents cause approximately 50 to 60 fatalities every year. Most of the people being run over deliberately trespassed. No clear trend can be observed in the annual numbers of accidents involving a person being run over. In 2021 the number of accidents involving persons and rolling stock in motion was below average, but in 2022 and 2023, it returned to the level of previous years.

The most common safety occurrences during track maintenance work have remained nearly unchanged from year to year. They include track work protection errors, unauthorised passing of the boundary of the track work area, working without a track work permit, errors involving track work location and the opening of the track work site to traffic and neglecting to follow the safety guidelines. According to statistics, the safety of track maintenance has clearly improved with respect to the last seven years – the annual number of safety deviations has decreased in all safety occurrence groups. A shorter-term analysis reveals that, in 2023, this positive trend decreased slightly and there was a small increase in the total number of safety occurrences compared to the previous year. Increases were observed in areas such as the number of track work protection errors, and as a result, several development proposals have been recently identified and implemented to reduce them (the work began in 2023 and has continued in 2024).

A lot of good work is being done to improve railway safety. Operators have gradually increased their focus on taking human and organisational factors into account in their operations and its supervision. Traficom has also started to take company operations into consideration with regard to safety culture. Traficom also strives to improve the overall level of safety management by ensuring that the operating methods described in operator' safety management systems are put into practice. Changes in working methods occur fairly slowly, but the development is headed in the right direction.

2 Traficom's safety operations and organisation

2.1 Safety strategy and plans

The objectives of Traficom's Rail Transport service package for 2023 were determined in late 2021. At that time, the objectives of Traficom's Rail Transport Services service area for 2022–2024 were determined on the basis of strategy guidelines at the level of Traficom as a whole. The focus areas of Traficom's operational strategy at that time were: 1) Forecasting and future needs, 2) Preconditions of the operation and freedom from disturbances, 3) Information and services, as well as 4) Development. Themes specified as important to Rail Transport Services were Reliability, Safety Management, Interoperability, Internal Development Projects and Job Satisfaction. These themes were mirrored to the focus areas of the operational strategy, and based on them, a total of 24 goals for the years 2022–

2024 were specified for the operation of Rail Transport Services. There were 37 more detailed measures related to the objectives specified, and at least one person responsible was assigned to each of them. In 2023, the realisation of the goals and related measures was monitored at the team level. For each team, the goals were divided into the following six areas: 1) permit work, 2) supervision, 3) development work, 4) national and international influence, 5) well-being at work and 6) strategy. The realisation of the measures related to the goals was monitored every three months.

In 2023, Traficom launched development work related to the annual safety plan referred to in the Directive on railway safety ((EU) 2016/798). Traficom promised to share the experiences from this development work with the European Union Agency for Railways (ERA) and other Member States. The aim is to draw up a safety plan covering the entire Finnish rail transport system, which defines the key safety objectives and safety vision of the Finnish rail transport system and determines measures that support the achievement of the goal and covers a wide range of operators in the sector. The aim is that the safety plan enables achieving the common safety targets set for Finland, and Traficom can use the plan to define its operational targets for the coming years. The outlining of content for the safety plan began in 2023. In addition, preliminary plans were presented to key operators and the Ministry to receive feedback.

2.2 Safety recommendations

Figure 2 presents the implementation status of rail transport safety recommendations issued by the Safety Investigation Authority, Finland (SIAF) as of 2010. Most of the recommendations (86.7%) have been implemented. It has been decided not to implement a few of them, and concerning some recommendations, the realisation is still in progress. As Figure 2 shows, the implementation of all rail transport safety recommendations issued in 2023 is still under preparation.

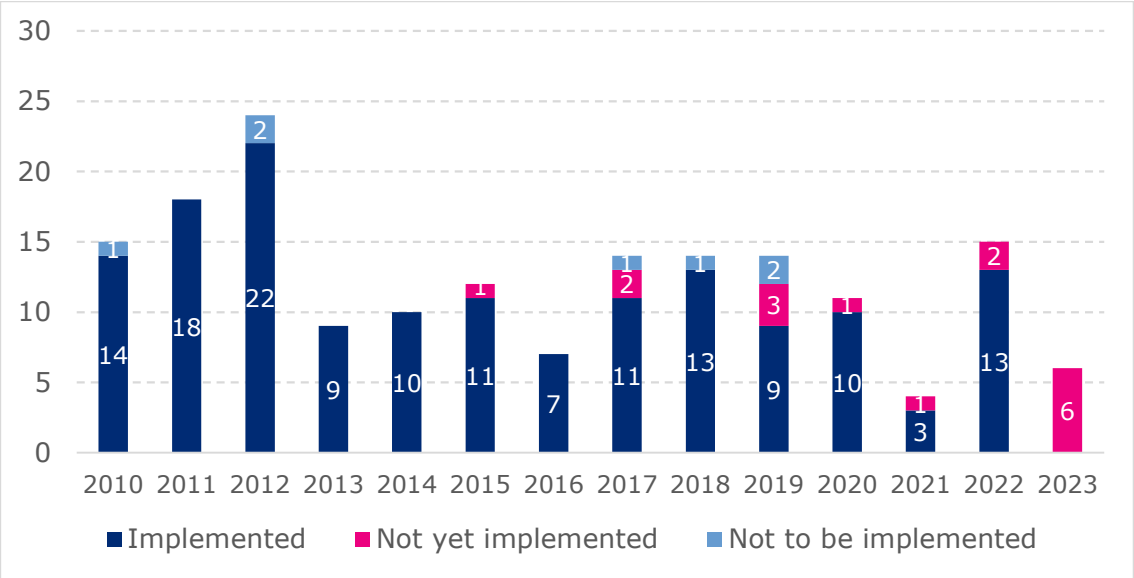

Figure 2. Annual number and status of rail transport safety recommendations issued by the Safety Investigation Authority, Finland in 2010–2023.

In 2023, the Safety Investigation Authority issued six safety recommendations, but none of them concerned rail traffic (the recommendations were concerned with urban rail transport, i.e. metro and tramway).

2.3 Actions taken on the basis of safety recommendations

The realisation of actions taken on the basis of safety recommendations is monitored in an annual recommendation monitoring meeting led by the Safety Investigation Authority. Participants in said meeting include all the parties to whom recommendations have been issued (e.g. railway undertakings, rescue services, police, municipalities and road infrastructure managers). In the meetings, the parties review the status of all recommendations that have not been fully implemented.

In 2023, no safety recommendations concerning new railway traffic were issued to Traficom. The following safety recommendation issued in 2020 was still unresolved at Traficom: *2020-S31 The Finnish Transport and Communications Agency develops its safety deviation information system so that it can be used to follow the processing of deviations. Furthermore, the Finnish Transport and Communications Agency ensures that all operators in the railway industry have functional deviation management processes.*

The following responses to this recommendation were made during 2023: *Safety deviation reporting systems are under development on both the national and the EU level. Traficom has developed a tool for the more effective analysis of reported safety deviation data, and a reform of the information system for processing deviation data is underway. In addition, work is underway at the national level to harmonise the reporting of safety deviations in accordance with the future CSM ASLP Regulation[3] of the European Commission. The work will update the currently applied taxonomy of safety deviations and reform the operating methods for reporting deviations to meet new time limits and other requirements, for instance. Traficom has also renewed its external website, which provides information on the safety of railway traffic.*

Traficom is also in the process of updating the instructions related to notification of rail traffic disruptions, which will be converted into a regulation. The update will clarify the operating models for reporting incidents leading to potential accidents and incidents (data content, timetables, etc.) and specify the incident classifications used in connection with reporting. The aim is to adopt the regulation in summer 2024. This regulation does not yet take into account the changes brought about by the CSM ASLP Regulation but will be updated if necessary after its entry into force.

The deviation reporting management processes of operators are reviewed in audits conducted by Traficom. In addition, the deviation reporting management process, incidents, the analysis of deviations and the utilisation of the collected data are discussed with the operators in various cooperation groups and meetings as

[3] CSM ASLP Regulation = An EU Regulation that provides a common approach to the assessment of the safety level and safety performance achieved by railway operators. Additional information: https://www.era.europa.eu/content/common-safety-methods-assessment-safety-level-and-safety-performance-csm-aslp

well as in safety dialogues. Efforts have also been made to develop the use of deviation data in Traficom's internal operations. One example of this is the better use of deviation data in determining Traficom's oversight strategy and plan.

