URZĄD TRANSPORTU KOLEJOWEGO

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Report on rail transport market operations in Poland

2022

MISSION

To provide safe
and competitive conditions
for rail transport services

VISION

A modern and open
office safeguarding the
high standard of services
provided on the rail
transport market

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dr inż. Ignacy Góra

President of the Office
of Rail Transport

Dear Sir/Madam,

after two years of pandemics, 2022 was a time of new challenges for the railways. The war in Ukraine influenced the need to involve the railways in organising the evacuation of refugees from across our eastern border, as well as for the transport of humanitarian aid. In a situation of energy crisis, the transport of coal from seaports was also a priority. Following the blockade of Black Sea ports by Russia, an alternative route for grain exports from Ukraine became rail transport via Poland to ports on the Baltic Sea.

The war and related sanctions had a significant impact on the increase in fuel and energy prices – an important item in the cost structure of rail undertakings. Compared to 2021, expenses incurred for this reason increased the most when compared to changes in other operating costs. This situation affected both passenger and freight undertakings. For some entities, such cost increases have had a critical impact on their continued operation and the construction of a competitive freight offer.

However, after the time of the pandemic, the rail market has also enjoyed successes. In the conditions of the war in Ukraine, high fuel prices and inflation, rail services were used by a record number of passengers. A total of 342.2 million people travelled by train in 2022 – the highest number since 2000. With regard to the other parameters characterising rail passenger transport, good results were achieved. The statistical resident of our country used the railways an average of 9.1 times throughout 2022 – this is the highest value of the railway usage rate in Poland in the last 20 years. We can thus conclude that passenger rail is getting back on track properly after a difficult period. At the same time, the potential for its use is still considerable, as the comparison of national data against other European countries shows.

2022 has highlighted the strategic importance of the railway in emergency situations, but much work is still needed to strengthen its position in passenger transport. At present, the Polish railway is undergoing its biggest upgrade programme in years. Rolling stock purchases are underway, as well as the expansion of the railway's offer and new ticketing channels, which may ultimately encourage additional people to use rail services. The challenge is still to ensure better train punctuality – an important factor in the popularity of railways.

What is the situation of the environment in which operators, infrastructure managers and other stakeholders in the industry operate? What are the benefits of using green modes of transport? Answers to these questions can be found in our annual report on the functioning of the railway market in Poland. The report is all the more interesting to read as, on the occasion of the 20th anniversary of the Office of Rail Transport, we have prepared a special comparison of statistics and data covering 20 years of UTK's existence – from 2003 to 2022. You can find there data on the parameters of the passenger and freight transport market, data on rolling stock, employment and other interesting information.

I wish you an inspiring read!

Marcin Trela

Vice-President of the Office
of Rail Transport

Dear Sir/Madam,

the railways in 2022 had a challenging task. The outbreak of war in Ukraine had a significant impact on the economic situation in our region, including on passenger and freight transport. The latter had to operate in the least favourable circumstances, as supply chains that had existed for years were broken. Freight undertakings were faced with the need to change the structure of their existing transports, as well as to search for new freight corridors. Intermodal transport due to the situation on the New Silk Road suffered the most.

Comparing the national data with the results of other European countries, we can see that in Poland the crisis of the past year affected railway freight undertakings to a lesser extent than in other countries. In 2022, the total weight of goods transported by rail in Poland amounted to 248.5 million tonnes – this is the second highest result in UTK statistics in the last 10 years. In the ranking of 28 European countries, Poland ranks second both in terms of the transported weight of goods (after Germany) and the year-on-year weight increase (after Italy).

In the case of transport performance, which reached 62.5 billion tonne-kilometres in 2022, we achieved the second-highest result in Europe and the highest growth in the value of transport performance among the 28 European countries. In times of war across the eastern border, further challenges to rail transport can be expected. However, this does not change the fact that the current situation can open up the rail freight market to new destinations. Domestic routes, in particular north-south corridors from seaports, have great freight potential. For this purpose, the infrastructure and transport offer for existing and new customers must be developed.

I invite you to read on.

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1. Passenger transport

1.1. Functioning of the passenger transport market in Poland

Passenger rail transport in Poland is operated by licensed railway undertakings. It can be provided as:

- public passenger transport services;
- commercial transport;
- occasional transport.

In 2022, public passenger transport services were provided for 19 public transport organisers under public service contracts (hereinafter referred to as Public Service Contracts). These included the minister in charge of transport (Minister of Infrastructure), province marshals and the Mayor of Warsaw and Starost of Sanok. The scope and duration of contracts is individually determined by the respective organisers.

Within these services, there are different models of cooperation. Some organisers conclude multiannual contracts with operators and then annex and update them during their term (e.g. to provide for timetable adjustments, lists of rolling stock to be used for the provision of transport services, the pricing of transport services). Others sign annual contracts or implementation contracts with railway undertakings in addition to the multiannual framework contracts. In rare cases, the specified scope of rail transport services (e.g. seasonal) is regulated solely by an annual or shorter-term contract (for the season).

In early 2022, the majority of rail transport organisers were bound by multiannual contracts signed in previous years.

For example, in 2020 alone, as many as 18 multiannual contracts were signed regarding the provision of public rail transport services. One of the reasons behind this was the 4th Railway Package, whose regulations stipulated that contracts for providing province transport services for a period no longer than until 14 December 2030 could be concluded directly by 12 December 2020.

After that date, as a rule, operators must be selected in a competitive procedure. For this reason, the majority of transport organisers decided at the time to enter into multiannual contracts with transport operators without organising a tender procedure.

Six annual contracts were concluded in 2022 for the provision of transport services (or for the duration of the 2021/2022 timetable) as part of existing framework contracts (multiannual contracts). Annual contracts were signed by: Ministry of Infrastructure with PKP Intercity, Marshal's Office of the Mazowieckie Province with Warszawska Kolej Dojazdowa and Koleje Mazowieckie, Marshal's Office of the Dolnośląskie Province. With POLREGIO and Koleje Dolnośląskie, and the Marshal's Office of the Śląskie Province concluded an implementation contract with Koleje Śląskie. In 2022, after the tender procedure was settled, 2 long-term contracts were signed (Marshal Office of the Kujawsko-Pomorskie Province with POLREGIO and Arriva RP).

Tab. 1 List of public mass transit organisers and contracts with rail transport operators they were bound with in 2022

public mass transit organisers	term of contract	public mass transit organisers
inter-province and international transport services		
Minister in charge of transport	01.01.2021–14.12.2030 framework contract 01.01.2022–31.12.2022 annual contract	PKP Intercity
provincial transport, suburban and urban transport		
Dolnośląskie Province	01.01.2021–14.12.2030 framework contract 01.01.2022–31.12.2022 annual contract	POLREGIO
	01.01.2015–31.12.2026 framework contract 01.01.2022–31.12.2022 annual contract	Koleje Dolnośląskie

public mass transit organisers	term of contract	public mass transit organisers
Kujawsko-Pomorskie Province	12.12.2021–10.12.2022 11.12.2022–14.12.2030	Arriva RP
	12.12.2021–10.12.2022 11.12.2022–14.12.2030	POLREGIO
Lubelskie Province	01.01.2021–14.12.2030	POLREGIO
Lubuskie Province	13.12.2020–14.12.2030	POLREGIO
Łódzkie Province	01.01.2021–31.12.2028	POLREGIO
	01.01.2016–31.12.2028	Łódzka Kolej Aglomeracyjna
Małopolskie Province	13.12.2020–12.12.2026	POLREGIO
	13.12.2020–14.12.2030	Koleje Śląskie
	11.12.2016 – 13.12.2031	Koleje Małopolskie
Mazowieckie Province	01.01.2010–31.12.2031 framework contract 01.01.2022–31.12.2022 annual contract	Koleje Mazowieckie
	01.01.2010 – 14.12.2030 framework contract 01.01.2022–31.12.2022 annual contract	Warszawska Kolej Dojazdowa
Opolskie Province	13.12.2020–14.12.2030	POLREGIO
Podkarpackie Province	01.01.2021–31.12.2025	POLREGIO
Podlaskie Province	01.01.2021–31.12.2024	POLREGIO
Pomorskie Province	13.12.2020–12.12.2026	POLREGIO
	09.12.2018–10.12.2022	PKP SKM
Śląskie Province	01.01.2016–31.12.2030 framework contract 01.01.2022–31.12.2022 implementation contract	Koleje Śląskie
	15.12.2019–08.12.2029	POLREGIO
Świętokrzyskie Province	13.12.2020–14.12.2030	POLREGIO
Warmińsko-Mazurskie Province	01.01.2021–31.12.2026	POLREGIO
Małopolskie Province	13.12.2020–14.12.2030	POLREGIO
	01.01.2021–14.12.2030	Koleje Wielkopolskie

public mass transit organisers	term of contract	public mass transit organisers
Zachodniopomorskie Province	13.12.2020–14.12.2030	POLREGIO
City of Warsaw	01.01.2010 – 31.12.2024	Szybka Kolej Miejska
Sanok district	04.07.2022–31.08.2022	SKPL Cargo

In 2022, the Kujawsko-Pomorskie Province announced a procurement procedure, the subject matter of the order being the provision of public mass rail transport services in the territory of the province from 11 December 2022 to 14 December 2030. This procedure ended with the selection of 2 transport operators – POLREGIO and Arriva RP.

In the same year, the Pomorskie Province issued a tender for the provision of public provincial rail passenger transport from 11 December 2022 to 12 December 2026 on transport lines:

1. Kartuzy – Gdańsk Wrzeszcz,
2. Gdańsk Wrzeszcz – Gdańsk Osowa – Gdynia Główna,
3. Kościerzyna – Gdańsk Wrzeszcz – Gdynia Główna,
4. Kościerzyna – Gdańsk Osowa – Gdynia Główna.

The first procedure conducted in the form of an open tender was annulled. In the second tender, POLREGIO's offer was selected.

Entities intending to launch regular rail passenger transport on a commercial basis should apply to the President of UTK with an application for a decision on granting open access on a given national or international route. Once the regulatory body has completed the administrative procedure, a decision is issued:

- to grant open access for a given route;
- to reject the granting of open access;
- to grant limited access.

On the basis of a decision to grant open access or a decision to grant limited access, new passenger rail transport services may be provided along a route within the territory of the Republic of Poland. To exercise this right, it is necessary to submit an application to the infrastructure manager to grant infrastructure capacity on the route covered by the decision of the President of UTK and sign a contract for infrastructure capacity.

Before issuing such decisions, the President of UTK may examine the impact of new connections on the ones which are currently in operation involving other trains along similar routes. The impact of the concluded PSC on the economic balance is examined. However, such analysis is performed only at the request of the so-called authorised entities, including a railway undertaking or an organiser of public mass transit that are parties to public service contracts concerning rail transport.

During the analysis, the President of UTK considers whether the launch of a new service could interfere with the regularity of transport services in relation to the existing state and affect connections between trains put into service on the basis of public service contracts. The main assumption is that new connections should be complementary, rather than competitive, towards the existing transport services co-financed from public funds on the basis of PSCs. The new services should, therefore, provide an added value.

The President of UTK also analyses a range of information concerning the detailed parameters of the new service, such as the target group of passengers, the rules of distributing tickets, data on the estimated train occupancies, and the overall number of passengers over a calendar year of providing transport services. It is assessed whether the indicated factors might positively influence the development of the rail transport sector and boost interest among passengers in this type of transport in regions through which the route of the applied-for connection runs.

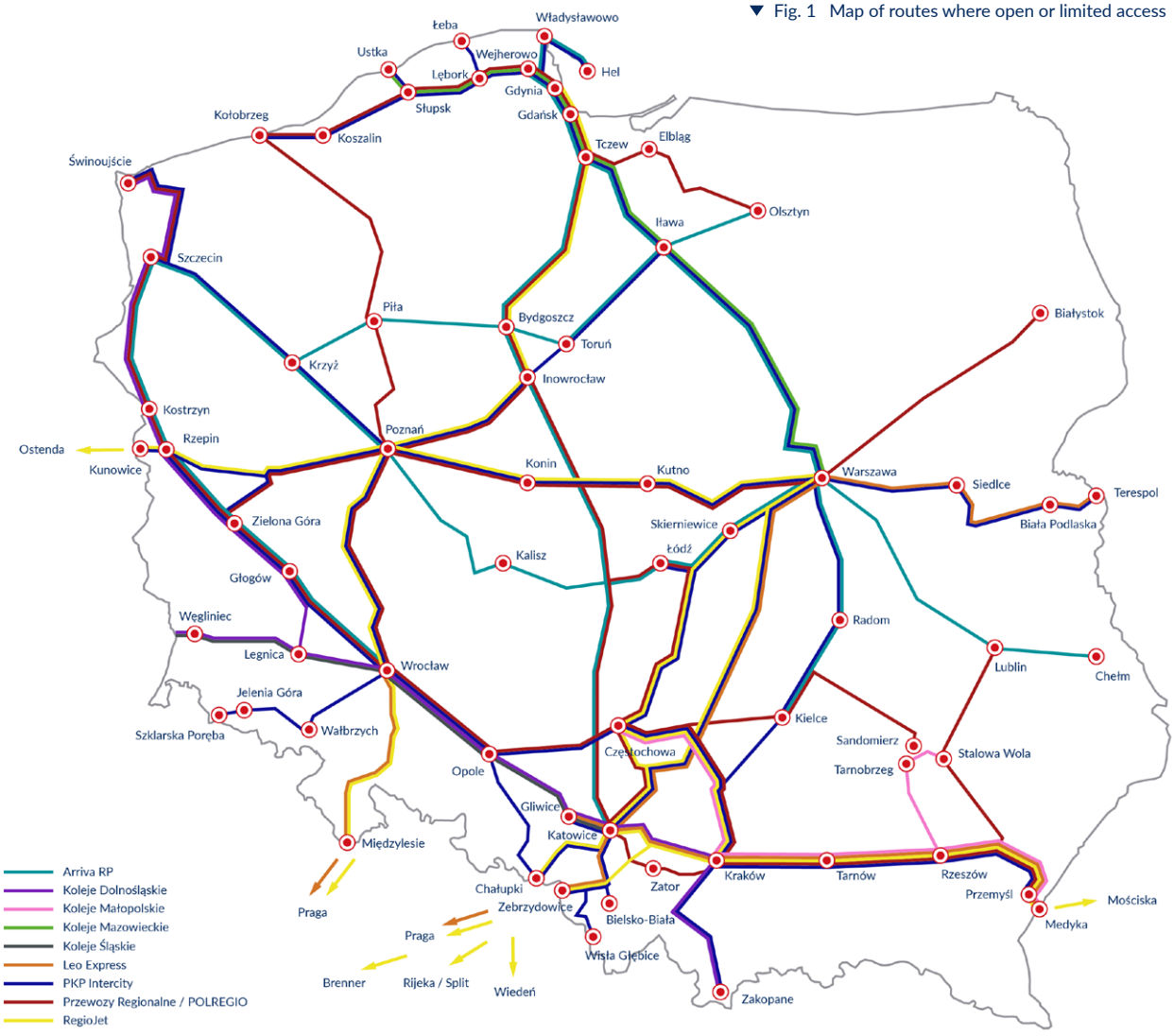
In 2022, a total of 22 applications were submitted with the President of UTK for granting open access, including: 14 from PKP Intercity, 3 from Leo Express, 2 from RegioJet, 1 from Leo Express Global, 1 from Koleje Dolnośląskie and 1 from PKP Cargo S.A., including 17 applications related to domestic routes and 5 to international routes. Two of the applications were being processed in 2023, whereas in the remaining 20 cases, open access was granted to applicants.

In 2022, eight decisions were also issued in open access proceedings initiated in the previous year. In 5 cases, open access was granted to the railway undertakings, in 2 cases open access was denied and in 1 case limited access to the railway infrastructure was granted.