2.4 Organisation of railway operations in central government administration and the Finnish Transport and Communications Agency

In 2023, transport matters in Finland fell within the remit of the Ministry of Transport and Communications, which prepares the policies, strategies and legislation concerning the transport sector. The Finnish Transport and Communications Agency Traficom served as the national railway safety authority. The Rail Regulatory Body, which ensures well-functioning markets and the fair and non-discriminatory treatment of operators, also operated in conjunction with Traficom.

The Finnish Transport Infrastructure Agency was the infrastructure manager of the state-owned rail network and also assumed responsibility for roads and waterways. In addition to the state-owned rail network, there were approximately 150 track sections in Finland owned by industrial plants, ports and municipalities that connect to the state-owned railway network. The length of private sidings varies from spur tracks of less than a hundred metres to networks of dozens of kilometres. In practice, traffic on private sidings is always shunting. Traffic management services were provided by Traffic Management Company Fintraffic Ltd (Fintraffic), a state-owned special task company, whose subsidiary, Fintraffic Railway Ltd, is responsible for traffic management on railways. Other subsidiaries of Fintraffic specific to each mode of transport were responsible for traffic management services for shipping, road traffic and aviation.

In 2023, the largest operator on Finnish railways was VR Group Plc, which carried out both passenger and goods transport. Other goods transport operators (other than shunting) also included North Rail Oy, Fenniarail Oy and FoxRail Logistics, and heritage train operators also carried out passenger traffic. Other operators included local shunting operators, track maintenance companies as well as operators that moved rolling stock on tracks closed to other traffic.

The Safety Investigation Authority, which operates in conjunction with the Ministry of Justice, was responsible for investigating rail accidents in Finland.

At Traficom, rail transport tasks are handled by the Rail Transport service area. The Rail Transport service area's main responsibilities included the duties of the national safety authority based on the Directives on interoperability, safety and qualifications. In 2023, the Rail Transport service area underwent an organisational restructuring, resulting in the formation of four teams. The teams carried out the tasks as follows:

- The rail transport processes team was particularly responsible for coordination and development tasks related to oversight and permit management (including risk management), safety monitoring and analysis, reliability and cybersecurity, eastbound traffic, safety culture, human and organisational factors, and the rail transport operating system and quality.
- The transport team was responsible for areas such as the permit, oversight and registration tasks related to rail transport operators, urban rail

transport, educational institutions in the railway sector, recipients of theses and train operators.

- The rolling stock team was responsible for the permit, oversight and registration tasks related to rolling stock.
- The railway network team was responsible for the permit, oversight and registration tasks related to the operation of infrastructure managers.

At the end of 2023, Traficom had approximately 1,000 employees and operated in 15 cities. At the end of 2023, 35 Traficom employees worked exclusively with rail transport matters. Traficom continued to develop its competence management in 2023, and this also affected rail transport. The prolonged Russian war of aggression against Ukraine continued to have a significant impact on the transport system, which highlighted the importance of preparedness, reliability and cybersecurity. Additionally, rail transport had its own development projects in progress related to matters such as supervision, licence management and the management of operator information. There was also active work related to rail transport in the Digirail project.

Advocacy related to the railway system was particularly visible in working groups operating under the European Union Agency for Railways. There was a wide range of participation and influence in the work led by the European Union Agency for Railways. This was reflected in aspects such as the finalisation of the work on technical specification on the interoperability of rolling stock, the promotion of the cybersecurity of the railway system and the development of the safety culture.

3 Status of railway safety

3.1 Safety of train traffic

Accidents in train traffic

VR Group Plc reported 66 collisions with obstacles and nine fires in rolling stock in train traffic in 2023 (Figure 3). The figure shows that collisions of rolling stock with obstacles have clearly increased since 2021. This is likely partially explained by the fact that in recent years train drivers have been requested to actively report collisions with banks of snow. There was a change to this growing trend in April 2023, when VR Group Plc agreed that in the future, collisions with snowbanks at level crossings will be reported as level crossing occurrences in the future. As a result, fewer collisions of rolling stock with obstacles were reported in 2023 than in previous years.

In 2023, there were nine fires in rolling stock in train traffic, two of which were classified as significant accidents. The yearly number of fires in rolling stock has remained at a nearly identical level in recent years. During the five years preceding 2023, an average of ten fires in rolling stock occurred per year. Fires in rolling stock typically start in the locomotive engine rooms, wagon brakes or passenger carriages' heating equipment.

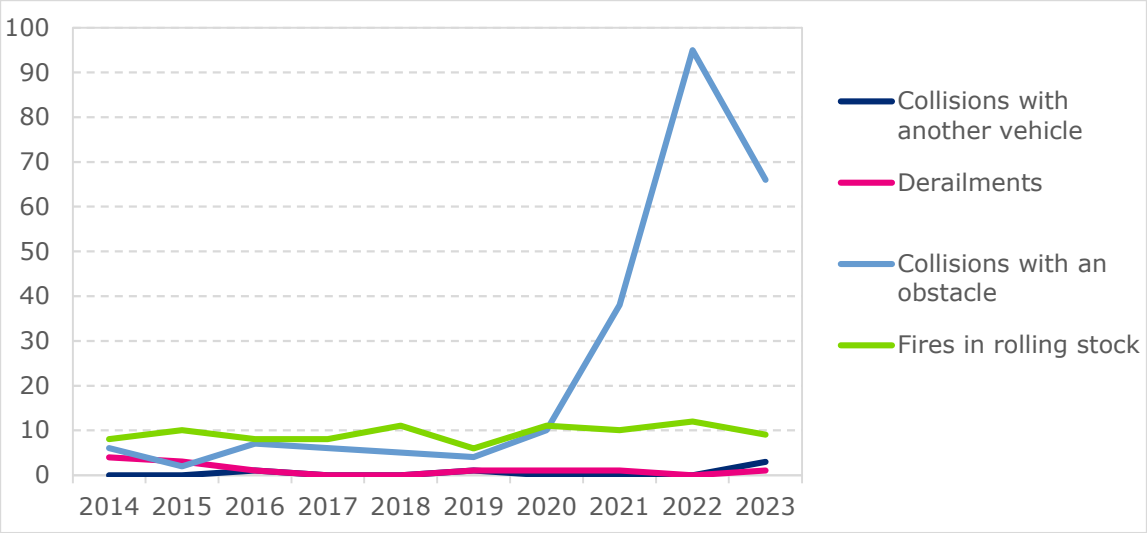

Figure 3. Number of train traffic accidents in VR Group Plc's statistics by accident type in 2014–2023.

In 2023, there were three collisions between rolling stock and two derailments in train traffic. Three of these cases were classified as significant railway accidents due to the resulting costs (over EUR 150,000). The first of these was a collision of freight trains in Tampere on 20 September 2023, which is under investigation by the Safety Investigation Authority. In the accident in question, the last wagon of a freight train collided with the wagons of another freight train, resulting in the derailment of several wagons. The second accident occurred on 30 November 2023 in Tampere, where the locomotive and the bogie of the first wagon of a freight train were derailed[4]. This incident is also under investigation by the Safety Investigation Authority. The third accident occurred on 8 December 2023 in Imatra, where a freight train was derailed due to a stop block that had been left on the track.

In addition to the above, there were two collisions between rolling stock units. Both collisions occurred when the train rolled backwards and hit the cab of the train behind it.

Incidents in train traffic

Accidents in train traffic are rare, which means that random variations play a major role in their yearly numbers. As a result, the development of the yearly number of accidents is not the best indicator for the development of safety in the short term. Incidents occur more frequently than accidents, which means that monitoring their number and severity makes it possible to obtain a clearer picture of the safety development trends than when looking at accidents. However, it is important to note that a change in the yearly number of reported incidents may indicate not only changes in the safety situation but also in the culture of reporting occurrences.

[4] The case in question is not included in the numbers presented in Figure 3, as the operator involved in the incident was Fenniarail Oy.

In 2023, there were 76 incidents in accordance with the EU Common Safety Indicators[5] in Finnish railways (Figure 4). The total number of incidents was very similar to the previous year (79 in 2022).

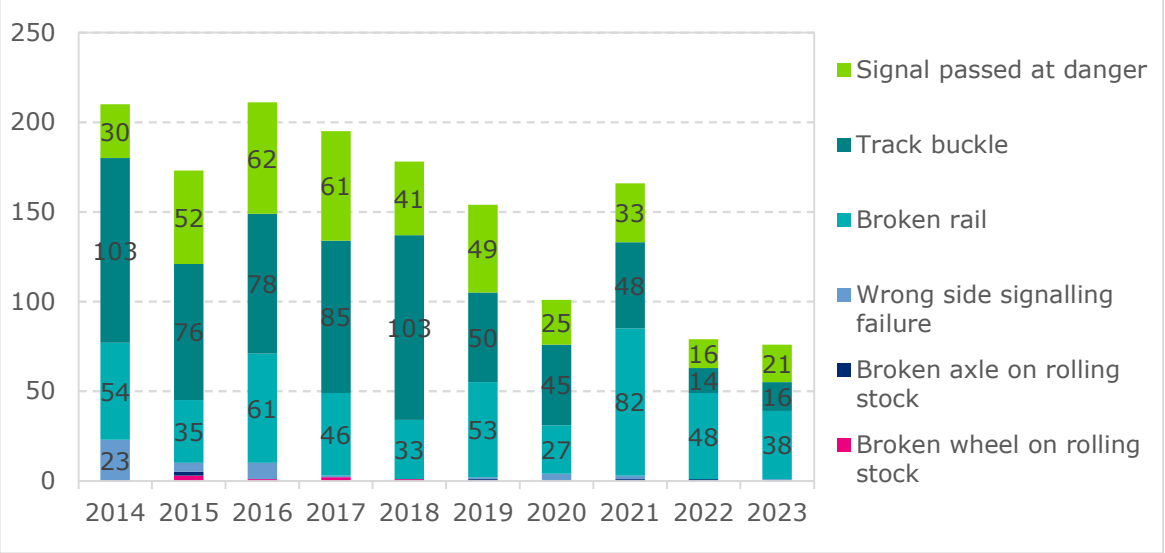

Figure 4. Number of incidents on railways by the precursor according to the EU Common Safety Indicators in 2014–2023. Numbers less than ten are not shown on the columns in the figure.

In 2023, there were 21 cases of signal passed at danger in train traffic. The number was slightly higher than in the previous year but lower than in the years preceding it. Between 2018 and 2022, the average number of annual cases of signal passed at danger was 33, and before that (2014–2017), the corresponding figure was 51. This means that the number of cases of signal passed at danger in train traffic has decreased clearly in recent years. The factors that have contributed to the reduction are not known. These incidents typically occur at low speeds, and the automatic train protection (ATP) device stops the rolling stock as soon as the signal has been passed. The risks associated with passing a signal at danger are higher when operating without ATP.

In 2023, the Finnish Transport Infrastructure Agency was notified about 38 broken rails and 16 track buckles. The number of broken rails decreased by ten from the previous year, and the track buckle rates were highly similar to the previous year. In this context, it should be noted that a large annual variation has been identified in the reporting of track buckles and other track geometry errors. There may be errors in the classification of cases, and it is not certain if all cases have been reported as safety occurrences. Therefore, caution should be exercised considering the annual numbers of geometry errors and changes in the numbers.

In 2023, the Finnish Transport Infrastructure Agency had several measures in place to reduce broken rails. As in previous years, the Finnish Transport Infrastructure Agency organised welding days to improve the quality of welds, and maintenance also enhanced its supervision of matters related to welding. The Finnish Transport Infrastructure Agency also required contractors carrying out rail welding to have a certified welding quality system in accordance with ISO 3834-2.

[5] The EU Common Safety Indicators have been specified in Annex I to the Directive (EU) 2016/798 of the European Parliament and of the Council (Railway Safety Directive).

Two development projects were also ongoing: 1) systematic collection and investigation of broken rails initiated at the beginning of 2021, in which the broken surfaces were examined to collect data on the causes of rail breakage and the necessary corrective measures taken; and 2) a development project launched in 2022 that involved developing an ultrasonic testing device to produce reliable information on rail condition for both contractors and the Finnish Transport Infrastructure Agency. In addition to the aforementioned measures, the Finnish Transport Infrastructure Agency aimed to prevent the occurrence of train buckles caused by hot weather through instructions developed for service providers and contractors.

3.2 Safety of shunting

Shunting refers to the moving and sorting of vehicles to support train traffic. More accidents and incidents usually occur in shunting work than in train traffic because, unlike in train traffic, technical safety systems play only a minor role in shunting, and the shunting staff is mainly relied on to ensure the safety of the work. Because of the low speeds involved, however, the consequences of shunting accidents are typically less serious than those occurring in train traffic. Nonetheless, extremely serious accidents may occur in shunting, too, because of the great masses of the vehicles and the potential of dangerous goods being present.

According to the statistics[6] of VR Group Plc, there were 39 cases of derailment and 24 collisions during shunting in 2023. The number of collisions and derailments has been on the rise over the past couple of years, but in 2023, the number of collisions and derailments fell to a level lower than in the previous couple of years (Figure 5). There were a total of 88 shunting occurrences in 2023, which is almost half of the previous year's number (161 in 2022). One of the key background factors thought to have brought down the number of shunting occurrences in 2023 is the trial to reduce shunting speeds launched by VR Transpoint in 2022. The trial also continued in 2023. With a few exceptions, shunting speeds were reduced from 35 km/h to 20 km/h. In 2022, VR Group Plc also launched a shunting deviation analysis project, based on which several recommendations were drawn up to improve shunting safety.

[6] The statistics by VR Group Plc do not cover all shunting carried out in Finland. However, they are currently the most comprehensive statistics on the topic.

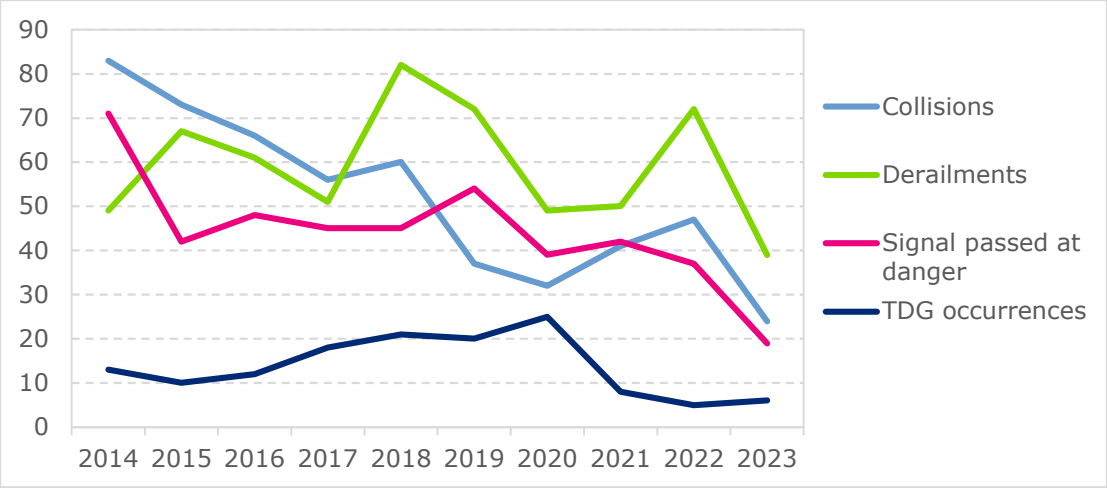

Figure 5. The number of shunting occurrences in statistics compiled by VR Group Plc by type of occurrence in 2014–2023.

Figure 5 shows that the number of shunting occurrences did not only decrease last year - the decline can also be clearly seen in the analysis of the previous 10 years. In addition to the above-mentioned factors, it is estimated that there are several factors behind this longer-term positive development, such as promoting a good safety culture and ensuring safe working methods.

3.3 Safety of transport of dangerous goods

The volumes of dangerous goods transported in Finland's railways have been declining for a long time. In the late 1990s, nearly seven million tonnes of dangerous goods were transported per year, and in the 2010s, the annual transport volumes remained at approximately five million tonnes. The volumes of dangerous goods transported fell to 4.2 million tonnes in 2021 and further to around 4 million tonnes in 2022. In 2023, the volumes continued to decline, as around 1.75 million tons of dangerous goods were carried by rail in Finland. Most of the transport of dangerous goods on Finnish railways has been transit traffic between Russia and Finland. Therefore, the decrease in the transport of dangerous goods that began in 2021 is related to issues such as the COVID-19 pandemic (Russia may have made more use of its own ports in the Gulf of Finland, for example, in liquid cargo transport) and the beginning of Russia's war of aggression (VR Group Plc discontinued all Russian traffic at the end of 2022).