In addition, in 2022, the Office received 4 applications from RegioJet for reconsideration of the case. In one case, the decision challenged by the railway undertaking was repealed in part, while in the remaining three, the President of UTK upheld the decisions.

Taking into account the applications filed in the previous year, in 2022 a total of 34 administrative procedures were pending before the President of UTK on granting railway undertakings open access.

▼ Fig. 1 Map of routes where open or limited access



▼ Tab. 2 List of administrative procedures in which decisions were made in 2022

route	undertaking	period and timetable	stations within the Republic of Poland	type of procedure resolution	date of decision
Kraków Główny – Rijeka / Split – Kraków Główny	RegioJet	from 15 June 2022 until 26 September 2026, i.e. in the following annual timetables: 2021/2022, 2022/2023, 2023/2024, 2024/2025 and 2025/2026	Kraków Główny, Katowice, Tychy, Rybnik, Wodzisław Śląski	the applicant was granted open access	18.01.2022
Bydgoszcz Główna – Hel – Bydgoszcz Główna oraz Hel – Władysławowo – Hel	Arriva RP	from 25 June 2022 until 31 August 2026, i.e. in the following annual timetables: 2021/2022, 2022/2023, 2023/2024, 2024/2025 and 2025/2026	Bydgoszcz Główna, Pruszcz Pomorski, Laskowice Pomorskie, Warlubie, Smętowo, Pelplin, Tczew, Pruszcz Gdański, Gdańsk Główny, Gdańsk Wrzeszcz, Gdańsk Oliwa, Sopot, Gdynia Główna, Puck, Władysławowo, Władysławowo Port, Chałupy, Kuźnica (Hel), Jastarnia Wczasy, Jastarnia, Jurata, Hel	the applicant was granted open access	3.03.2022
Katowice – Wrocław Główny – Katowice	Koleje Śląskie	from 11 December 2022 until 10 December 2027, i.e. in the following annual timetables: 2022/2023, 2023/2024, 2024/2025, 2025/2026 and 2026/2027	Katowice, Chorzów Batory, Zabrze, Gliwice, Strzelce Opolskie, Opole Główne, Brzeg, Oława, Wrocław Główny	the applicant was granted open access	30.03.2022
Kraków Główny – Rijeka/Split – Kraków Główny [application for reconsideration]	RegioJet	from 15 June 2022 until 26 September 2026, i.e. in the following annual timetables: 2021/2022, 2022/2023, 2023/2024, 2024/2025 and 2025/2026	Kraków Główny, Katowice, Tychy, Rybnik, Wodzisław Śląski	decision repealed in part on conditions and extent of use of access to railway lines	31.03.2022
Wrocław Główny – Świnoujście and return service	Koleje Dolnośląskie	from 25 June 2022 until 30 August 2026, i.e. in the following annual timetables: 2021/2022, 2022/2023, 2023/2024, 2024/2025 and 2025/2026	Wrocław Główny, Legnica, Lubin, Głogów, Zielona Góra Główna, Szczecin Dąbie, Parłówko, Międzyzdroje, Świnoujście	the applicant was granted open access	28.04.2022

route	undertaking	period and timetable	stations within the Republic of Poland	type of procedure resolution	date of decision
Kraków Główny – Warszawa Wschodnia and return service	Leo Express	–	–	decision to discontinue proceedings [applicant's statement of withdrawal of application]	29.04.2022
Kraków Główny – Częstochowa and return service	Koleje Małopolskie	from 11 December 2022 until 11 December 2027, i.e. in the following annual timetables: 2022/2023, 2023/2024, 2024/2025, 2025/2026 and 2026/2027	Kraków Główny, Słomniki Miasto, Słomniki, Miechów, Tunel, Kozłów, Koniecpol, Częstochowa Raków, Częstochowa	the applicant was granted open access	24.06.2022
Kraków Główny – Gdynia Główna and return service	RegioJet	from 11 December 2022 until 11 December 2027, i.e. in the following annual timetables: 2022/2023, 2023/2024, 2024/2025, 2025/2026 and 2026/2027	Kraków Główny, Warszawa Zachodnia, Warszawa Centralna, Warszawa Wschodnia, Modlin, Iława Główna, Malbork, Tczew, Gdańsk Główny, Gdańsk Wrzeszcz, Sopot, Gdynia Główna	the applicant was denied open access	24.06.2022
Praha hl.n. – Gdynia Główna – Praha hl.n.	RegioJet	from 11 December 2022 until 11 December 2027, i.e. in the following annual timetables: 2022/2023, 2023/2024, 2024/2025, 2025/2026 and 2026/2027	Międzylesie, Bystrzyca Kłodzka, Kłodzko Miasto, Bardo Śląskie, Wrocław Główny, Rawicz, Leszno, Kościan, Poznań Główny, Gniezno, Inowrocław, Bydgoszcz Główna, Tczew, Gdańsk Główny, Gdańsk Wrzeszcz, Sopot, Gdynia Główna	the applicant was granted limited access	28.06.2022
Przemyśl Główny – Medyka (state border) – Mościska II (Мостиська II) – Medyka (state border) – Przemyśl Główny	RegioJet	from 12 June 2022 until 12 December 2026, i.e. in the following annual timetables: 2021/2022, 2022/2023, 2023/2024, 2024/2025 and 2025/2026	Przemyśl Główny, Medyka, Mościska II (Мостиська II)	the applicant was granted open access	29.06.2022
Wrocław Główny – Warszawa Wschodnia and return service	RegioJet	from 11 December 2022 until 11 December 2027, i.e. in the following annual timetables: 2022/2023, 2023/2024, 2024/2025, 2025/2026 and 2026/2027	Wrocław Główny, Brzeg, Opole Główne, Strzelce Opolskie, Gliwice, Zabrze, Chorzów Batory, Katowice, Sosnowiec Główny, Dąbrowa Górnicza, Zawiercie, Warszawa Zachodnia, Warszawa Centralna, Warszawa Wschodnia	the applicant was denied open access	4.07.2022

route	undertaking	period and timetable	stations within the Republic of Poland	type of procedure resolution	date of decision
Praha hl.n. – Kraków Główny – Praha hl.n.	Leo Express	from 11 December 2022 until 11 December 2027, i.e. in the following annual timetables: 2022/2023, 2023/2024, 2024/2025, 2025/2026 and 2026/2027	Tychy, Katowice Ligota, Katowice, Mysłowice, Kraków Główny	the applicant was granted open access	15.07.2022
Praha hl.n. – Kraków Główny – Praha hl.n.	Leo Express Global	from 11 December 2022 until 11 December 2027, i.e. in the following annual timetables: 2022/2023, 2023/2024, 2024/2025, 2025/2026 and 2026/2027	Tychy, Katowice Ligota, Katowice, Mysłowice, Kraków Główny	the applicant was granted open access	27.07.2022
Kraków Główny – Warszawa Wschodnia and return service	RegioJet	from the date of delivery of the decision (29 July 2022) to 12 December 2025, i.e. in the annual timetables of trains: 2022/2023, 2023/2024 and 2024/2025	Kraków Główny, Warszawa Zachodnia, Warszawa Centralna i Warszawa Wschodnia	the applicant was granted open access	28.07.2022
Warszawa Wschodnia – Szklarska Poręba Górna – Warszawa Wschodnia	PKP Intercity	from 10 December 2023 until 9 December 2028, i.e. in the following annual timetables: 2023/2024, 2024/2025, 2025/2026, 2026/2027 and 2027/2028	Warszawa Wschodnia, Warszawa Centralna, Warszawa Zachodnia, Kutno, Konin, Poznań Główny, Leszno, Wrocław Mikołajów, Wrocław Główny, Jaworzyna Śląska, Świebodzice, Wałbrzych Miasto, Jelenia Góra, Jelenia Góra Cieplice, Piechowice, Szklarska Poręba Dolna, Szklarska Poręba Średnia, Szklarska Poręba Górna	the applicant was granted open access	27.10.2022
Warszawa Wschodnia – Świnoujście – Warszawa Wschodnia	PKP Intercity	from 10 December 2023 until 9 December 2028, i.e. in the following annual timetables: 2023/2024, 2024/2025, 2025/2026, 2026/2027 and 2027/2028	Warszawa Wschodnia, Warszawa Centralna, Warszawa Zachodnia, Kutno, Konin, Poznań Główny, Krzyż, Choszczno, Stargard, Szczecin Dąbie, Szczecin Główny, Goleniów, Wysoka Kamieńska, Międzyzdroje, Świnoujście	the applicant was granted open access	27.10.2022

trasa	przewoźnik	okres i rozkład jazdy	stacje zatrzymania na terenie Rzeczypospolitej Polskiej	rodzaj rozstrzygnięcia	data wydania decyzji
Hel – Warszawa Zachodnia – Hel	PKP Intercity	from 10 December 2023 until 9 December 2028, i.e. in the following annual timetables: 2023/2024, 2024/2025, 2025/2026, 2026/2027 and 2027/2028	Hel, Jurata, Jastarnia, Kuźnica Hel, Chałupy, Władysławowo, Puck, Gdynia Główna, Sopot, Gdańsk Oliwa, Gdańsk Wrzeszcz, Gdańsk Główny, Tczew, Malbork, Iława Główna, Działdowo, Ciechanów, Warszawa Wschodnia, Warszawa Centralna, Warszawa Zachodnia	the applicant was granted open access	27.10.2022
Łeba – Warszawa Zachodnia – Łeba	PKP Intercity	from 10 December 2023 until 9 December 2028, i.e. in the following annual timetables: 2023/2024, 2024/2025, 2025/2026, 2026/2027 and 2027/2028	Łeba, Lębork, Gdynia Główna, Sopot, Gdańsk Oliwa, Gdańsk Wrzeszcz, Gdańsk Główny, Tczew, Malbork, Iława Główna, Działdowo, Ciechanów, Warszawa Wschodnia, Warszawa Centralna, Warszawa Zachodnia	the applicant was granted open access	27.10.2022
Warszawa Wschodnia – Zielona Góra Główna – Warszawa Wschodnia	PKP Intercity	from 10 December 2023 until 9 December 2028, i.e. in the following annual timetables: 2023/2024, 2024/2025, 2025/2026, 2026/2027 and 2027/2028	Warszawa Wschodnia, Warszawa Centralna, Warszawa Zachodnia, Kutno, Konin, Poznań Główny, Zbąszynek, Sulechów, Zielona Góra Główna	the applicant was granted open access	27.10.2022
Warszawa Wschodnia – Wisła Głębce – Warszawa Wschodnia	PKP Intercity	from 10 December 2023 until 9 December 2028, i.e. in the following annual timetables: 2023/2024, 2024/2025, 2025/2026, 2026/2027 and 2027/2028	Warszawa Wschodnia, Warszawa Centralna, Warszawa Zachodnia, Włoszczowa Północ, Zawiercie, Dąbrowa Górnicza, Sosnowiec Główny, Katowice, Tychy, Pszczyna, Skoczów, Goleszów, Ustroń Zdrój, Ustroń Polana, Wisła Uzdrowisko, Wisła Głębce	the applicant was granted open access	28.10.2022
Wrocław Główny – Węgliniec (Bielawa Dolna – state border) – Wrocław Główny, as part of an international connection Wrocław Główny – Berlin Lichtenberg – Wrocław Główny	Koleje Dolnośląskie	from 11 December 2022 until 11 December 2027, i.e. in the following annual timetables: 2022/2023, 2023/2024, 2024/2025, 2025/2026 and 2026/2027	Wrocław Główny, Legnica, Chojnów, Bolesławiec, Węgliniec	the applicant was granted open access	15.11.2022

trasa	przewoźnik	okres i rozkład jazdy	stacje zatrzymania na terenie Rzeczypospolitej Polskiej	rodzaj rozstrzygnięcia	data wydania decyzji
Warszawa Wschodnia – Kunowice (state border) – Warszawa Wschodnia	PKP Intercity	from 10 December 2023 until 9 December 2028, i.e. in the following annual timetables: 2023/2024, 2024/2025, 2025/2026, 2026/2027 and 2027/2028	Warszawa Wschodnia, Warszawa Centralna, Warszawa Zachodnia, Kutno, Konin, Poznań Główny, Zbąszynek, Świebodzin, Rzepin	the applicant was granted open access	2.12.2022
Warszawa Wschodnia – Jelenia Góra – Warszawa Wschodnia	PKP Intercity	from 10 December 2023 until 9 December 2028, i.e. in the following annual timetables: 2023/2024, 2024/2025, 2025/2026, 2026/2027 and 2027/2028	Kraków Główny, Kraków Zabłocie, Kraków Płaszów, Bochnia, Tarnów, Dębica, Rzeszów Główny, Łańcut, Przeworsk, Jarosław, Przemyśl Zasanie, Przemyśl Główny i Medyka	the applicant was granted open access	2.12.2022
Praha hl.n. – Gdynia Główna – Praha hl.n. [application for reconsideration]	RegioJet	from 11 December 2022 until 11 December 2027, i.e. in the following annual timetables: 2022/2023, 2023/2024, 2024/2025, 2025/2026 and 2026/2027	Międzylesie, Bystrzyca Kłodzka, Kłodzko Miasto, Bardo Śląskie, Wrocław Główny, Rawicz, Leszno, Kościan, Poznań Główny, Gniezno, Inowrocław, Bydgoszcz Główna, Tczew, Gdańsk Główny, Gdańsk Wrzeszcz, Sopot, Gdynia Główna	decision upholding a decision granting limited access	9.12.2022
Wrocław Główny – Warszawa Wschodnia and return service [application for reconsideration]	RegioJet	from 11 December 2022 until 11 December 2027, i.e. in the following annual timetables: 2022/2023, 2023/2024, 2024/2025, 2025/2026 and 2026/2027	Wrocław Główny, Brzeg, Opole Główne, Strzelce Opolskie, Gliwice, Zabrze, Chorzów Batory, Katowice, Sosnowiec Główny, Dąbrowa Górnicza, Zawiercie, Warszawa Zachodnia, Warszawa Centralna, Warszawa Wschodnia	decision upholding decision refusing to grant open access	9.12.2022

For the purpose of streamlining the 2021 open access decision process, the Office has made new application forms available to applicants. The facilitation of the process has contributed to the elimination of common mistakes by applicants and the streamlining of administrative procedures.

In decisions on granting open access issued in 2022, as in previous years, the President of UTK applied clauses defining the conditions and scope of using access to railway infrastructure. One of them is the obligation to inform the President of UTK about the occurrence of circumstances justifying the opening of a connection in an incomplete relation or at a different frequency and date than those directly resulting from the decision. This clause is intended for the purpose of obtaining up-to-date knowledge on services actually operated and their compliance with the provisions included in the decision. The obligation set out in the decision is also intended to ensure that there is no deterioration in the offer of transport provided as part of the new rail passenger transport. In addition, the Act on Railway Transport grants the President of UTK the authority to carry out periodical control of activity of railway undertakings providing transport services within open or limited access in terms of fulfilling the conditions of using the access to railway infrastructure.

Railway undertakings also provide occasional transport services, i.e. one-off passenger transport services provided beyond the scope of binding public service contracts or connections offered on the basis of decisions granting open access. Such transport services should be provided when people need to be transported to an event, such as a festival, match, concert, convention or other mass event They may also arise from the performance of a transport contract associated with a business trip, corporate team-building trip, summer camp, etc. Occasional transport differs from regular passenger transport services in that it has a specific, clearly defined one-time objective. Occasional transport services may involve, e.g., the transport of supporters to a match, but not putting additional trains in service for the summer season. In 2022, passengers carried as part of occasional transport services accounted for only around 0.8% of the total number of passengers of Polish rail. In 2022, the total number of passengers transported by rail in Poland was 342.2 million. Ninety-eight percent of passengers travelled by public-service trains (no changes relative to this percentage in 2021). Thus, commercial transport still accounted for a very small market share.

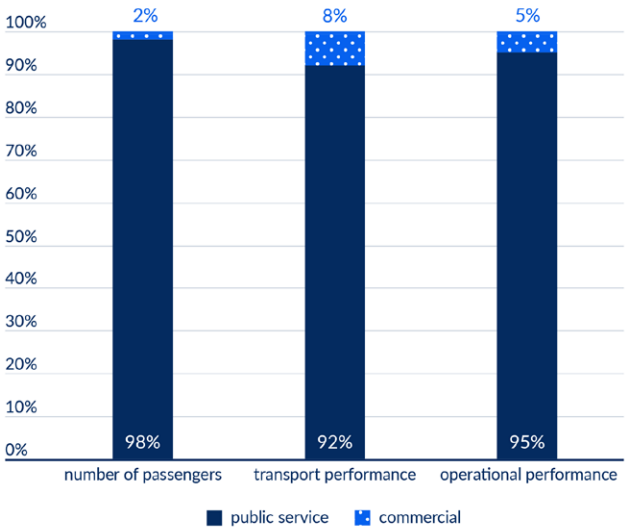
Having a signed public service contract or a decision granting open access, a licensed railway undertaking or an applicant submits an application for a train path (infrastructure capacity) within the period specified in the network statement. Then, the railway infrastructure manager grants capacities on the basis of the priority determinations according to relevant rules defined by the Regulation on the conditions of access to and use of railway infrastructure.

In addition to complying with the above rules on putting trains in service, applicable to the annual timetable structure, railway undertakings could apply for the infrastructure capacity within the update of the timetable from 12 June 2022 or within an individual timetable in the case of a spare capacity.

PKP PLK, as a rail infrastructure manager, introduced four modifications to the 2021/2022 annual timetable, which resulted in its division into five periods (closing cycles):

- 12 December 2021 – 12 March 2022;
- 13 March 2022 – 11 June 2022;
- 12 June 2022 – 3 September 2022;
- 4 September 2022 – 5 November 2022;
- 6 November 2022 – 10 grudnia 2022.

The validity dates of the changes to the annual timetable arise from Appendix No. 5.2 to the 2020/2021 network statement of PKP PLK 2021/2022. The 2021/2022 timetable became valid on 12 December 2021, and the validity of the first Substitute Timetable began on 12 March 2022. The described arrangement of railway transport within the PKP PLK network resulted from the repair, upgrade and maintenance works financed from both EU and national funds. Other managers of infrastructure used for passenger rail transport – Dolnośląska Służba Dróg i Kolei in Wrocław, PKP SKM in Tricity and Pomorska Kolej Metropolitarna S.A. in Gdańsk – also made adjustments to the timetable changes within the PKP PLK network. Since the line network of Warszawska Kolej Dojazdowa in Grodzisk Mazowiecki is entirely separate, the timetable revisions for WKD trains were adjusted separately to account for the repair works carried out by that manager.



◀ Fig. 2 The share of public and commercial transport services in the number of transported passengers, transport performance and operational performance in 2022

	number of passengers	transport performance	operational performance
public service	98%	92%	95%
commercial	2%	8%	5%

1.2. The basic parameters of the passenger transport market

In 2022, with the successive lifting of the sanitary restrictions, which were still in place to a varying extent in 2021, rail passenger transport recorded increasingly better results. In February 2022, through the outbreak of war in Ukraine, railways in Poland suddenly faced the challenge of evacuating people crossing our border. In the first three weeks of the conflict, around 2 million refugees arrived in Poland. As a means of transport that can carry a significant number of passengers in a short period of time, rail played an important role in the evacuation of people to different regions of Poland and abroad.

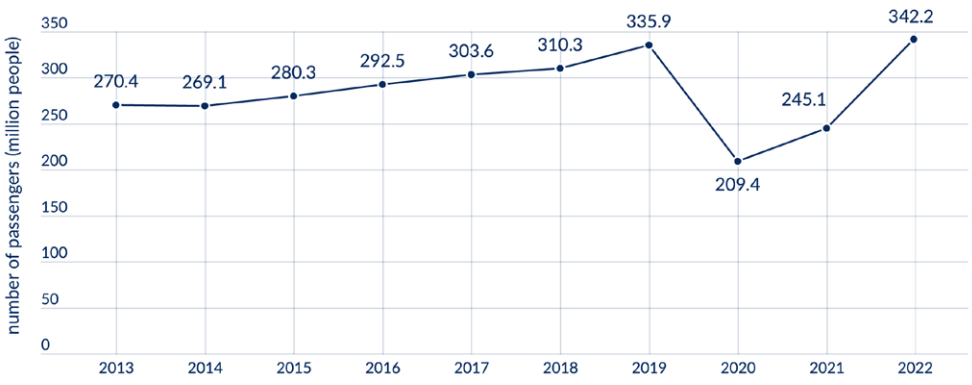
The events of 2022 have resulted in rising fuel prices and inflation. Under these conditions, an increasing number of people chose the railway as a convenient means of transport for commuting to work, university and also for further travel.

From March to December 2022, the number of rail passengers surpassed values compared to the corresponding months of pre-pandemic 2019. In the best month of 2022 in terms of passenger numbers – October – a record number of passengers - 32.8 million - used rail services in the space of monthly statistics kept by the UTK. In the whole of 2022, 342.2 million people used rail services. This is the highest number of rail passengers in Poland since 2000. Record values were also recorded for transport work, which amounted to almost 23.8 billion passenger-kilometres and exploratory work, which reached 186.1 million train-kilometres. In 2022, the highest level of the indicator of the average distance travelled by a rail passenger (69.5 km) and the highest value of the national indicator of rail use were recorded in the perspective of the last decade[1] – on average, during the whole of 2022, a resident of Poland travelled by rail at least 9.1 times (in 2021, this value was 6.4).

Of the total rail passengers in 2022, more than 46.7% were checked in 2 of the 16 provinces. The largest number of people travelled by train in the Mazowieckie (96.4 million) and Pomorskie (63.6 million) provinces. A result of more than 30 million passengers was also recorded in Dolnośląskie province (32.8 million) and Wielkopolskie province (32.0 million). The highest passenger growth dynamics both in the year-on-year comparison and in the four-year perspective (2022/2019) were recorded in the Podkarpackie province (73.2% and 36.6% respectively), the Wielkopolskie province (64.4% and 31.4%) and the Lubelskie province (54.7% and 30.8%).

In 2022, residents of the Pomorskie province (27 times on average) travelled most often by train, followed by those of the Mazowieckie Province (17.5) and the Dolnośląskie province (11.4). An indicator at the level of the national average (9.1) was also recorded in the Wielkopolskie province.

In 2022, all provinces in Poland saw an increase in the rail usage rate in the year-on-year terms. In 14 out of 16 provinces, the rail usage rate reached a higher value than in pre-pandemic 2019, while in the case of the Mazowieckie and Podlaskie provinces it was lower by respectively: 1.9 (-10%) and 0.1 (-6.8%) lower than in 2019.



◀ Fig. 3 Number of railway passengers in Poland in 2013–2022 (million)

	number of passengers
2013	270.4
2014	269.1
2015	280.3
2016	292.5
2017	303.6
2018	310.3
2019	335.9
2020	209.4
2021	245.1
2022	342.2

1 The rail usage rate in Poland is calculated as the quotient of the number of passengers and the number of inhabitants in Poland (according to Statistics Poland). Similarly, the indicator of railway use in a given province is calculated as the quotient of the number of passengers checked in and the number of inhabitants of the given province (according to Statistics Poland data).

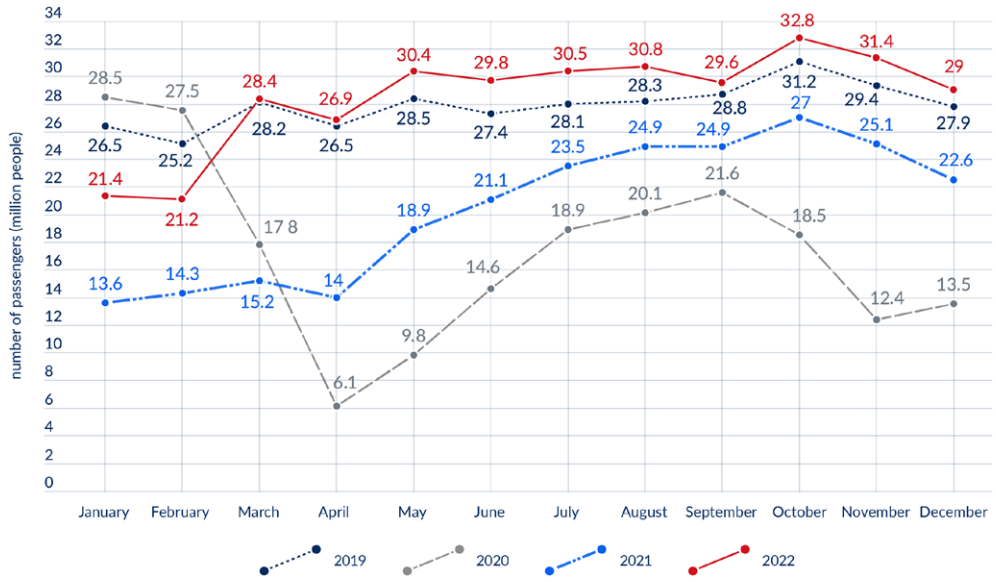


Fig. 4 Comparison of the number of passengers in 2019–2022 in individual months (in millions)

month	2019	2020	2021	2022
January	26.51	28.53	13.59	21.41
February	25.20	27.54	14.25	21.24
March	28.15	17.75	15.23	28.36
April	26.52	6.10	13.97	26.91
May	28.46	9.80	18.93	30.43
June	27.35	14.55	21.10	29.76
July	28.10	18.89	23.52	30.49
August	28.30	20.14	24.91	30.80
September	28.82	21.61	24.89	29.61
October	31.19	18.54	26.97	32.79
November	29.39	12.42	25.11	31.39
December	27.89	13.53	22.58	29.04

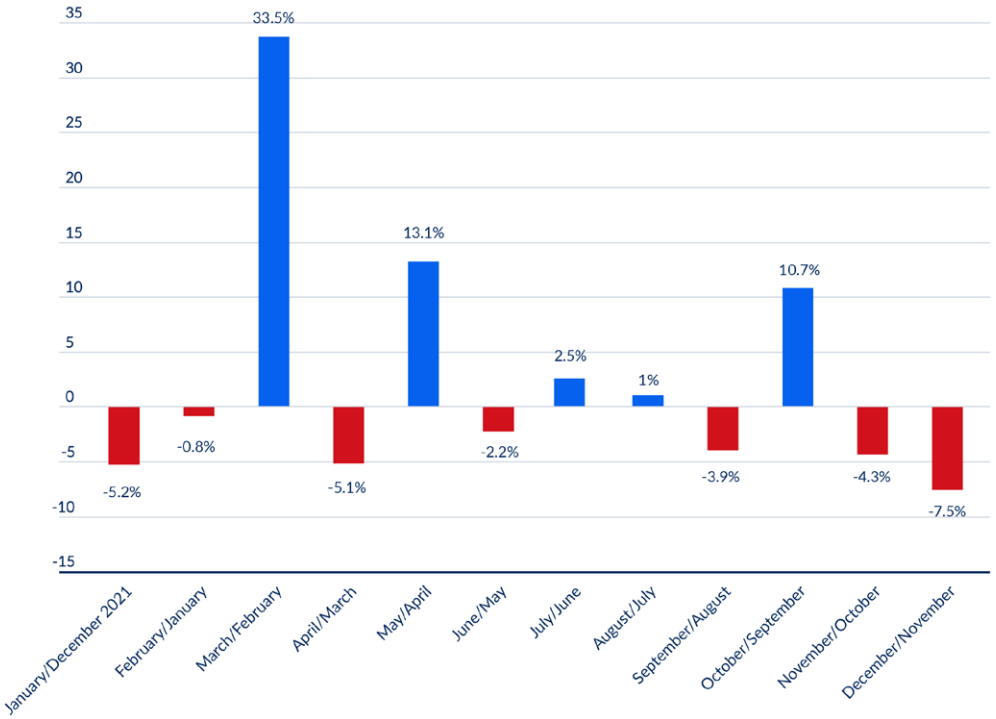


Fig. 5 Dynamics of changes in the number of passengers compared to the previous month in 2022

	the dynamics of change
January/December 2021	-5.2%
February/January	-0.8%
March/February	33.5%
April/March	-5.1%
May/April	13.1%
June/May	-2.2%
July/June	2.5%
August/July	1.0%
September/August	-3.9%
October/September	10.7%
November/October	-4.3%
December/November	-7.5%

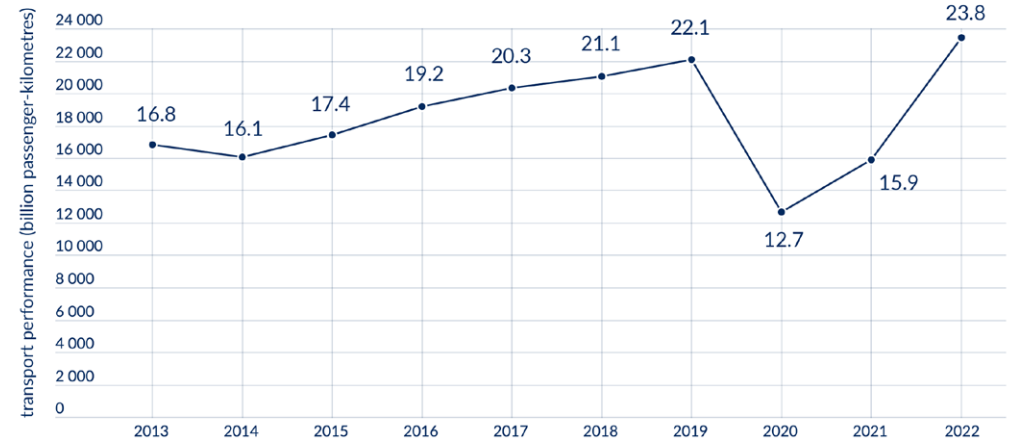
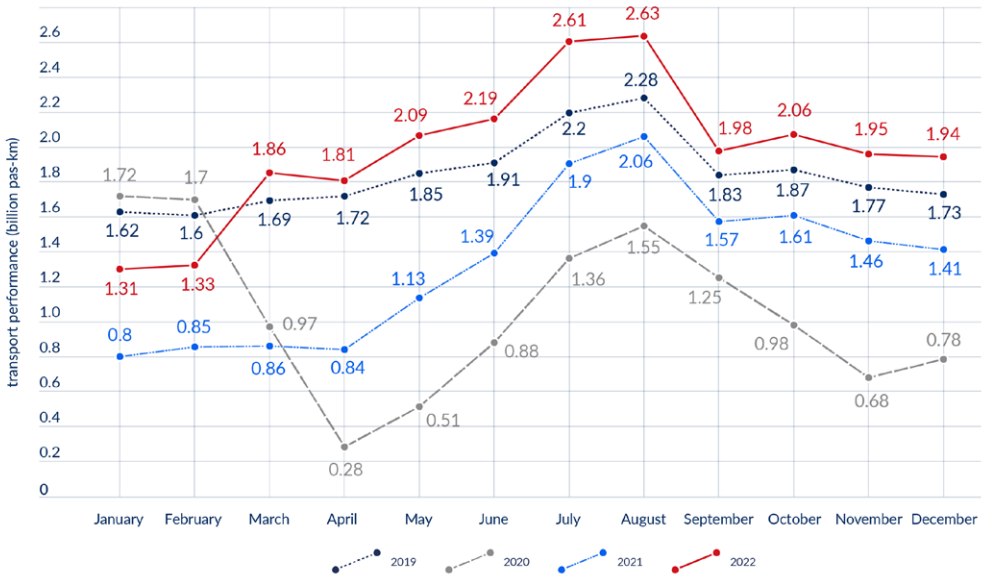