Until 2020, VR Group Plc was the only operator engaging in the transport of dangerous goods in Finland. In 2021, Operail Finland Oy (currently North Rail Oy) and FoxRail Logistics Oy in addition to VR Group Plc transported dangerous goods. In 2022, the group of operators expanded to also cover Fenniarail, which started transporting dangerous goods at the start of 2022. However, as a result of the Russian war of aggression, the volumes of dangerous goods transported by Fenniarail decreased rapidly and ended completely by the end of 2022. FoxRail Logictics Oy did not transport any goods classified as dangerous goods in 2023, so the only operators carrying dangerous goods in 2023 were VR Group Plc and North Rail Oy.

In 2023, VR Group Plc transported approximately 1.4 million tonnes of dangerous goods, which corresponds to approximately 80% of all dangerous goods transported in Finland. Most of the dangerous goods transported in Finland were corrosive substances. In addition, flammable liquids and gases were transported.

There were no serious incidents involving dangerous goods in 2023. Wagons carrying dangerous goods were involved in two major accidents, the first of which took place on 3 March 2023 in Hangonsaari, where rolling stock units collided during shunting and a wagon derailed. The accident did not cause any leaks of hazardous substances. The second accident occurred on 9 May 2023 in Sulkulahti, Joensuu, where a freight train arriving in Joensuu hit a faulty section of the railway line. As a result of the incident, the catenary fell down and the situation caused electric track damage.

According to VR Group Plc's reports, there were five minor leaks in the transport of dangerous goods in 2023. According to North Rail Oy, the company had no safety occurrences related to the transport of dangerous goods in 2023.

3.4 Safety of work on tracks

Track work refers to work carried out on the tracks or in their vicinity that may affect the safety of train traffic. In fact, the safe coordination of track work and train traffic has been a key challenge to railway safety for a number of years.

The majority of track work in Finland is carried out on the state-owned railway network, which is managed by the Finnish Transport Infrastructure Agency. The Finnish Transport Infrastructure Agency reviews the development of safety occurrences in track maintenance by occurrence group. The starting point for the changes presented in Table 1 is the number of safety occurrences in 2017, which is used as a basis for comparison with the numbers for 2021, 2022 and 2023. Table 1 shows a positive development in the safety of track maintenance compared to 2017: the annual number of safety occurrences in track maintenance has clearly decreased in all occurrence areas based on the comparison of the status in 2017 and 2023. However, a more detailed examination indicates that this positive trend declined slightly in 2023 and there was a small increase in the total number of safety occurrences compared to the previous year (reduction: -44% in 2023 vs. -52% in 2022). The number of occurrences increased compared to the previous year in the following occurrence areas: (i) working without a track work permit and unauthorised passing of the track work area, and other mistakes in the actions of the person in charge of track work (ii) Errors involving the track work location and the opening of the track work site to traffic, and (iii) Speed limit and automatic train protection (ATP) errors. Meanwhile, there was a clear decline in the number of occurrences involving collisions during track work or collisions due to obstacles due to track work and a minor decline in errors in security guard operations.

Table 1. Development of the number of safety occurrences in track maintenance from 2017 to 2021, 2022 and 2023 by occurrence group (Annual Railway Safety Report 2023 of the Finnish Transport Infrastructure Agency).

Safety occurrence group	Change		
	2017 → 2021	2017 → 2022	2017 → 2023
Collisions during track work or collisions due to obstacles due to track work	-60 %	0 %	-80 %
Working without a track work permit and unauthorised passing of the track work area	-44 %	-40 %	-30 %
Errors involving the track work location and the opening of the track work site to traffic, other mistakes in the actions of the person in charge of track work	-54 %	-66 %	-47 %
Error in security guard operation	-52 %	-60 %	-76 %
Speed limit and automatic train protection (ATP) errors	-61 %	-64 %	-52 %
All occurrences	**-50 %**	**-52 %**	**-44 %**

In its safety report, the Finnish Transport Infrastructure Agency reviews the development of track work safety through the number of key occurrences and the success rate (Figure 6). The success rate is calculated by dividing the number of key occurrences by the track work permits granted. The success rate for 2023 was very similar to the previous two years. The number of safety occurrences increased slightly, which resulted in a small decrease in the success rate. As shown in Figure 6, there has been a positive development in the safety of work on tracks for several years, both based on an examination of the annual number of key occurrences as well as the success rate.

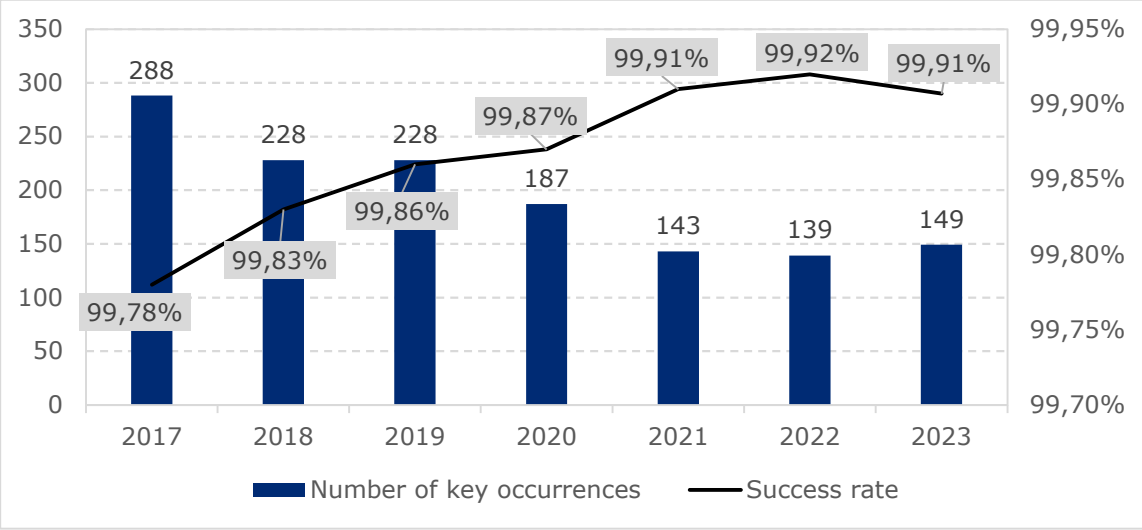

Figure 6. Developments in track work safety (number of key occurrences & success rate) in 2017–2023 (Annual Railway Safety Report 2023 of the Finnish Transport Infrastructure Agency).

The most common safety occurrences that occur during track work include track work protection errors, unauthorised passing of the track work area, working without a track work permit, errors involving the track work location and the opening of the track work site to traffic, and neglecting to follow the safety guidelines.

3.5 Level crossing safety

In 2023, there were 14 level crossing accidents, which is one less than in 2022. This marked the lowest annual number of level crossing accidents in the monitoring history of over 70 years (Figure 7). Most of the level crossing accidents in 2023 (n = 13) took place on the state-owned railway network and one on a privately owned rail. The accident on private sidings only caused material damage. Of the level crossing accidents on the state-owned railway network, 11 resulted in personal injuries and two caused only material damage. With regard to the consequences of level crossing accidents, 2023 was worse than in the previous year, as three people died in the accidents (cf. one person in 2022). In addition, three people were seriously injured.