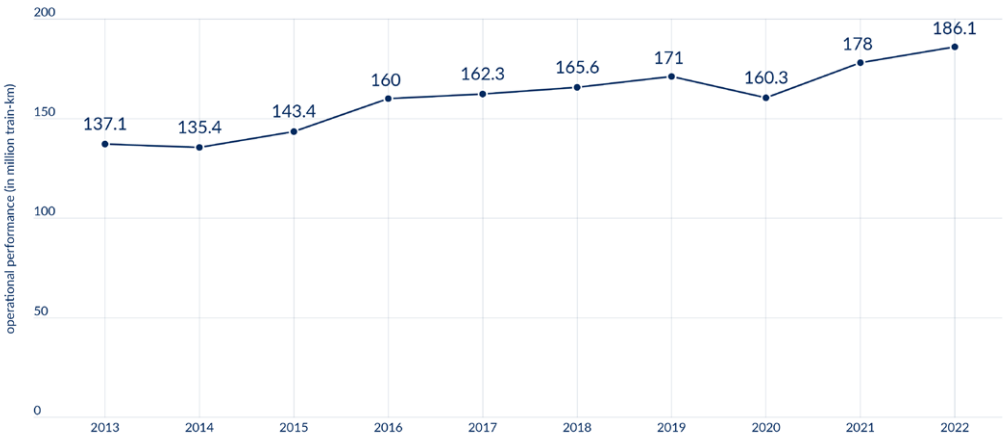
Fig. 6 Transport performance in rail passenger transport in 2013–2022 (in billion pas-km)

	transport performance
2013	16.80
2014	16.07
2015	17.44
2016	19.18
2017	20.32
2018	21.05
2019	22.07
2020	12.65
2021	15.88
2022	23.77



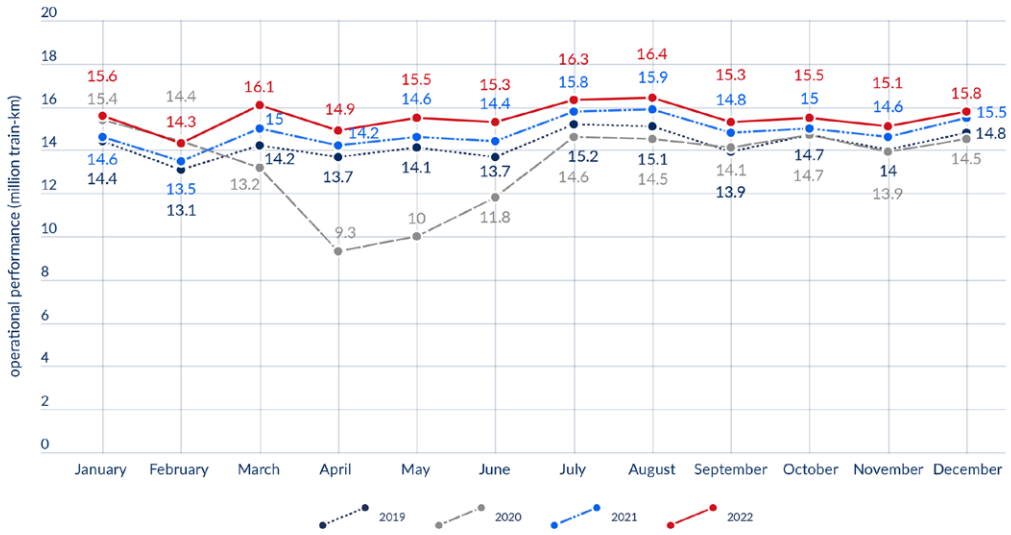
◀ Fig. 7 Comparison of transport performance in 2019–2022 in individual months in Poland (billion pas-km)

month	2019	2020	2021	2022
January	1.62	1.72	0.80	1.31
February	1.60	1.70	0.85	1.33
March	1.69	0.97	0.86	1.86
April	1.72	0.28	0.84	1.81
May	1.85	0.51	1.13	2.09
June	1.91	0.88	1.39	2.19
July	2.20	1.36	1.90	2.61
August	2.28	1.55	2.06	2.63
September	1.83	1.25	1.57	1.98
October	1.87	0.98	1.61	2.06
November	1.77	0.68	1.46	1.95
December	1.73	0.78	1.41	1.94



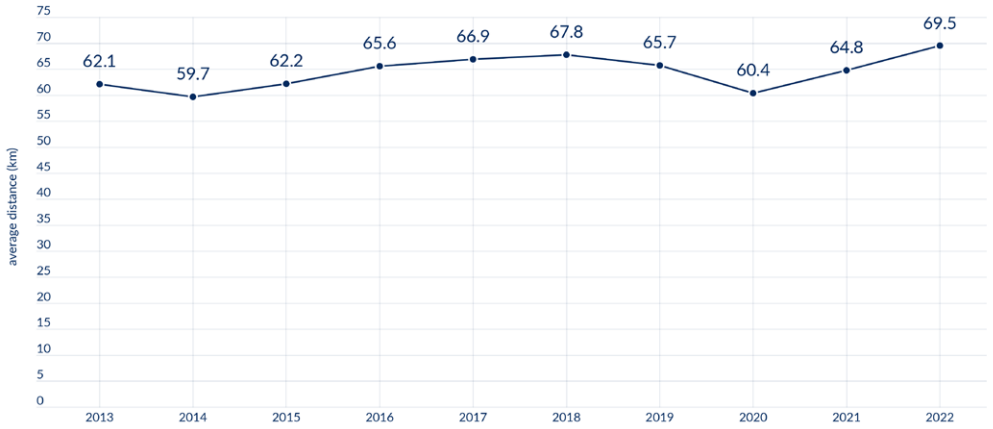
◀ Fig. 8 Operational performance in passenger rail transport in 2013–2022 (in million train-km)

	operational performance
2013	137.1
2014	135.4
2015	143.4
2016	160.0
2017	162.3
2018	165.6
2019	171.0
2020	160.3
2021	178.0
2022	186.1



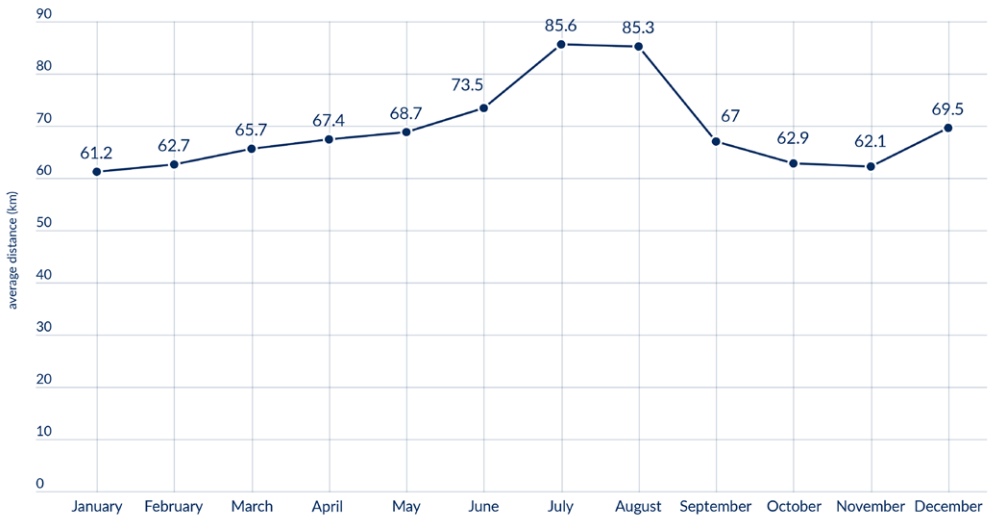
◀ Fig. 9 Comparison of operational performance in 2020–2022 in individual months in Poland (million train-km)

month	2019	2020	2021	2022
January	14.42	15.37	14.58	15.61
February	13.09	14.37	13.54	14.34
March	14.17	13.17	15.00	16.13
April	13.68	9.32	14.17	14.93
May	14.10	10.04	14.61	15.48
June	13.74	11.77	14.44	15.32
July	15.20	14.56	15.77	16.26
August	15.12	14.54	15.89	16.39
September	13.95	14.13	14.77	15.29
October	14.65	14.65	15.04	15.52
November	14.01	13.87	14.64	15.10
December	14.83	14.47	15.54	15.76



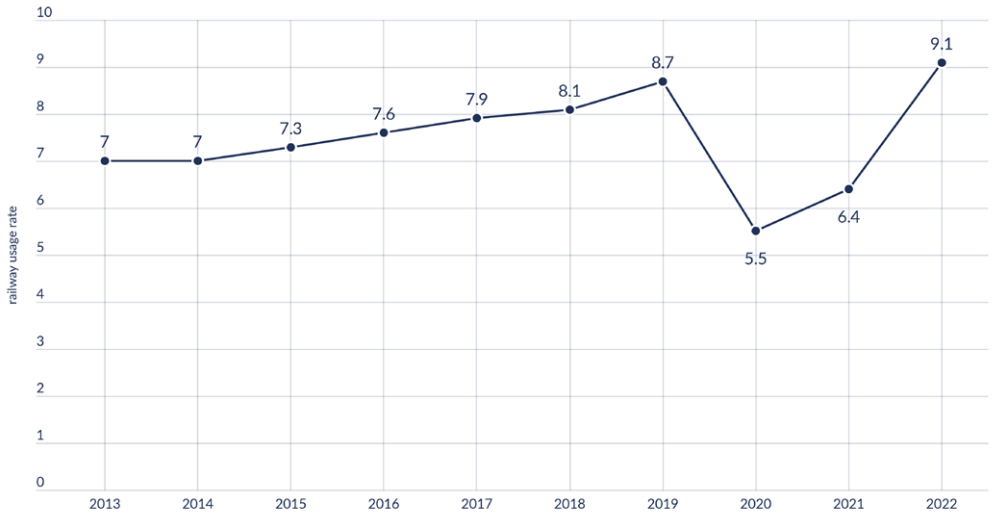
◀ Fig. 10 Average travel distance of one passenger in Poland in 2013–2022 (km)

	distance
2013	62.1
2014	59.7
2015	62.2
2016	65.6
2017	66.9
2018	67.8
2019	65.7
2020	60.4
2021	64.8
2022	69.5



◀ Fig. 11 Average travel distance of one passenger in Poland in individual months of 2022 (km)

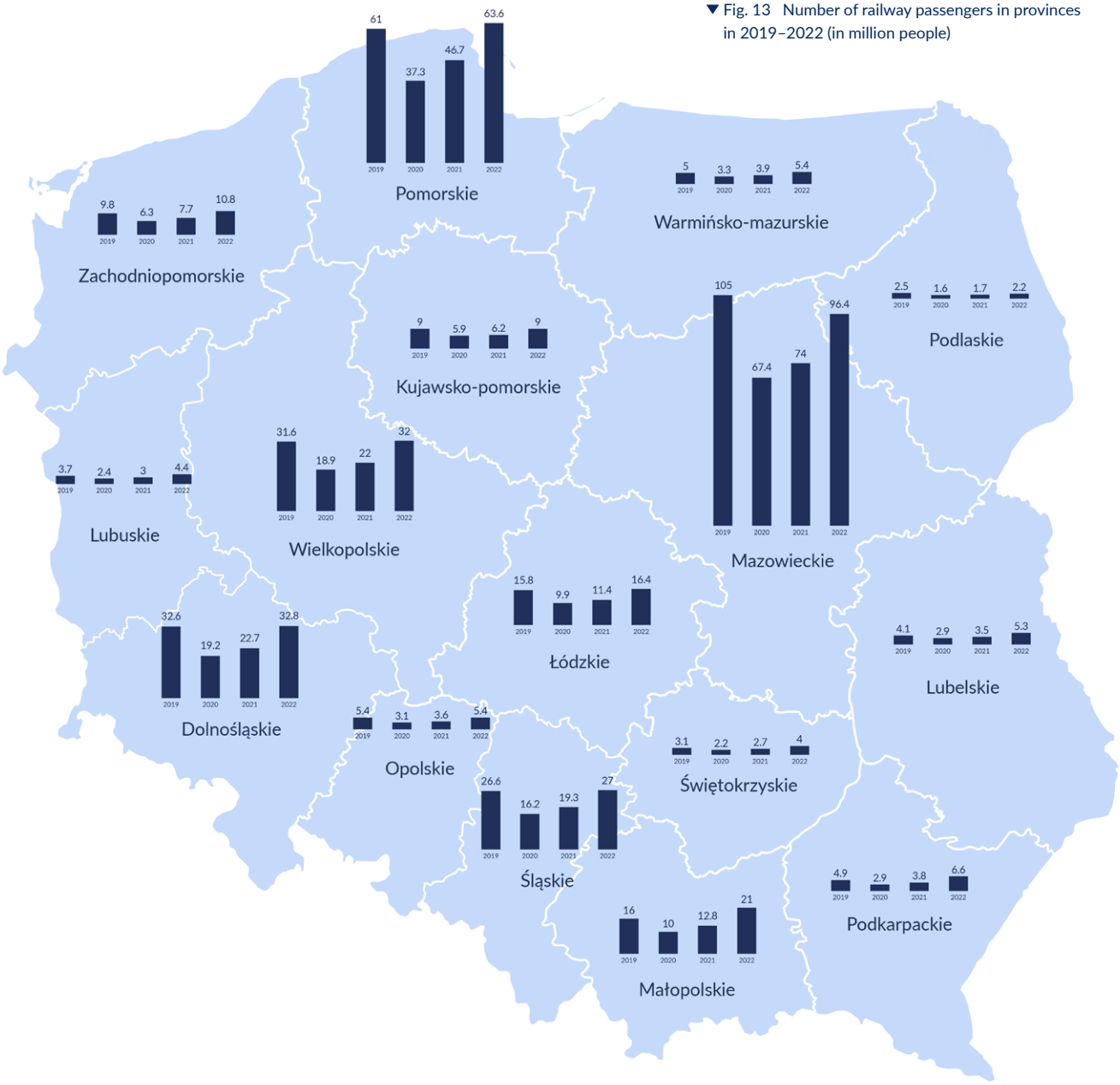
	odległość
January	61.2
February	62.7
March	65.7
April	67.4
May	68.7
June	73.5
July	85.6
August	85.3
September	67.0
October	62.9
November	62.1
December	69.5