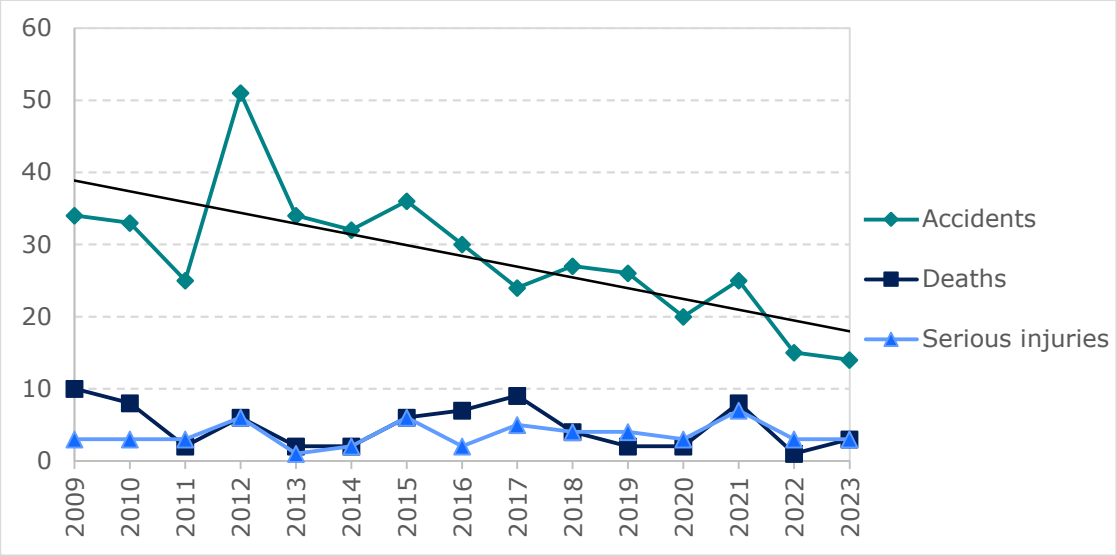

Figure 7. Numbers of level crossing accidents and resulting casualties in 2009–2023.

The annual number of level crossing accidents shows a declining trend over the long term. Despite the declining trend in the number of level crossing accidents over the long term, they still constitute one of the greatest safety issues in the Finnish railway system. As in the previous year, less than one third of significant railway accidents were level crossing accidents in 2023.

Six of the level crossing accidents in 2023 were classified as significant railway accidents due to the personal injuries they caused: three people died and three were seriously injured in the level crossing accidents. One of the accidents that led to a serious injury occurred at a crossing with automatic half barriers (the warning system was out of operation at the time of the accident) and the rest of the significant level crossing accidents took place at passive level crossings. Two of the six people killed and seriously injured in level crossing accidents were riding a bicycle and the others were in a car or a van.

The railway infrastructure manager, i.e. the Finnish Transport Infrastructure Agency, plays a key role in improving the safety of level crossings. There is an ongoing level crossing removal and improvement programme to improve the safety of level crossings, and other projects and track maintenance measures are also used to improve the safety of level crossings. According to the Finnish Transport Infrastructure Agency, in 2023, 30 level crossings were removed, the safety of 15 level crossings was improved, and warning systems were added to three level crossings. In addition to the above, in 2023, the ongoing measures to improve safety at level crossings included a survey on the status of level crossings (investigating the level crossings to be included in future improvement measures), several projects to set guidelines (e.g. level crossing principles and the use and selection of level crossing superstructures) and a three-year level crossing campaign in cooperation with several operators.

For private sidings, improving safety at level crossings is the responsibility of the infrastructure managers of these sidings. Level crossings on private sidings are mainly located in industrial plants and in ports. While access to these areas is typically restricted, incidents and accidents related to level crossings occur fairly frequently and have been identified as one of the key safety risks associated with the activities. Private siding managers have made efforts to improve the safety of level crossings, for example by including related information in the safety orientation of employees and by installing STOP signs, level crossing systems or various sound and/or light warning devices at level crossings in their tracks. In addition, at some sites, level crossings have been monitored using cameras, and the resulting observations may have been used to change the traffic arrangements in the area to reduce the need for passing the level crossing (e.g. relocation of functions or restriction of movement).

3.6 Personal injuries in railway accidents

Four people died in railway accidents in 2023 (Figure 8). The number is the same as the year before and very similar to that in the period 2018–2020. In 2017 and 2021, the number of fatalities was clearly higher than in other years, which was related to a higher number of fatalities in level crossing accidents compared to other years. Of the persons killed in railway accidents in 2023, three died in a level crossing accident and one was accidentally hit by a train. Two of the fatalities in level crossing accidents were drivers and one was a cyclist.

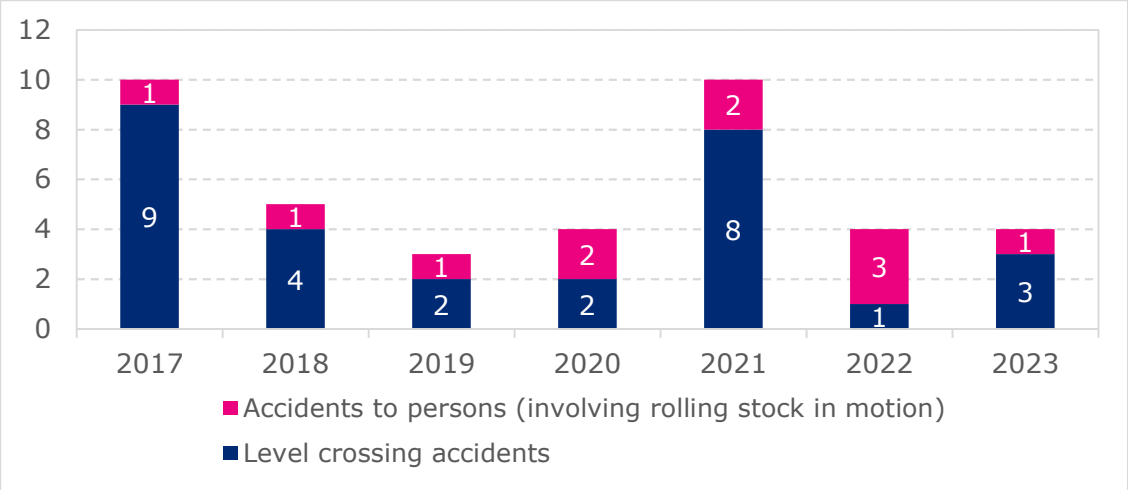

Figure 8. The number of people who have died in railway accidents by type of accident in 2017–2023.

Three people were seriously injured in railway accidents in 2023 (Figure 9). All these people were involved in a level crossing accident – two as drivers of vehicles and one as a cyclist. While the number of seriously injured persons is somewhat lower than in previous years, conclusions cannot yet be drawn on the development of safety based on the figures for an individual year.

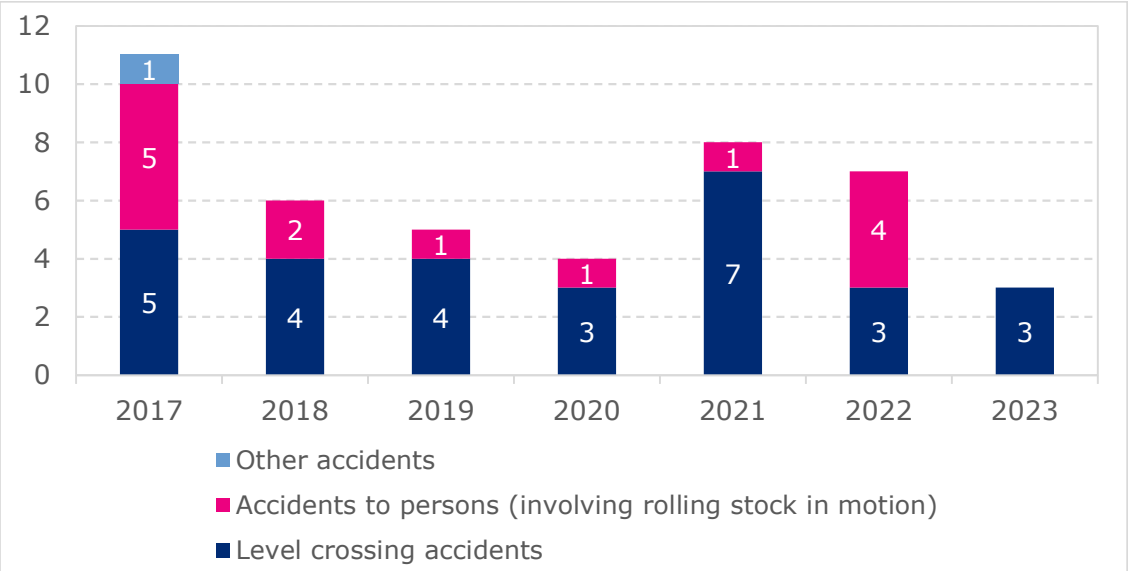

Figure 9. The number of people who were seriously injured in railway accidents by type of accident in 2017–2023.