◀ Fig. 12 The overall rail usage rate in Poland in 2013–2022

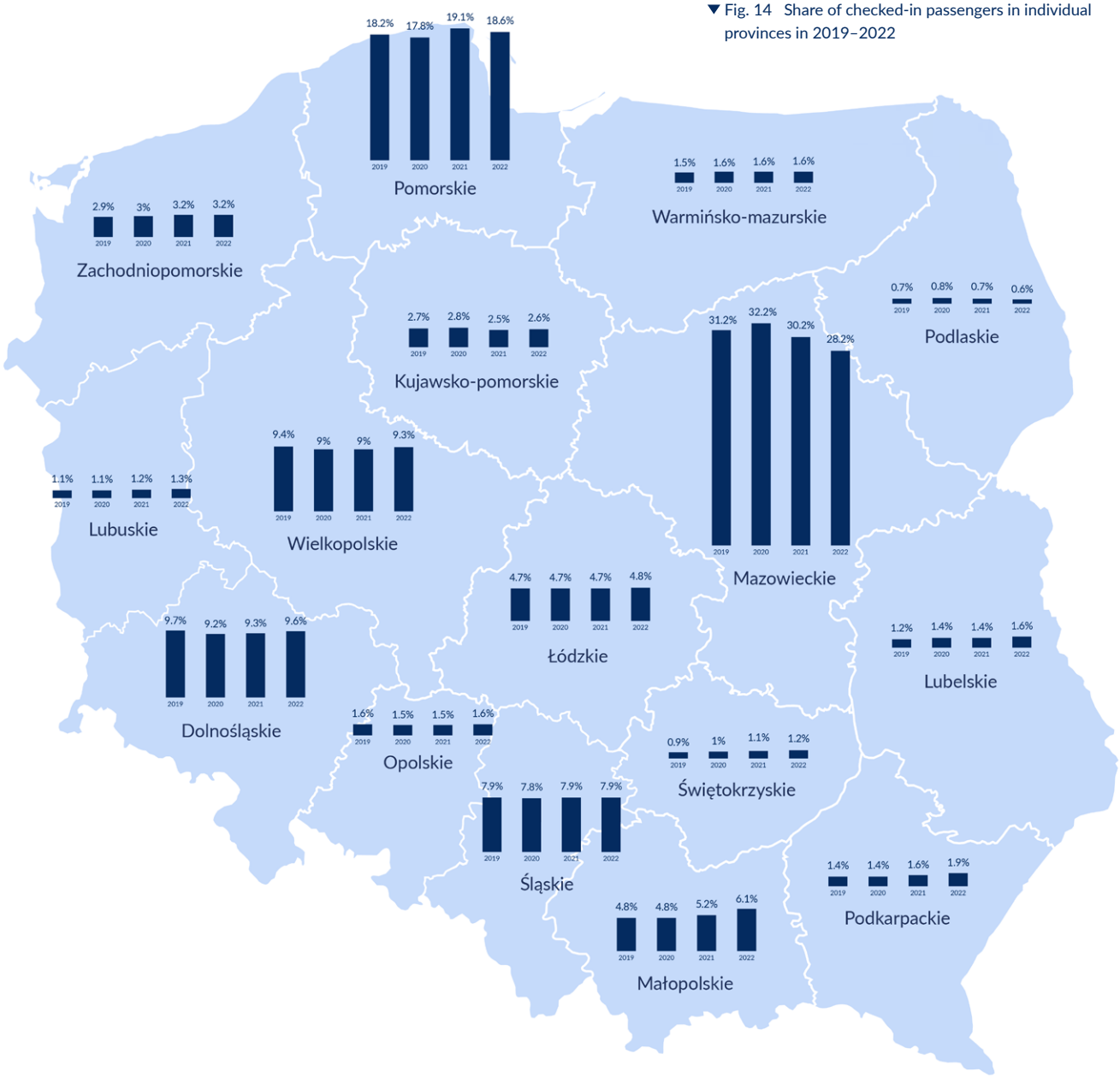
	rail usage rate
2013	7.0
2014	7.0
2015	7.3
2016	7.6
2017	7.9
2018	8.1
2019	8.7
2020	5.5
2021	6.4
2022	9.1

▼ Fig. 13 Number of railway passengers in provinces in 2019–2022 (in million people)

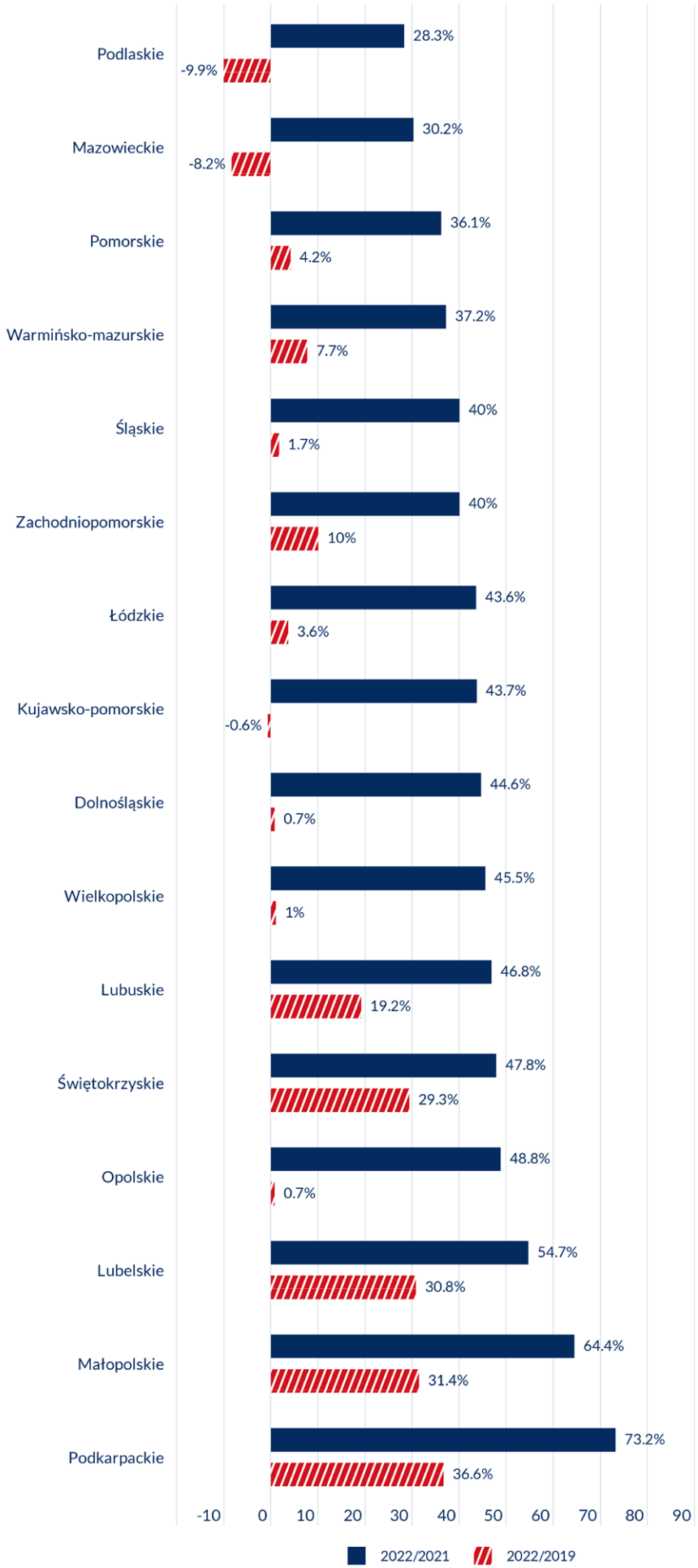


Province	2019	2020	2021	2022
Mazowieckie	105.0	67.4	74.0	96.4
Pomorskie	61.0	37.3	46.7	63.6
Dolnośląskie	32.6	19.2	22.7	32.8
Wielkopolskie	31.6	18.9	22.0	32.0
Śląskie	26.6	16.2	19.3	27.0
Małopolskie	16.0	10.0	12.8	21.0
Łódzkie	15.8	9.9	11.4	16.4
Zachodniopomorskie	9.8	6.3	7.7	10.8
Kujawsko-pomorskie	9.0	5.9	6.2	9.0
Podkarpackie	4.9	2.9	3.8	6.6
Opolskie	5.4	3.1	3.6	5.4
Warmińsko-mazurskie	5.0	3.3	3.9	5.4
Lubelskie	4.1	2.9	3.5	5.3
Lubuskie	3.7	2.4	3.0	4.4
Świętokrzyskie	3.1	2.2	2.7	4.0
Podlaskie	2.5	1.6	1.7	2.2

▼ Fig. 14 Share of checked-in passengers in individual provinces in 2019–2022



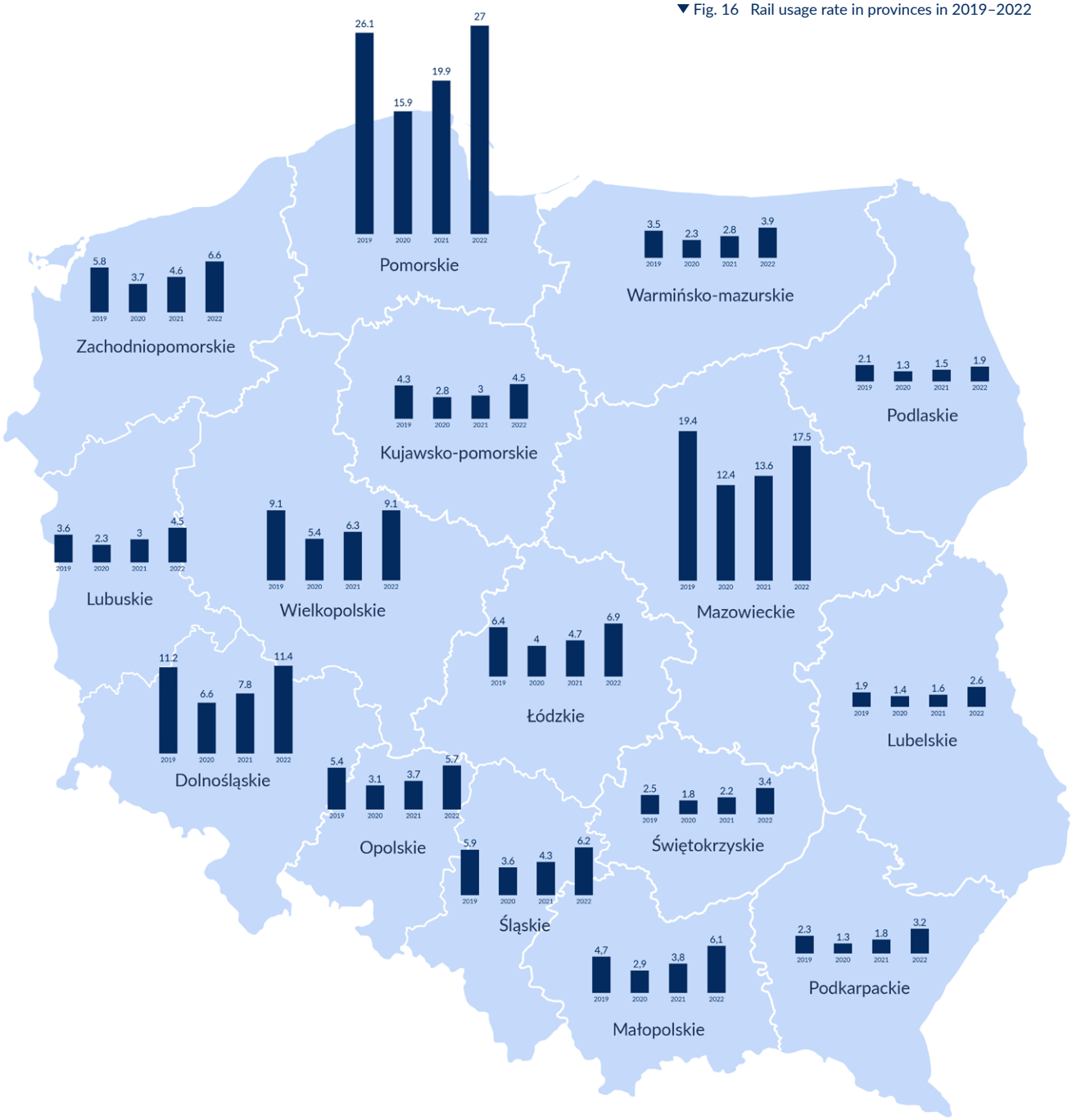
Province	2019	2020	2021	2022
Mazowieckie	31.2%	32.2%	30.2%	28.2%
Pomorskie	18.2%	17.8%	19.1%	18.6%
Dolnośląskie	9.7%	9.2%	9.3%	9.6%
Wielkopolskie	9.4%	9.0%	9.0%	9.3%
Śląskie	7.9%	7.8%	7.9%	7.9%
Małopolskie	4.8%	4.8%	5.2%	6.1%
Łódzkie	4.7%	4.7%	4.7%	4.8%
Zachodniopomorskie	2.9%	3.0%	3.2%	3.2%
Kujawsko-pomorskie	2.7%	2.8%	2.5%	2.6%
Podkarpackie	1.4%	1.4%	1.6%	1.9%
Opolskie	1.6%	1.5%	1.5%	1.6%
Warmińsko-mazurskie	1.5%	1.6%	1.6%	1.6%
Lubelskie	1.2%	1.4%	1.4%	1.6%
Lubuskie	1.1%	1.1%	1.2%	1.3%
Świętokrzyskie	0.9%	1.0%	1.1%	1.2%
Podlaskie	0.7%	0.8%	0.7%	0.6%



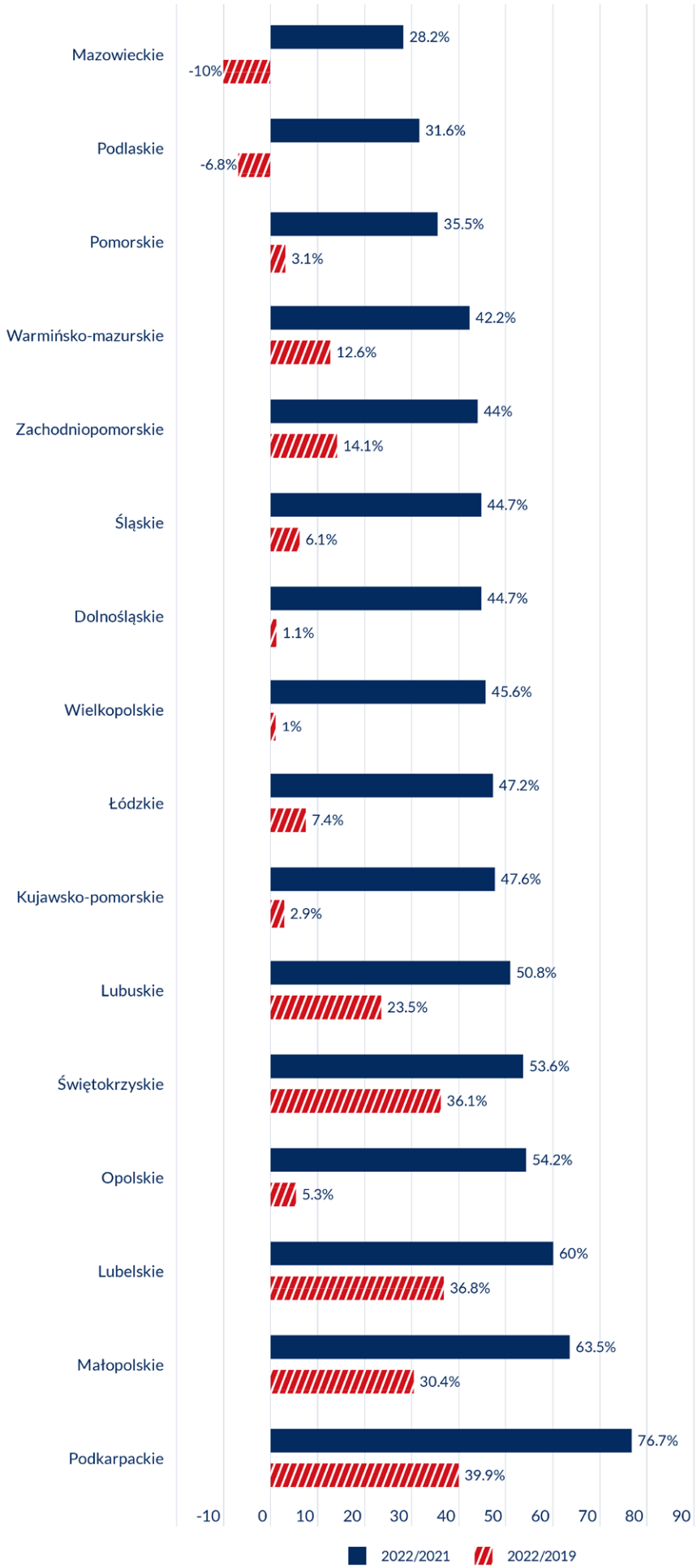
◀ Fig. 15 Dynamics of changes in the number of passengers in provinces in 2022/2021 and 2022/2019

Province	2022/2021	2022/20
Podlaskie	28.3%	-9.9%
Mazowieckie	30.2%	-8.2%
Pomorskie	36.1%	4.2%
Warmińsko-mazurskie	37.2%	7.7%
Śląskie	40.0%	1.7%
Zachodniopomorskie	40.0%	10.0%
Łódzkie	43.6%	3.6%
Kujawsko-pomorskie	43.7%	-0.6%
Dolnośląskie	44.6%	0.7%
Wielkopolskie	45.5%	1.0%
Lubuskie	46.8%	19.2%
Świętokrzyskie	47.8%	29.3%
Opolskie	48.8%	0.7%
Lubelskie	54.7%	30.8%
Małopolskie	64.4%	31.4%
Podkarpackie	73.2%	36.6%

▼ Fig. 16 Rail usage rate in provinces in 2019–2022



Province	2019	2020	2021	2022
Pomorskie	26.1	15.9	19.9	27.0
Mazowieckie	19.4	12.4	13.6	17.5
Dolnośląskie	11.2	6.6	7.8	11.4
Wielkopolskie	9.1	5.4	6.3	9.1
Łódzkie	6.4	4.0	4.7	6.9
Zachodniopomorskie	5.8	3.7	4.6	6.6
Śląskie	5.9	3.6	4.3	6.2
Małopolskie	4.7	2.9	3.8	6.1
Opolskie	5.4	3.1	3.7	5.7
Lubuskie	3.6	2.3	3.0	4.5
Kujawsko- pomorskie	4.3	2.8	3.0	4.5
Warmińsko-mazurskie	3.5	2.3	2.8	3.9
Świętokrzyskie	2.5	1.8	2.2	3.4
Podkarpackie	2.3	1.3	1.8	3.2
Lubelskie	1.9	1.4	1.6	2.6
Podlaskie	2.1	1.3	1.5	1.9



◀ Fig. 17 Dynamics of changes in the level of the rail usage rate in Poland, broken down by provinces in 2022/2021 i 2022/2019

Province	2022/2021	2022/20
Mazowieckie	28.2%	-10.0%
Podlaskie	31.6%	-6.8%
Pomorskie	35.5%	3.1%
Warmińsko-mazurskie	42.2%	12.6%
Zachodniopomorskie	44.0%	14.1%
Śląskie	44.7%	6.1%
Dolnośląskie	44.7%	1.1%
Wielkopolskie	45.6%	1.0%
Łódzkie	47.2%	7.4%
Kujawsko- pomorskie	47.6%	2.9%
Lubuskie	50.8%	23.5%
Świętokrzyskie	53.6%	36.1%
Opolskie	54.2%	5.3%
Lubelskie	60.0%	36.8%
Małopolskie	63.5%	30.4%
Podkarpackie	76.7%	39.9%

1.3. The role of railway stations in passenger traffic in Poland

Data on passenger traffic at railway stations in Poland include railway undertakings that provide permanent transport services throughout the year[2]. The volume of passenger exchange in Poland in 2022 is 681.7 million embarking and disembarking (an increase of 39.3% compared to 2021). This data does not include passengers embarking and disembarking outside Poland and passengers transiting through Poland[3].

Wrocław Główny is the station with the highest passenger exchange in 2022 – 26.4 million passengers embarked or disembarked at it, which accounted for 3.9% of the total passenger flows in Poland. The highest level of passenger flows in the country has been recorded for this station for years. On average, 19 trains stopped at Wrocław Główny station each hour, with 156 embarking/disembarking passengers per train.

The city with the highest passenger flows among all provincial cities in 2022 is Warsaw with an exchange of 95.2 million passengers, an increase of 35.2% compared to 2021. Within Warsaw, 54 stations could be used, of which 7 stations had long-distance trains stopping at them, and three stations (Warszawa Stadion, Warszawa Młynów and Warszawa Gdańsk) have direct connections to metro stations. Warsaw alone accounts for 14% of passenger flows in Poland. The second provincial city with the highest exchange was Gdańsk with over 44.2 million embarking/ disembarking passengers, and Poznań ranked third.

In total, at the stations located in the 18 provincial seat cities[4] in 2022, passenger flows accounted for 42.9% of total passenger flows. In recent years, new stops and stations have appeared in many provincial cities, or existing ones have been upgraded. The greatest growth was recorded in Lublin, where, for example, a large increase in passenger flows was achieved by PKP Intercity.

The number of train stops is one indicator of the accessibility of railways and rail connections in a region. According to PKP PLK data, in 2022 only 18 stations in Polandat least 10 train stops per hour. In the case of 87 stations, the

▼ Tab. 3 Passenger flows at 10 largest stations in Poland in 2022

station	annual passenger flow in million passengers	average daily passenger flows thousand passengers	average number of trains per hour	average passenger flow per stopover
Wrocław Główny	26.40	72,337	19	156
Poznań Główny	22.06	60,448	17	150
Kraków Główny	20.13	55,141	16	144
Katowice	16.35	44,805	17	110
Warszawa Wschodnia	13.46	36,880	31	50
Gdynia Główna	13.41	36,745	19	81
Warszawa Centralna	13.27	36,362	8	180
Gdańsk Główny	11.39	31,216	14	93
Gdańsk Wrzeszcz	10.78	29,525	18	68
Warszawa Zachodnia	10.75	29,448	32	38

2 The data does not include train runs operated by Cargo Master, Leo Express, Parowozownia Wolsztyn, PKP Cargo and SKPL Cargo, RegioJet.

3 Some of the railway undertakings of regional importance attribute border passengers to the last station or border item on Polish territory. However, this data is not included in the compilation.

4 Białystok, Bydgoszcz, Gdańsk, Gorzów Wielkopolski, Katowice, Kielce, Kraków, Lublin, Łódź, Olsztyn, Opole, Poznań, Rzeszów, Szczecin, Toruń, Warszawa, Wrocław i Zielona Góra.

number of stops is greater than 6 per hour (excluding stops in substitute bus transport), with the largest number of such stations located in Warsaw.

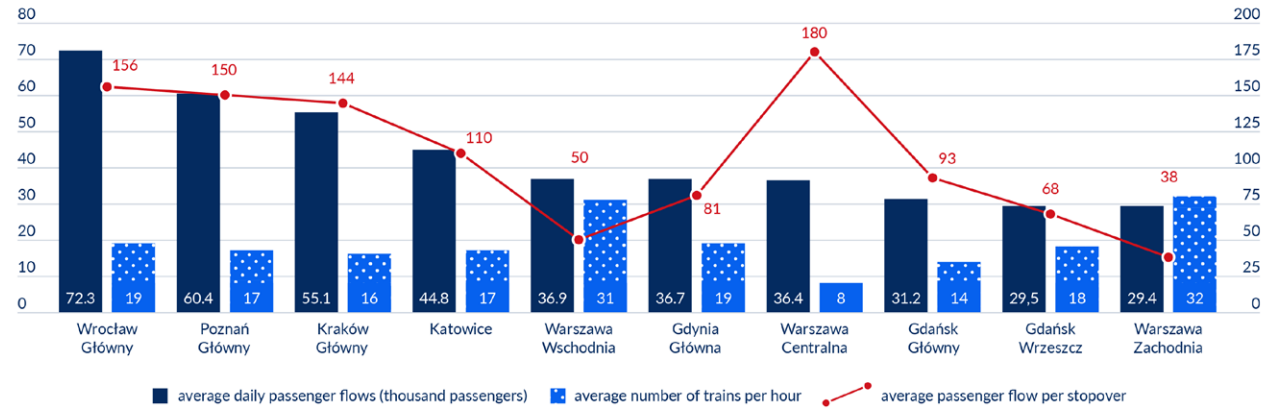
The varying quality of the railway infrastructure and the transport offer has a very strong impact on passenger use of the railway.

In addition to the rate of railway use in the country and in the provinces, the level of railway use canalso be illustrated using the parameter of daily passenger turnover at a given station. Of the stations with a daily passenger flows of more than 1,000 people, the largest number is located in the Mazowieckie province. In 2022, there were 107 stations. The smallest number of such stations is located in the Podlaskie province – in 2022, only Białystok station had a daily passenger flows exceeding 1,000. There were 4 such stations in the Świętokrzyskie province: Kielce, Skarżysko-Kamienna, Sędziszów and Jędrzejów. Stations with a daily passenger flows of more than 1,000 people carried out in 2022 81% of total passenger flows.

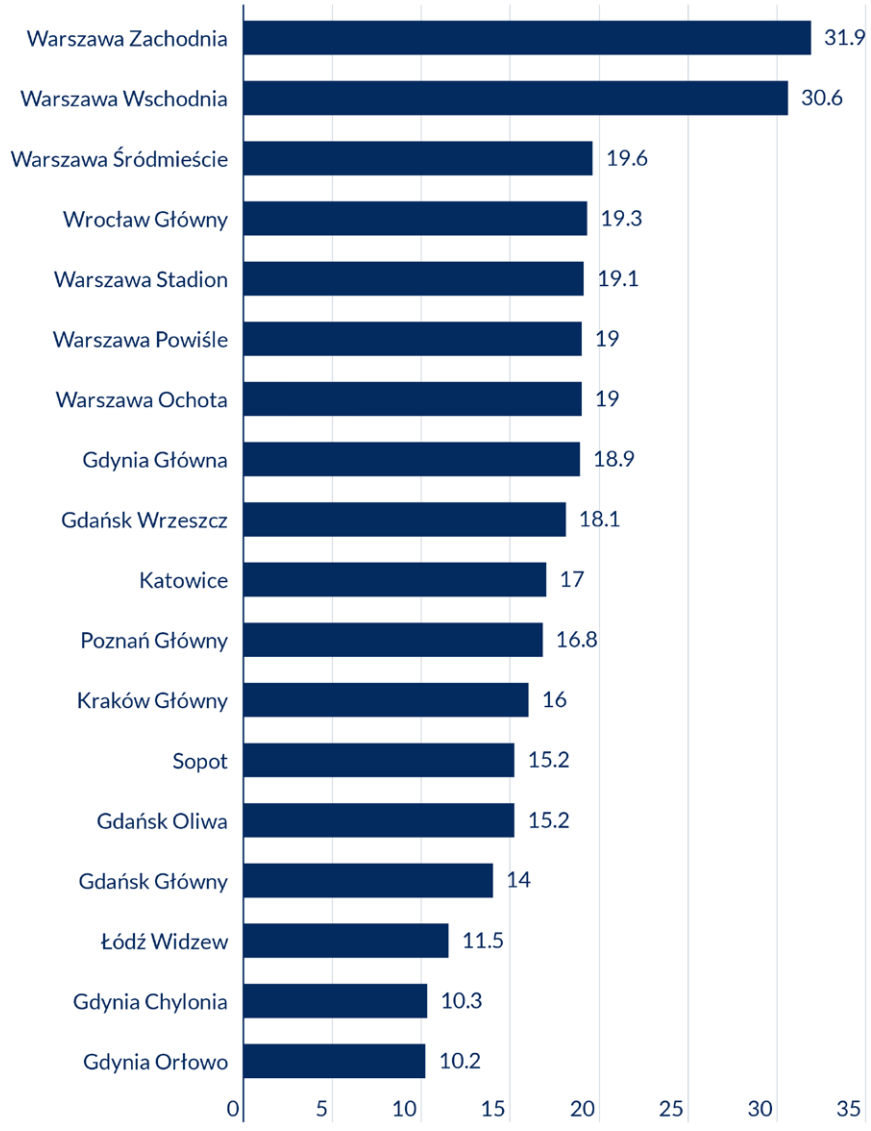
▼ Tab. 4 Passenger flows in province capitals in 2022

		passenger flows (in million people)			
province	city	2021	2022	dynamics of change 2022/2021	percentage share in passenger flows in 2022
Mazowieckie	Warszawa	70.43	95.19	35.16%	13.96%
Pomorskie	Gdańsk	31.85	44.25	38.96%	6.49%
Dolnośląskie	Wrocław	21.90	31.90	45.68%	4.68%
Wielkopolskie	Poznań	16.76	24.63	47.00%	3.61%
Małopolskie	Kraków	13.98	23.84	70.55%	3.50%
Śląskie	Katowice	12.65	18.45	45.89%	2.71%
Łódzkie	Łódź	9.15	12.75	39.32%	1.87%
Zachodniopomorskie	Szczecin	5.09	7.02	37.86%	1.03%
Kujawsko-pomorskie	Bydgoszcz	4.22	6.02	42.71%	0.88%
Opolskie	Opole	3.10	4.66	50.07%	0.68%
Podkarpackie	Rzeszów	2.87	4.44	54.78%	0.65%
Warmińsko-mazurskie	Olsztyn	2.67	3.82	42.90%	0.56%
Kujawsko-pomorskie	Toruń	2.43	3.65	50.04%	0.54%
Lubelskie	Lublin	1.99	3.45	73.64%	0.51%
Świętokrzyskie	Kielce	1.79	2.61	46.15%	0.38%
Podlaskie	Białystok	1.84	2.45	32.92%	0.36%
Lubuskie	Zielona Góra	1.43	2.17	52.10%	0.32%
Lubuskie	Gorzów Wielkopolski	0.80	1.19	48.52%	0.17%

▼ Fig. 18 The largest passenger railway stations in terms of passenger flows in 2022



station	average daily passenger flows (thousand passengers)	average number of trains per hour	average passenger flow per stopover
Wrocław Główny	72.3	19	156
Poznań Główny	60.4	17	150
Kraków Główny	55.1	16	144
Katowice	44.8	17	110
Warszawa Wschodnia	36.9	31	50
Gdynia Główna	36.7	19	81
Warszawa Centralna	36.4	8	180
Gdańsk Główny	31.2	14	93
Gdańsk Wrzeszcz	29.5	18	68
Warszawa Zachodnia	29.4	32	38



◀ Fig. 19 Stations with an average number of train stopovers per hour being higher than 10 in 2022

Stations with an average of more than 10 stopovers per hour in 2022	number of trains per hour
Warszawa Zachodnia	31.9
Warszawa Wschodnia	30.6
Warszawa Śródmieście	19.6
Wrocław Główny	19.3
Warszawa Stadion	19.1
Warszawa Powiśle	19.0
Warszawa Ochota	19.0
Gdynia Główna	18.9
Gdańsk Wrzeszcz	18.1
Katowice	17.0
Poznań Główny	16.8
Kraków Główny	16.0
Sopot	15.2
Gdańsk Oliwa	15.2
Gdańsk Główny	14.0
Łódź Widzew	11.5
Gdynia Chylonia	10.3
Gdynia Orłowo	10.2

▼ Tab. 5 Passenger flows and train stopovers – data for provinces in 2022

Province	average number of train stopovers in a province per hour	number of stations with passenger flow above 1,000 persons per day	number of stations with passenger flows between 100 and 1,000 persons per day	number of stations where the number of train stopovers per year exceeded 1,000
Dolnośląskie	327	26	115	268
Kujawsko-pomorskie	134	12	44	142
Lubelskie	98	6	29	118
Lubuskie	75	7	29	94
Łódzkie	218	17	61	139
Małopolskie	245	15	80	190
Mazowieckie	810	107	118	307
Opolskie	84	9	24	255
Podkarpackie	117	6	38	114
Podlaskie	48	1	16	89
Pomorskie	421	43	67	172
Śląskie	335	26	82	217
Świętokrzyskie	64	3	21	68
Warmińsko-mazurskie	71	7	27	114
Wielkopolskie	326	29	109	264
Zachodniopomorskie	134	13	41	172

▼ Tab. 6 List of 10 stations with the largest passenger flows in the Dolnośląskie province in 2022

Dolnośląskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Wrocław Główny	26.40	19	156	41.1%	5.9%
Legnica	2.39	5	58	3.7%	1.4%
Wrocław Mikołajów	1.53	7	25	2.4%	2.1%
Oleśnica	1.14	2	81	1.8%	0.5%
Jelenia Góra	1.05	2	54	1.6%	0.7%
Oława	1.04	3	36	1.6%	1.0%
Oborniki Śląskie	0.94	3	38	1.5%	0.9%
Bolesławiec	0.87	1	67	1.3%	0.5%
Strzelin	0.83	2	57	1.3%	0.5%
Głogów	0.80	3	31	1.2%	0.9%

▼ Tab. 7 List of 10 stations with the largest passenger flows in the Kujawsko-Pomorskie province in 2022