Table 2 shows the safety occurrences related to trespassing on railway premises in 2017–2023 compiled by the Finnish Transport Infrastructure Agency. Almost invariably, a person trespassing on railway premises being run over by the train leads to the death of that person. Most of these are deliberate. The yearly number of persons being run over by a train has remained on a very similar level for several years, and there is no clear trend visible. In 2021, there were slightly fewer cases of a person being run over than before, but in 2022, the number returned to the previous level. In 2023, the number of incidents involving persons and rolling stock in motion was very similar to the previous year and in 2017–2018. There is no clear explanation for the lower number of cases of a person being run

over in 2021 or the lower number of incidents in 2019–2021. There were clearly fewer cases of trespassing on railway premises reported in 2022 and 2023 than in previous years. Discussions with operators have revealed that the changes in the reported number of cases of trespassing on railway premises reflect a change in the reporting frequency of such incidents rather than the frequency of the incidents themselves. Table 2 also shows that fewer occurrences related to vandalism were reported in 2022 and 2023 than in previous years. However, this does not necessarily mean that vandalism on the rail network is decreasing. The challenges with regard to monitoring cases of vandalism include the frequency of reporting vandalism and the fact that some of the occurrence reports include several cases of vandalism (e.g. occurrences detected during one week).

Table 2. Safety occurrences related to trespassing on railway premises in 2017–2023 (Annual Railway Safety Report 2023 of the Finnish Transport Infrastructure Agency).

Accidents involving personal injuries and trespassing	2017	2018	2019	2020	2021	2022	2023
Accident involving persons and rolling stock in motion	70	61	62	56	38	59	59
Incident involving persons and rolling stock in motion	55	50	16	9	19	53	59
Trespassing on railway premises	108	124	171	194	254	82	75
Other accident involving personal injury[1]				32	10	9	1
Other personal injury[2]	3	4	3				
Vandalism	299	205	205	394	251	166	161
Yhteensä	**535**	**444**	**457**	**685**	**572**	**369**	**355**

[1] Includes all other accidents involving personal injury related to the railway system excluding accidents involving a person being run over (including accidents involving personal injury previously reported with other accidents).

[2] As of 2020, all personal injuries are reported in the summary for accidents involving personal injury.

The prevention of cases of persons being run over by a train and the related cases of trespassing on railway premises as well as unauthorised crossing of the tracks is regularly discussed among the operators in various cooperation groups. In 2019, a cooperation group aiming to prevent persons from being run over by a train started its operations, convened by Traficom; its goals include improving the exchange of information between the different actors and promoting the implementation of research and preventative measures related to the topic. In addition to rail sector operators, participants in this group include representatives of the police, research institutes and the social and healthcare sector. In 2023, the Finnish Transport Infrastructure Agency participated in the implementation of the *Voit vielä valita* (‘You can still choose’) campaign, which warned of the dangers of climbing on top of rolling stock. In addition, the Finnish Transport Infrastructure Agency and VR Group Plc ran a social media campaign with the theme *Jätä rata rauhaan* (‘Leave the tracks alone’) during the school autumn holidays in 2023. The campaign included, for example, an animation that premiered in 2022 and a game that reminds young people of railway safety.

4 Changes in legislation

No substantive amendments related to the implementation of EU regulation were made to the Rail Transport Act (1302/2018) in 2023.

The new Act on the Transport of Dangerous Goods (541/2023) entered into force on 1 September 2023 and also introduced new obligations for the transport of dangerous goods by rail. As a result of the entry into force of the Act, Traficom will act as the general supervisory authority for the Act on the Transport of Dangerous Goods and process matters such as the appointment of a railway safety adviser.

In 2023, Traficom issued a total of three regulations on rail transport, of which the regulation on urban rail transport specified and updated the reporting of safety occurrences and the significance of reliability in urban rail transport. In addition, a regulation on the transport of dangerous goods by rail was issued, and the regulation concerning the rail system infrastructure subsystem was updated in order to bring national regulation into line with the changed EU regulation.

As in previous years, Traficom informed stakeholders about regulatory amendments, e.g. by organising cooperation group meetings and an information session to ensure that the drafting process would be as open and transparent as possible. Due to the current security situation, the focus of the stakeholder discussions was on developing operational reliability and cybersecurity as well as topical regulatory issues. Cooperation with stakeholders was again good and necessary to further develop both operations and regulation and take the security situation into account.

5 Certificates and authorisations

5.1 Safety certificates and authorisations

Safety certificates

In 2023, four single safety certificates were issued to the following rail transport operators: Kreate Oy, Suorsa Group Oy, SSAB Europe Oy and Keitele Museo Oy. However, Keitele Museo Oy’s certificate was withdrawn in the same year due to shortcomings detected during supervision.

Safety authorisations

In 2023, safety authorisations were granted to 13 railway infrastructure managers: Turun Satama Oy, Oulun Satama Oy, Pietarsaaren Satama Oy, Borealis Polymers Oy, Porin Satama Oy, KIP Service Oy, Raahen Satama Oy, Hangon Satama Oy, Naantalin Satama Oy, Loviisan Satama Oy, Kokkolan Satama Oy, Helsingin Satama Oy and the City of Kotka.

Authorisations for placing vehicles in service or on the market

Since mid-2019, Traficom has mainly granted authorisations of placing vehicles on the market in accordance with the new Directive that are processed at the One-Stop Shop (OSS) of the European Union Agency for Railways. For vehicles governed by national regulation, authorisations for placing in service may also still

be issued. However, many authorisations based on national regulation were also granted via the OSS. No vehicle authorisations were cancelled in 2023.

In 2023, vehicle authorisations were granted to the following four applicants:

- Matisa Matériel Industriel SA: First authorisation, 1 pc
- VR Group Plc: Authorisations for placing on the market based on conformity to a type (68)
- NRC Group Finland: Authorisations for placing on the market based on conformity to a type (1)
- Teräspyörä-Steelwheel Oy: Authorisations for placing on the market based on conformity to a type (1)

After an audit performed by ERA in 2023, Traficom began developing the rolling stock permit process, which aims at more justified and documented decisions. In addition to minor justifications and documentation, previous decisions found shortcomings in such areas as ERATV and ERADIS entries.

5.2 ECMs

In 2023, there were three certified Entities in Charge of Maintenance (ECM) of rolling stock in Finland. In addition, there are three ECMs operating in Finland that maintain rolling stock solely for their own operations and are not required certification based on a derogation under the ECM Regulation (779/2019/EU). In addition to the above, there are seven ECMs responsible for the maintenance of rolling stock in historical use that are not required certification based on a national derogation (Rail Transport Act, 1302/2018, section 74).

In 2023, an ECM certificate and a maintenance certificate were issued to one new entity responsible for the maintenance of rolling stock. Additionally, an ECM certificate and a maintenance certificate were renewed for one entity and the recertification process was launched for one entity in 2023 but the certificates were not issued until 2024.

No discrepancies were reported in the certification process and supervision of certified ECMs in 2023.

In 2022, a part of the operation involved railway traffic between Finland and Russia, which took place within the framework of an agreement on a direct international rail link between the two countries. Under this agreement, the freight wagons used in traffic between the countries are inspected at the border crossing before being used on the Finnish rail network. As vehicles approved and registered in Russia do not have an ECM determined under EU regulation, three railway undertakings (VR Group Plc, Fenniarail Oy and North Rail Oy) have been granted a derogation from the ECM obligations under Article 15 of the Railway Safety Directive.

5.3 Train driving licences

In 2023, Traficom issued 63 new train driving licences and renewed 95 licences. Three previously issued licences were updated/amended and eight licences were revoked. The reason for revocation was the failure of drivers to meet the medical

requirements. The validity of four licences was restored once the licence conditions were once again met.

In total, 2,988 train driving licences had been issued in Finland by the end of 2023, and 2,139 licences were valid at year's end.

5.4 Authorisations for placing structural subsystems in service

In 2023, Traficom issued 38 authorisations for placing structural subsystems in service. The number of authorisations granted increased slightly from the previous year, but nevertheless corresponded to the level of previous years. The scope and complexity of railway projects issued with authorisations for placing in service varied from comprehensive track improvement projects to smaller-scale sites limited to individual tracks. During 2023, no authorisations for placing in service were granted to new track routes in Finland.

Authorisations for placing structural subsystems in service are processed as laid down in the Interoperability Directive (2016/797/EU), the national Rail Transport Act (2018/1302) and the Government Decree on the interoperability of the railway system (284/2019).

5.5 Information exchanges between Traficom and operators

An effort has been made to keep the threshold for information exchanges between Traficom and railway operators low. Channels for liaising with the operators include information events organised by Traficom (e.g. for railway operators and railway infrastructure managers), one-to-one meetings between Traficom and operators, and direct discussions between Traficom's public officials and operator representatives as well as joint events and sessions for parties involved in the sector. Traficom holds regular one-to-one cooperation meetings and engages in safety dialogues with the largest operators to discuss topical issues and other themes the operators wish to address. Similar events may also be organised with smaller operators upon request. There is also a lot of less formal cooperation whenever necessary and, for example, in connection with supervision. There is particularly regular contact with VR Group Plc and the Finnish Transport Infrastructure Agency.

Traficom coordinates cooperation groups on various topics for discussing topical issues and sharing information about them. These include e.g. the network for human and organisational factors in rail transport, the rail transport safety and analysis group, the group on preventing accidents to persons involving rolling stock in motion, the cooperation group for matters related to rolling stock and the cooperation group concerning matters related to operation and competences. In addition to the cooperation groups, there were also discussions with stakeholders with practical questions concerning safety authorisations, safety certificates and other licences.

6 Monitoring

6.1 Strategy, plan and decision-making

The three-year rail transport oversight strategy acts as the top-level document guiding the oversight of rail transport; it describes and guides the planning and implementation of Traficom's rail transport oversight and describes the key principles affecting Traficom's oversight of rail transport. The oversight strategy specifies e.g. the objectives of the oversight, its principles, oversight arrangements, focus areas and methods of oversight as well as the execution of oversight. The oversight implemented in 2023 was guided by the rail transport oversight strategy drawn up for 2022–2024; its key objective is that the rail transport oversight implemented by Traficom promotes safe and responsible operation in the Finnish rail transport system.

The annual oversight plan and the focus areas of oversight that guide the oversight work in practice are drawn up based on the oversight strategy mentioned above. The oversight plan specifies the annual oversight measures and other measures complementing the oversight and describes how the realisation of the oversight plan is assessed and monitored. The goal is to target the oversight so that its impact in improving the safety of rail transport is as large as possible. Therefore, the goals and annual focus areas of the oversight are determined using a risk-based approach, meaning that they are focused on the aspects of the railway system, in which safety challenges have been detected.

In the plan for 2023, the objective was set so that during the year in question:

- 45 operator-specific assessments related to compliance with the requirements would be carried out in connection with granting and renewing safety authorisations and certificates, and the assessment of notifications by infrastructure managers of private sidings would be carried out;
- 83 audits or inspections (including all operator groups) would be conducted;
- methods to supplement the oversight would be used 12 times (safety dialogues, safety culture assessments and surveys)

The starting point of the rail transport oversight carried out by Traficom is verifying the functioning of safety management systems. When planning and developing rail transport oversight, needs that have emerged in discussions with the national safety authorities of other EU Member States, among other things, will be taken into account.

In 2023, the following were the focus areas of rail transport oversight: 1) reliability (including cybersecurity), 2) key safety risks in rail traffic, 3) safety culture and 4) availability of the railway network and rolling stock. The focus areas were taken into account on an operator-specific basis when planning the oversight measures.

Traficom's key oversight measures are audits and inspections. During the audit, Traficom strives to arrive at a shared view with the audited organisation of the audit observations and possible deviations.

Methods supplementing the oversight include safety dialogues, assessment of the characteristics of safety culture, safety discussions, monitoring of the operator's service provider and surveys. The primary focus of oversight is on auditing railway operators' and infrastructure managers' safety management systems and inspecting their operations. In addition, Traficom also monitors the operation of ECMs, the educational institutions in the field as well as the operation of railway doctors and psychologists.

The realisation of the rail transport oversight plan is monitored quarterly by Traficom. If necessary, the schedule of the oversight plan can also be adapted and targets prioritised during the period of validity of the plan. The emergence of new risks and exceptional events, for example, may make it necessary to update the plan. The safety recommendations issued by the Safety Investigation Authority can also guide the targeting of the oversight.

In addition to the oversight by Traficom, the operators are required to carry out self-monitoring; its application is described in more detail in section 7.3 of this safety report.

6.2 Oversight results

In 2023, Traficom audited the safety management systems of railway infrastructure manager operators and held one safety dialogue. 15 inspections of infrastructure managers of private sidings were carried out based on national legislation.

As a general observation, changes in the activities of several operators were taken into account – traffic volumes have decreased from previous years, also in the case of many major operators. In addition, several operators have been found to have significant infrastructure repair backlogs, which the operators are currently dealing with in the form of renovations. The challenge is that there are many interests competing with infrastructure maintenance resources (e.g. other factory functions). Another challenge that arose in oversight is the integration of the safety control system and the safety management system into practical operations – specifically in the areas of self-monitoring and risk management. Especially for small operators, it has been found that these systems are often separate from actual operations. It was also found that some of the smaller operators had challenges with the impacts of risk management. As a result, the specification and implementation of measures may be left undone and/or their effects are not monitored.

In 2023, Traficom carried out safety management system audits on seven rail transport operators. There was also one safety dialogue. For railway operators, the key deviations were related to the terms and conditions mentioned in the safety certificate decision, risk management and reporting of safety deviations, documentation, human and organisational factors, self-monitoring, educational institution practices, maintenance procedures, transportation practices and the identification, assessment and management of risks related to the transport of dangerous goods.

Rolling stock experts and the results of the rolling stock inspections were used in some of the audits. In 2023, rolling stock oversight was targeted especially at

heritage operators, all of whose historical rolling stock were inspected. The heritage rolling stock was mainly in good condition.

No audits of certified entities in charge of maintenance (ECMs) were carried out in 2023, but a comprehensive conformity assessment was conducted in connection with the recertification as a documentation assessment and site visits. No nonconformities were reported during the certification process in 2023.

In addition, a self-assessment survey and monitoring of maintenance procedures was carried out for units in charge of the maintenance of historical rolling stock in 2023 (nine operators in total). It was found that the operators had challenges with creating and implementing a maintenance system in accordance with the requirements. There were deviations in reporting, including ECM role identification and responsibilities, risk management, competency management, document management as well as tool, equipment and spare parts management. Based on the oversight, two units in charge of the maintenance of historical rolling stock were prohibited from serving as an ECM responsible for the maintenance of rolling stock.

In 2023, inspections concerning the transport of dangerous goods were carried out at four train depots. Based on the inspections, the situation with the most important issues affecting safety appears to be good. The shortcomings and deficiencies identified in the inspections were taken seriously and corrective measures have been taken to improve safety. Among the general observations made in connection with inspections concerning the transport of dangerous goods, it was found that more attention should be paid to train-depot-specific features in risk management plans, and the staff turnover of different operators should be taken into account in the implementation of training in internal rescue plans. Especially in connection with long-term projects, the depots must also pay attention to any new railway operators or ones expanding their operations to a new area during ongoing projects from the perspective of the transport of dangerous goods.

In 2023, seven reliability audits were carried out. In recent years, there has been an increase in awareness of the significance of preparedness for securing the continuity of the company’s operations and understanding of the significance of reliable transport from the company’s and society’s viewpoint. However, the audits identified some issues that still require development and cooperation between the operators and authorities. In particular, there is room for improvement in the procurement of critical rail materials and the implementation of preparedness obligations among service providers. The operators are already aware of the importance of this issue and various measures have already been taken to ensure the availability of rail material. The audits also revealed that some operators face challenges in understanding the significance of the regulation related to preparedness planning (*The organisation of preparedness planning in the transport system*). There is also some lack of clarity regarding the terms reliability and preparedness. In addition to the above, the audits found that the risks to reliability are not currently identified comprehensively enough and that there is little training available on the disruptions of different degrees. An exception to this is the accident exercises organised by rescue services, where the operators’ participation rates have been commendably high.

6.3 Supervisory cooperation with national railway authorities in other EU Member States

Traficom did not carry out cooperation related to oversight with the railway authorities of other EU Member States in 2023. However, Traficom participated in ERA-led work aimed at developing the supervision of national safety authorities. In cooperation with the Swedish national safety authority, Traficom also found that the railway operations in Tornio–Haparanda met the requirements.

7 Application of Common Safety Methods

7.1 Application of the Common Safety Method for safety management systems

There is variation in the level of safety management of railway operators, because the field of railway operators in Finland is diverse and consists of operators of very different sizes. A special feature of Finland compared to other European countries is that there is one infrastructure manager and rail operator that is significantly larger than the other operators in Finland. The level of operator safety management is greatly influenced by factors such as the resources available for safety work, the role of railway operations on the scale of the organisation as a whole, and general interest in investing in the safety of the railway system.