Kujawsko-Pomorskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Bydgoszcz Główna	5.09	8	77	26.2%	5.6%
Toruń Główny	2.23	5	48	11.5%	4.0%
Inowrocław	0.98	3	38	5.0%	2.2%
Włocławek	0.82	2	47	4.2%	1.5%
Toruń Wschodni	0.76	3	31	3.9%	2.1%
Solec Kujawski	0.63	3	27	3.3%	2.0%
Toruń Miasto	0.61	3	26	3.2%	2.0%
Grudziądz	0.57	3	25	2.9%	1.9%
Mogilno	0.51	2	25	2.6%	1.7%
Laskowice Pomorskie	0.51	3	18	2.6%	2.4%

▼ Tab. 8 List of 10 stations with the largest passenger flows in the Lubelskie province in 2022

Lubelskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Lublin Główny	3.18	5	74	27.3%	5.1%
Dęblin	1.30	4	33	11.2%	4.6%
Łuków	1.19	3	49	10.2%	2.9%
Biała Podlaska	0.68	1	66	5.8%	1.2%
Chełm	0.67	2	44	5.7%	1.8%
Puławy Miasto	0.43	2	23	3.7%	2.2%
Terespol	0.36	1	37	3.1%	1.1%
Świdnik Miasto	0.25	2	17	2.2%	1.7%
Międzyrzec Podlaski	0.23	1	22	2.0%	1.2%
Trawniki	0.20	2	15	1.7%	1.6%

▼ Tab. 9 List of 10 stations with the largest passenger flows in the Lubuskie province in 2022

Lubuskie Provincee	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Zielona Góra Główna	2.08	3	73	21.1%	4.4%
Zbąszynek	1.07	4	30	10.9%	5.4%
Gorzów Wielkopolski	1.01	2	64	10.3%	2.4%
Rzepin	0.76	3	32	7.7%	3.6%
Kostrzyn	0.73	2	35	7.4%	3.2%
Nowa Sól	0.58	2	41	5.9%	2.2%
Żary	0.37	2	28	3.8%	2.0%
Świebodzin	0.28	1	25	2.8%	1.7%
Witnica	0.17	1	18	1.7%	1.4%
Żagań	0.16	1	15	1.6%	1.7%

▼ Tab. 10 List of 10 stations with the largest passenger flows in the Łódzkie province in 2022

Łódzkie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Skierniewice	4.71	8	70	15.0%	3.5%
Łódź Fabryczna	3.74	5	80	11.9%	2.4%
Łódź Widzew	3.57	11	35	11.3%	5.3%
Łódź Kaliska	1.86	4	47	5.9%	2.1%
Koluszki	1.65	7	28	5.2%	3.1%
Łowicz Główny	1.12	3	37	3.6%	1.6%
Kutno	1.08	4	28	3.4%	2.0%
Piotrków Trybunalski	1.00	3	45	3.2%	1.2%
Zgierz	0.90	5	22	2.9%	2.1%
Łódź Żabieniec	0.85	3	37	2.7%	1.2%

▼ Tab. 11 List of 10 stations with the largest passenger flows in the Małopolskie province in 2022

Małopolskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Kraków Główny	20.13	16	144	64.0%	7.3%
Tarnów	2.51	5	59	8.0%	2.2%
Krzeszowice	1.41	4	36	4.5%	2.1%
Kraków Lotnisko	1.09	3	47	3.5%	1.2%
Bochnia	0.84	3	27	2.7%	1.6%
Zakopane	0.83	1	131	2.6%	0.3%
Trzebinia	0.78	4	20	2.5%	2.1%
Nowy Sącz	0.63	1	56	2.0%	0.6%
Oświęcim	0.54	1	44	1.7%	0.6%
Brzesko Okocim	0.53	3	20	1.7%	1.4%

▼ Tab. 12 List of 10 stations with the largest passenger flows in the Mazowieckie province in 2022

Mazowieckie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Warszawa Wschodnia	13.46	31	50	7.0%	3.2%
Warszawa Centralna	13.27	8	180	6.9%	0.9%
Warszawa Zachodnia	10.75	32	38	5.6%	3.4%
Warszawa Śródmieście	9.85	20	57	5.1%	2.1%
Grodzisk Mazowiecki	5.05	5	113	2.6%	0.5%
Żyrardów	4.24	6	76	2.2%	0.7%
Mińsk Mazowiecki	4.13	4	106	2.1%	0.5%
Warszawa Wileńska	3.80	5	91	2.0%	0.5%
Pruszków	3.74	7	64	1.9%	0.7%
Warszawa Wola Grzybowska	3.63	6	68	1.9%	0.6%

▼ Tab. 13 List of 10 stations with the largest passenger flows in the Opolskie province in 2022

Opolskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Opole Główne	4.27	6	77	35.3%	7.5%
Brzeg	1.39	4	43	11.5%	4.4%
Kędzierzyn-Koźle	0.88	3	31	7.2%	3.8%
Lewin Brzeski	0.47	1	37	3.9%	1.7%
Kluczbork	0.45	2	29	3.7%	2.1%
Nysa	0.43	1	36	3.6%	1.6%
Zdzieszowice	0.41	2	30	3.4%	1.9%
Strzelce Opolskie	0.37	2	26	3.1%	1.9%
Namysłów	0.37	1	53	3.0%	0.9%
Opole Zachodnie	0.30	2	16	2.5%	2.5%

▼ Tab. 14 List of 10 stations with the largest passenger flows in the Podkarpackie province in 2022

Podkarpackie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Rzeszów Główny	4.15	6	75	30.1%	5.4%
Przemyśl Główny	2.43	3	97	17.6%	2.4%
Jarosław	0.89	3	38	6.4%	2.3%
Dębica	0.83	3	30	6.0%	2.7%
Przeworsk	0.66	4	21	4.8%	3.1%
Łańcut	0.42	3	15	3.0%	2.8%
Sędziszów Małopolski	0.23	2	12	1.7%	2.0%
Kolbuszowa	0.19	1	20	1.4%	1.0%
Stalowa Wola Rozwadów	0.16	2	12	1.2%	1.3%
Przemyśl Zasanie	0.16	2	8	1.1%	2.0%

▼ Tab. 15 List of 10 stations with the largest passenger flows in the Podlaskie province in 2022

Podlaskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Białystok	2.38	3	99	48.6%	5.7%
Łapy	0.32	1	49	6.5%	1.5%
Suwałki	0.21	0	51	4.3%	1.0%
Bielsk Podlaski	0.20	1	20	4.1%	2.4%
Hajnówka	0.19	1	21	3.9%	2.2%
Sokółka	0.19	1	20	3.9%	2.2%
Szepietowo	0.18	1	27	3.7%	1.6%
Czeremcha	0.14	1	11	2.9%	3.0%
Czyżew	0.12	1	18	2.5%	1.6%
Grajewo	0.11	1	24	2.4%	1.2%

▼ Tab. 16 List of 10 stations with the largest passenger flows in the Pomorskie province in 2022

Pomorskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Gdynia Główna	13.41	18.9	81.0	10.7%	4.5%
Gdańsk Główny	11.39	14.0	93.0	9.1%	3.3%
Gdańsk Wrzeszcz	10.78	18.1	68.0	8.6%	4.3%
Sopot	8.79	15.2	66.2	7.0%	3.6%
Gdynia Wzgórze Św. Maksymiliana	5.56	7.8	81.8	4.4%	1.8%
Gdańsk Oliwa	4.50	15.2	33.9	3.6%	3.6%
Tczew	3.54	7.4	54.9	2.8%	1.8%
Gdańsk Przymorze Uniwersytet	3.53	7.8	51.9	2.8%	1.8%
Gdańsk Śródmieście	3.14	6.7	53.6	2.5%	1.6%
Gdynia Redłowo	2.86	7.8	42.2	2.3%	1.8%

▼ Tab. 17 List of 10 stations with the largest passenger flows in the Śląskie province in 2022

Śląskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Katowice	16.35	17	110	30.6%	5.1%
Częstochowa	3.41	6	68	6.4%	1.7%
Gliwice	3.33	8	45	6.2%	2.5%
Bielsko-Biała Główna	1.87	3	75	3.5%	0.9%
Zawiercie	1.54	4	43	2.9%	1.2%
Zabrze	1.42	6	29	2.6%	1.7%
Sosnowiec Główny	1.39	4	37	2.6%	1.3%
Rybnik	1.14	3	37	2.1%	1.0%
Tychy	1.12	6	22	2.1%	1.7%
Pszczyna	0.89	3	32	1.7%	0.9%

▼ Tab. 18 List of 10 stations with the largest passenger flows in the Świętokrzyskie province in 2022

Świętokrzyskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Kielce	2.46	4	72	33.0%	6.1%
Skarżysko-Kamienna	1.28	4	37	17.1%	6.2%
Sędziszów	0.62	3	28	8.4%	4.0%
Jędrzejów	0.38	2	26	5.0%	2.6%
Ostrowiec Świętokrzyski	0.24	1	30	3.1%	1.4%
Starachowice Wschodnie	0.20	1	25	2.6%	1.4%
Włoszczowa Północ	0.19	1	15	2.5%	2.3%
Suchedniów	0.17	2	8	2.3%	3.6%
Klimontów	0.17	2	12	2.2%	2.4%
Starachowice	0.16	1	24	2.1%	1.2%
Włoszczowa	0.11	1.30	9	2.0%	2.2%

▼ Tab. 19 List of 10 stations with the largest passenger flows in the Warmińsko-Mazurskie province in 2022

Warmińsko-Mazurskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Olsztyn Główny	3.20	4	88	26.9%	5.9%
Iława Główna	1.48	4	41	12.5%	5.8%
Elbląg	1.09	2	70	9.2%	2.5%
Działdowo	0.74	3	30	6.2%	4.0%
Ostróda	0.61	1	47	5.1%	2.1%
Olsztyn Zachodni	0.51	3	19	4.3%	4.3%
Ełk	0.49	1	63	4.1%	1.2%
Giżycko	0.29	1	56	2.4%	0.8%
Szczytno	0.25	1	42	2.1%	1.0%
Olsztynek	0.22	1	30	1.9%	1.2%

▼ Tab. 20 List of 10 stations with the largest passenger flows in the Wielkopolskie province in 2022

Wielkopolskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Poznań Główny	22.06	17	150	36.2%	5.2%
Gniezno	2.09	4	65	3.4%	1.1%
Leszno	1.94	5	46	3.2%	1.5%
Piła Główna	1.73	4	54	2.8%	1.1%
Ostrów Wielkopolski	1.54	4	48	2.5%	1.1%
Kościan	1.12	3	41	1.8%	1.0%
Środa Wielkopolska	0.99	3	43	1.6%	0.8%
Mosina	0.98	2	57	1.6%	0.6%
Jarocin	0.94	3	34	1.5%	1.0%
Września	0.93	3	38	1.5%	0.9%

▼ Tab. 21 List of 10 stations with the largest passenger flows in the Zachodniopomorskie province in 2022

Zachodniopomorskie Province	passenger flows (in million people)	average number of stopovers per hour	number of passengers per stopover	share of the station in the province's passenger flow	share of the station in the number of stopovers within the province
Szczecin Główny	5.90	7	99	26.0%	5.1%
Stargard	1.76	3	72	7.8%	2.1%
Koszalin	1.53	3	66	6.7%	2.0%
Kołobrzeg	1.45	2	92	6.4%	1.4%
Świnoujście	0.87	1	83	3.8%	0.9%
Goleniów	0.80	2	44	3.5%	1.5%
Gryfino	0.74	2	50	3.3%	1.3%
Międzyzdroje	0.65	1	63	2.9%	0.9%
Szczecinek	0.63	2	35	2.8%	1.5%
Szczecin Dąbie	0.62	5	70	2.7%	3.5%

▼ Tab. 22 Number of train stopping stations in individual provinces in 2022

	long-distance undertaking (PKP Intercity)		regional undertaking	
Province	number of stations with more than 1,000 stopovers	number of stations from 100 to 1,000 stopovers	number of stations with more than 1,000 stopovers	number of stations from 100 to 1,000 stopovers
Dolnośląskie	30	22	268	8
Kujawsko-pomorskie	16	6	142	1
Lubelskie	23	11	114	25
Lubuskie	14	7	94	7
Łódzkie	21	8	138	6
Małopolskie	32	11	187	20
Mazowieckie	33	5	307	1
Opolskie	13	4	98	18
Podkarpackie	26	5	147	5
Podlaskie	23	4	89	0
Pomorskie	16	21	171	20
Śląskie	27	12	217	16
Świętokrzyskie	11	0	66	1
Warmińsko-mazurskie	19	4	114	6
Wielkopolskie	33	8	264	0
Zachodniopomorskie	21	12	172	0

1.4. Licencjonowanie przewozów pasażerskich

In line with the Rail Transport Act, a railway undertaking is an enterprise authorised to provide rail transport services, including an enterprise providing exclusive traction services based on a license and a uniform safety certificate, or an enterprise authorised to provide rail transport based on a safety certificate.

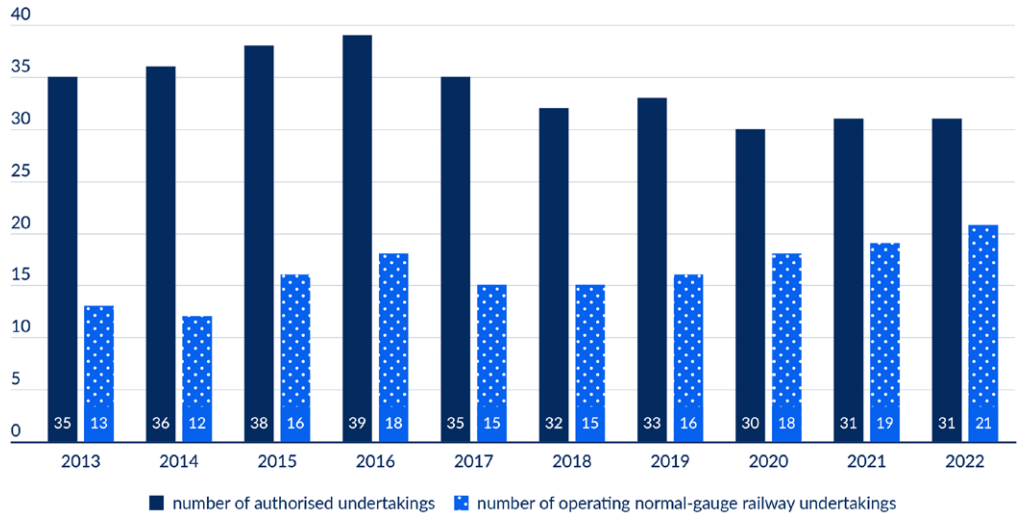
In 2022, enterprises showed no interest in obtaining a licence solely for the transport of passengers by rail. One entity has been granted a licence to provide rail passenger transport, rail freight services and traction services. One enterprise has had its licence for rail passenger transport, rail freight transport and traction services suspended.

At the end of 2022, active licenses for the provision of passenger rail transport issued by the President of UTK were held by 31 undertakings, of which 21 operated and reported the provision of passenger transport services on normal-gauge infrastructure.

Among the railway undertakings whose main license is for passenger transport services using normal-gauge infrastructure of another manager(11 undertakings), all entities fulfilled the minimum requirement of the guarantee sum for civil liability insurance, required under the Regulation on Railway Undertaking Insurance.

For undertakings obliged to hold an insurance policy with a minimum sum guaranteed of the PLN equivalent of EUR 2,500,000 (PLN 11,472,250 at the exchange rate of 3 January 2022), the average insurance sum guaranteed amounted to PLN 68,671,086.

Undertakings that decided to acquire insurance for a sum guaranteed in excess of the minimum sum account for 91% of undertakings (10 out of 11 undertakings). Among them, for undertakings who held insurance for a sum guaranteed ranging from EUR 2,500,000 (i.e. PLN 11,371,250) to PLN 50,000,000, the average sum guaranteed amounted to PLN 38,211,940. Among undertakings who held insurance for a sum guaranteed ranging from PLN 50,000,000 to PLN 100,000,000, the average sum guaranteed amounted to PLN 73,790,333. For undertakings with a sum guaranteed of over PLN 100,000,000, the average sum guaranteed was PLN 165,790,000.