In general, the quality of safety management system documentation, particularly of the larger operators, is beginning to be fairly high. As the field of operators is extensive (a large number of operators of different sizes), the challenges related to safety management systems are also diverse. The challenge is often including the methods described in the system as a part of the operations in practice. This may be due to issues such as parties not necessarily involved in the daily railway operations of the company being responsible for building and updating the management system and implementing certain procedures. In some cases, the challenges related to the implementation of the safety management system are related to the fact that the system has been built to respond to regulatory requirements instead of basing safety development on the identification and management of key risks related to the operations. For some operators, the challenge involves integrating the methods of the safety management system as a part of the other systems that guide the operation of the organisation. It would be important for the operator’s personnel participating in the railway operations to be aware of the contents of the safety management system and committed to following the procedures described in the system.

Typically, the largest railway operators have more resources for safety management, which makes them better equipped for developing their activities than organisations with scarce resources. In large organisations, challenges may be posed by the complexity of operations and taking safety management practices from the management level to the level of practical work. Low hierarchies, on the other hand, enable closer cooperation between the management and employees, and the practical implementation of safety management may be easier than in large organisations.

Operators have begun focusing more on human and organisational factors (HOF), but improvements are still needed regarding HOF-related competencies and the definition of a comprehensive approach as well as implementing the measures in practice. To support these development efforts, Traficom's supervision has also started to pay attention to company operations with regard to safety culture. The aim is to familiarise the companies with safety culture thinking, raise awareness of the requirements related to safety culture among operators and support practical development work related to safety culture using examples. In addition to supervision, development work related to the safety culture is supported as part of the national network of human and organisational factors (HOF) in rail transport, which involves a broad range of railway operators (described in more detail in Chapter 8).

7.2 Application of the Common Safety Method for risk evaluation and assessment

When making changes that affect the subsystems of the railway system, there is a need to perform an assessment of the significance of given changes. Based on this process, it is assessed whether the risk assessment of the change must comply with the CSM for risk evaluation and assessment in risk management (402/2013). Most of the assessments of the significance of the change are related to infrastructure projects of the Finnish Transport Infrastructure Agency. In addition, the operators carry out assessments of the significance of the change related to operational and organisational changes and rolling stock changes.

Assessments of the significance of changes are based on expert assessments. Because expert assessments include interpretation, there is some degree of variation in the quality of the assessments of the significance of changes. The competence of the persons involved in the assessment and their expertise in risk management may affect how well the safety impacts can be taken into account in the assessment.

An independent assessment body may affect the risk management process. There are variations in the operating models used by the different assessment bodies and in the level of precision of the assessment reports.

In 2023, private siding managers did not consider any changes to be significant. Oversight revealed that the risk management principles of some actors rely entirely on compliance with the Common Safety Method in connection with changes. As a result, if the change is considered non-significant or no assessment is carried out, the operator may end up not carrying out a risk assessment in connection with a change.

There are approximately one hundred infrastructure managers of private sidings following the notification procedure in Finland that are not obliged to comply with the CSM for risk evaluation and assessment in risk management (402/2013). These operators must also have change management procedures that take account of the management of risks caused by the change.

7.3 Application of the Common Safety Method for self-monitoring

Traficom has published guidelines for operators on preparing safety reports (TRAFICOM/89239/03.04.02.01/2019). The guidelines include a description of what operators should include in the report in terms of self-monitoring actions. While a large percentage of operators that have submitted a safety report include information about self-monitoring in their report, the level of detail and scope of the reporting varies considerably between different operators (railway infrastructure managers and railway undertakings). In 2023, some operators followed the guidelines carefully, while others reported the results of self-monitoring in less detail.

In 2023, Traficom carried out a self-monitoring survey aimed at railway undertakings to investigate their self-monitoring practices (a corresponding survey was also carried out in 2021). The survey was built around the areas of self-monitoring and performance evaluation, and 19 undertakings responded to the survey. Based on the responses, it was found that documentation of completed self-monitoring has advanced, and the role of self-monitoring as a tool for developing one's own activities and safety was seen as contributing to the continuous improvement of the operations. The undertakings identified the following development targets in terms of self-monitoring: resources used for self-monitoring, development of the risk basis of self-monitoring targets, consideration of human and organisational factors, and self-monitoring targets related to the Entities in Charge of Maintenance (ECM).

Based on the survey responses, the railway undertakings conducted not only self-monitoring, but also internal inspections. Meanwhile, the results were somewhat divided: Some of the undertakings reported that they had used the results of the internal audit to continuously improve and develop their own operations, while others reported that the results of the internal audits had not enabled them to develop their operations.

In addition to the safety certificate assessments, Traficom monitored the self-monitoring procedures through inspections on private siding managers; during 2023, 15 such inspections were conducted. Based on the inspections, all private siding managers subject to supervision had self-monitoring plans. Among other things, improving the documentation of the self-monitoring and linking the self-monitoring targets to the identified key risks were identified as development targets.

Regarding the field of operators in general, self-monitoring focuses more on the supervision of operational processes and procedures than, for example, organisational procedures or risk management measures. The quality of self-monitoring also varies between different operators. The operators that have the resources to invest in the work on safety can carry out regular self-monitoring during the year. Smaller organisations with fewer resources often use external experts to carry out self-monitoring. In these cases, self-monitoring and its reporting are typically carried out once per year. This is not fully in line with the objective of proactive and continuous self-monitoring.

In the view of Traficom, there is still room for development among the field of operators regarding whether self-monitoring is used proactively to develop safety

and operations, or whether it is considered merely one requirement among others. In oversight, it has also been observed that self-monitoring targets often remain static year after year. Self-monitoring targets should be selected based on risks, and the results of the completed risk assessments should be taken into account in the setting of targets. The Regulation on CSM for Monitoring emphasises the targets being based on the risks.

In its safety certificate and authorisation assessments and practical oversight, Traficom aims to promote the development of the operators' self-monitoring procedures.

7.4 Participation in EU-wide activities

Traficom did not participate in any EU projects during 2023.

8 Safety culture

8.1 Evaluation and monitoring of safety culture

In 2023, the safety culture of seven companies was observed. The observation is carried out in connection with audits, and the evaluation of safety culture can be carried out as a separate entity. No separate evaluations of safety culture took place in 2023.

The observations made in connection with audits involved safety culture experts making observations during the audit, using a form that summarises the essential core of the ERA safety culture model in ten open-ended questions. The auditors are also interviewed with the same form after the audit. The form was further developed in a project in 2023, and text and examples providing explanations and more information about the questions were added to the form to help the work of observers.

In the piloting phase, it was found that it would be a good idea to involve several observers in the same audit, especially in the method development and experimentation phase to enable discussion about the use of the observation tool. It was also noted that using the observation tool would be more suitable for larger organisations. It is more difficult to make observations related to the safety culture if the audit only includes one or two representatives of the operator, and the same also applies if the operator is represented by just one spokesperson. Challenges were also encountered in making clear observations on safety culture in cases where the auditing was confined to a conference room and occurred in the presence of senior and middle management. Clearer and possibly different observations could be made if there was an aim to combine the auditing with employee interviews, such as drivers, and observation of the effectiveness of the safety management system in practical work.

Reporting the results of the observations is challenging, and will be further developed by striving to highlight key observations in the report to allow operators to take these issues into consideration when developing their organisations. However, the observation also includes making entries on uncertain observations which may serve as signals of hidden or emerging safety culture risks. Of course,

it is easier to present positive observations to the operators, and the reporting also aims to highlight these.

8.2 Safety culture development projects

In 2023, Traficom commissioned a report by Teemu Reiman (Lilikoi Consulting) and Kirsi Pajunen (Kipacon) on the safety culture of small railway operators. A wide variety of interviewees (8) were selected for the report in order to represent the entire sector. Heritage operators were excluded from the report. The report provided an understanding of the variation in the safety culture of small operators and proposals for measures that Traficom can use to support the development of the safety culture of operators in different areas.

8.3 Communication about safety culture development projects

The final report on the safety culture of small railway operators was submitted to Traficom. The report is freely available to Traficom's rail transport experts. The results of the report will be utilised, for example, in stakeholder events in 2024, which will increasingly highlight themes related to the operators' safety management and safety culture.

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