◀ Fig. 20 Number of authorised railway undertakings with an active passenger transport licence and number of operating normal-gauge passenger railway undertakings between 2013 and 2022

	number of authorised undertakings	number of operating normal-gauge railway undertakings
2013	35	13
2014	36	12
2015	38	16
2016	39	18
2017	35	15
2018	32	15
2019	33	16
2020	30	18
2021	31	19
2022	31	21

List of undertakings holding a license for passenger transport issued by the President of UTK

1. Arriva RP sp. z o.o.
2. Cargo Master sp. z o.o.
3. CARGO Przewozy Towarowe, Transport sp. z o.o. spółka komandytowa
4. „Dolnośląskie Linie Autobusowe" sp. z o.o.
5. Freightliner PL sp. z o .o.
6. Fundacja Polskich Kolei Wąskotorowych
7. Jaxan Rail sp. z o.o. (dawniej: G&K Rail Transport sp. z o .o.)
8. Koleje Dolnośląskie S.A.
9. Koleje Małopolskie sp. z o.o.
10. „Koleje Mazowieckie – KM" sp. z o.o.
11. Koleje Śląskie sp. z o.o.
12. Koleje Wielkopolskie sp. z o.o.
13. „Łódzka Kolej Aglomeracyjna" sp. z o.o.
14. Mobil Lok Servis sp. z o.o.
15. NKN Usługi Kolejowe spółka z ograniczoną odpowiedzialnością
16. Olavion sp. z o.o.
17. Parowozownia Wolsztyn Instytucja Kultury Województwa Wielkopolskiego
18. Piaseczyńsko-Grójeckie Towarzystwo Kolei Wąskotorowej
19. PKP Cargo S.A.
20. „PKP INTERCITY" S.A.
21. PKP Szybka Kolej Miejska w Trójmieście sp. z o.o.
22. POLREGIO S.A.
23. Pomorskie Towarzystwo Miłośników Kolei Żelaznych
24. Rail Cargo Carrier – Poland sp. z o.o. (dawniej Rail Time Polska sp. z o.o.)
25. Rail STM sp. z o.o. (dawniej Cityline sp. z o.o.)
26. Railpolonia sp. o.o.
27. Railtrans Poland sp. z o.o. sp. k.
28. SKPL Cargo sp. z o.o.
29. Stanisław Głowacz F.H.U. JMS
30. Szybka Kolej Miejska sp. z o.o.
31. Warszawska Kolej Dojazdowa sp. z o.o.

1.5. The passenger rail services market

In 2022, several passenger undertakings reported record performance. Against the backdrop of high fuel prices, special ticket offers mobilised an increasing number of people to use the train as their main mode of transport for local and long-distance journeys. In 2022, the development of the transport offer in the individual companies and the purchase of new rolling stock as well as the development of modern sales channels continued. A wider network of connections, in juxtaposition with better travel comfort, are factors determining the increase in interest in the services of individual undertakings.

Of the total number of passengers travelling by train in 2022 (342.2 million), almost 73% (248.8 million) were served by the four largest undertakings: POLREGIO services were used by 87.18 million people (25.47%), Koleje Mazowieckie 59.08 million (17.26%), slightly fewer were served by PKP Intercity – 58.96 million (17.23%), and SKM trains in the Tricity were used by 43.58 million people (12.73%).

Last year, for all undertakings providing regular passenger transport, translated into an increase in the number of passengers compared to 2021. The highest passenger growth rate (+65.2%) was recorded by PKP Intercity, for Koleje Małopolskie the increase was 58.6%, for Koleje Wielkopolskie it was 53.9%. POLREGIO achieved a result higher by 39.2% in the year-on-year terms.

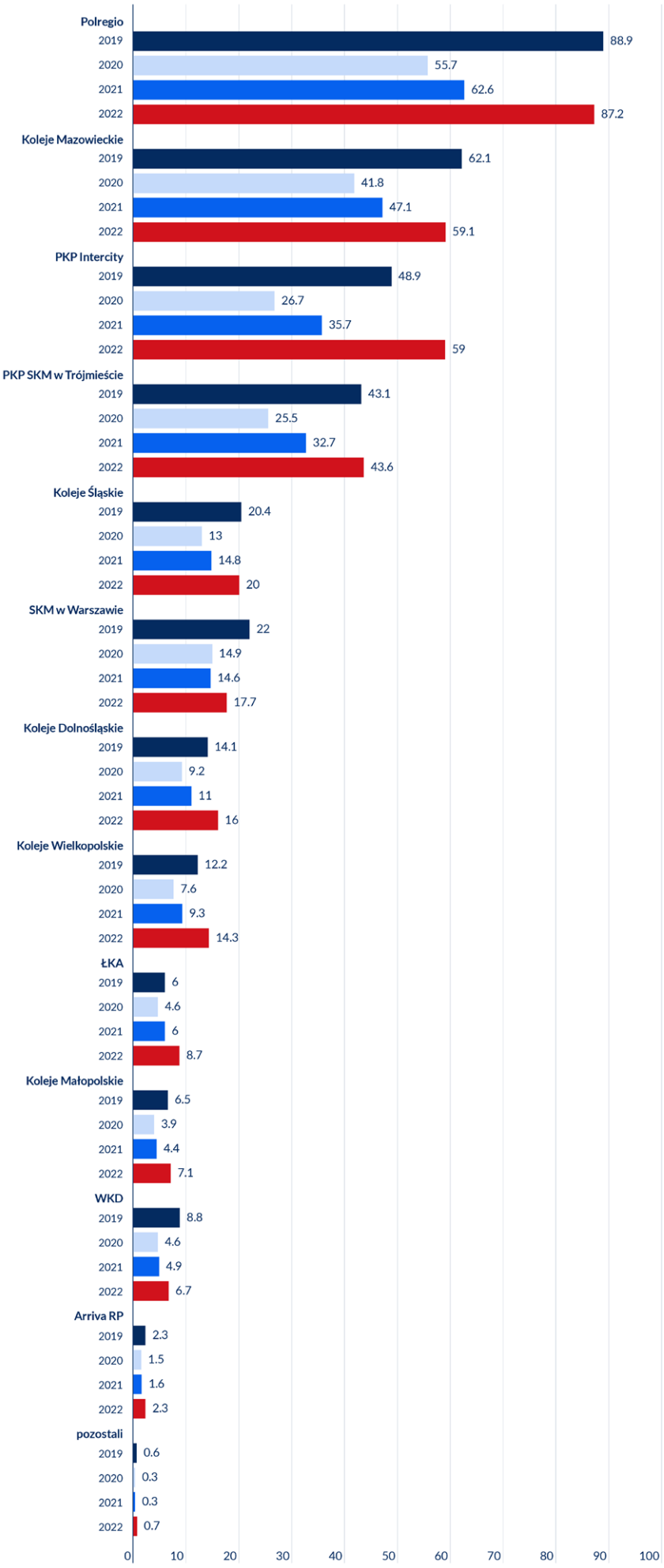
For half of the undertakings analysed, the number of rail passengers carried in 2022 was higher compared to 2019, which was the last year before the pandemic. The highest percentage increase was achieved by ŁKA (+44.4%), for PKP Intercity it was an increase of 20.7% and for Koleje Wielkopolskie 17.2%. POLREGIO carried fewer passengers in 2022 than in 2019 (the number of passengers carried in 2022 represented 98% of the 2019 passengers).

Analysing the market share of individual undertakings by number of passengers, it was PKP Intercity that gained the most in the four-year perspective (2019-2022) (an increase of 2.68 percentage points), for ŁKA the increase was 0.75 percentage points, for Koleje Wielkopolskie it was an increase of 0.54 percentage points and the share of Koleje Dolnośląskie increased by 0.48 percentage points. In 2022, Koleje Małopolskie increased its share by 0.13 percentage points compared to 2019.

The total passenger rail transport work performed in 2022 amounted to 23.77 billion passenger-kilometres, of which more than 83.2% was carried out by three undertakings: more than 58.3% of the transport work was carried out by PKP Intercity, POLREGIO accounted for 17.4%, and Koleje Mazowieckie carried out 7.6% of the transport work.

In a four-year perspective (between 2019 and 2022), the largest increase in market share by transport performance, of 5.53 percentage points, was achieved by PKP Intercity. ŁKA increased by 0.35 percentage points, Koleje Dolnośląskie increased by 0.34 percentage points and Koleje Wielkopolskie's share increased by 0.25 percentage points. Koleje Małopolskie increased its share of the transport performance by 0.04 percentage point.

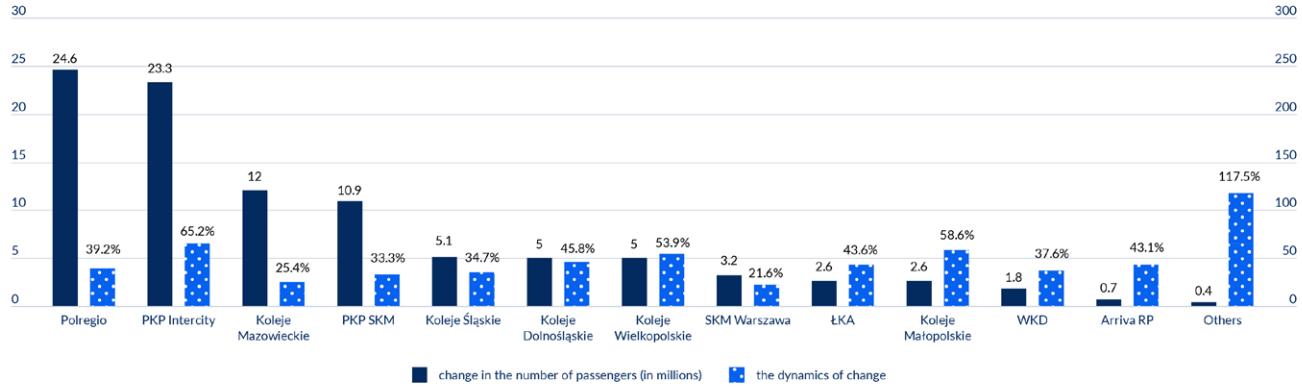
The volume of transport work carried out depends on the train relationship and the length of the route travelled by passengers. In 2022, the average distance travelled by a rail passenger was 69.4 km. This was 235 km for a PKP Intercity passenger, 47.3 km for POLREGIO and 30.4 km for Koleje Mazowieckie. The shortest route in 2022 was covered by a WKD passenger – less than 14.8 km on average.



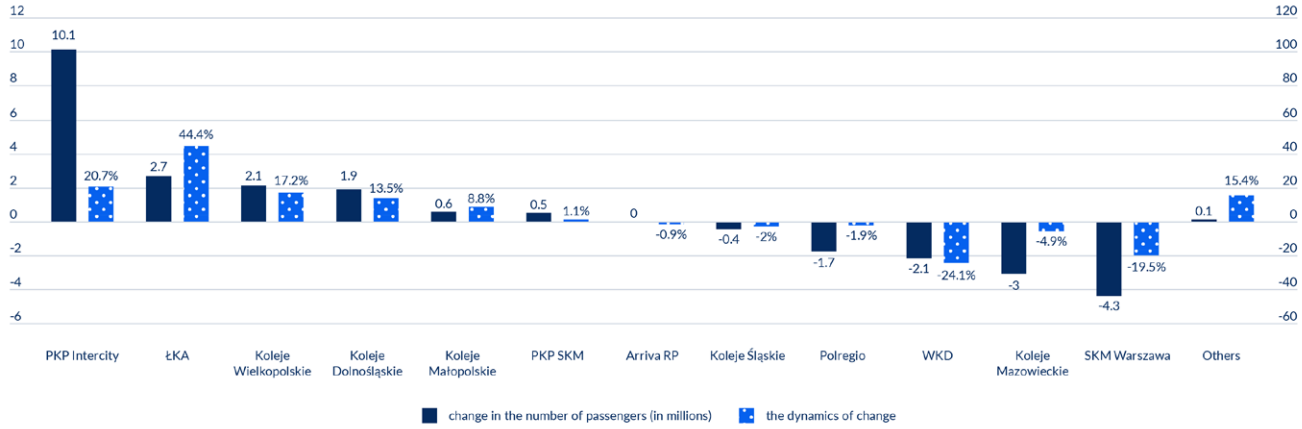
◀ Fig. 21 Number of passengers by undertakings in 2019–2022 (in million people)

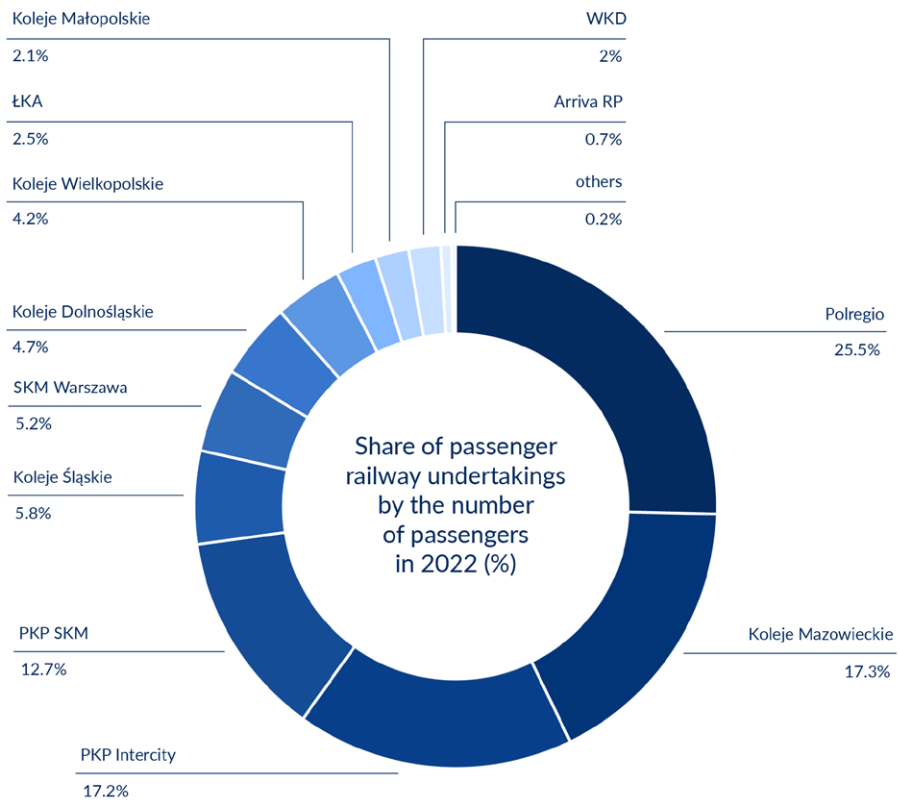
undertaking	2019	2020	2021	2022
POLREGIO	88.9	55.7	62.6	87.2
Koleje Mazowieckie	62.1	41.8	47.1	59.1
PKP Intercity	48.9	26.7	35.7	59.0
PKP SKM	43.1	25.5	32.7	43.6
Koleje Śląskie	20.4	13.0	14.8	20.0
SKM Warszawa	22.0	14.9	14.6	17.7
Koleje Dolnośląskie	14.1	9.2	11.0	16.0
Koleje Wielkopolskie	12.2	7.6	9.3	14.3
ŁKA	6.0	4.6	6.0	8.7
Koleje Małopolskie	6.5	3.9	4.4	7.1
WKD	8.8	4.6	4.9	6.7
Arriva RP	2.3	1.5	1.6	2.3
Others	0.6	0.3	0.3	0.7

▼ Fig. 22 Change in the number of passengers (in millions) and the dynamics of changes in this parameter (in %) by undertakings 2022/2021



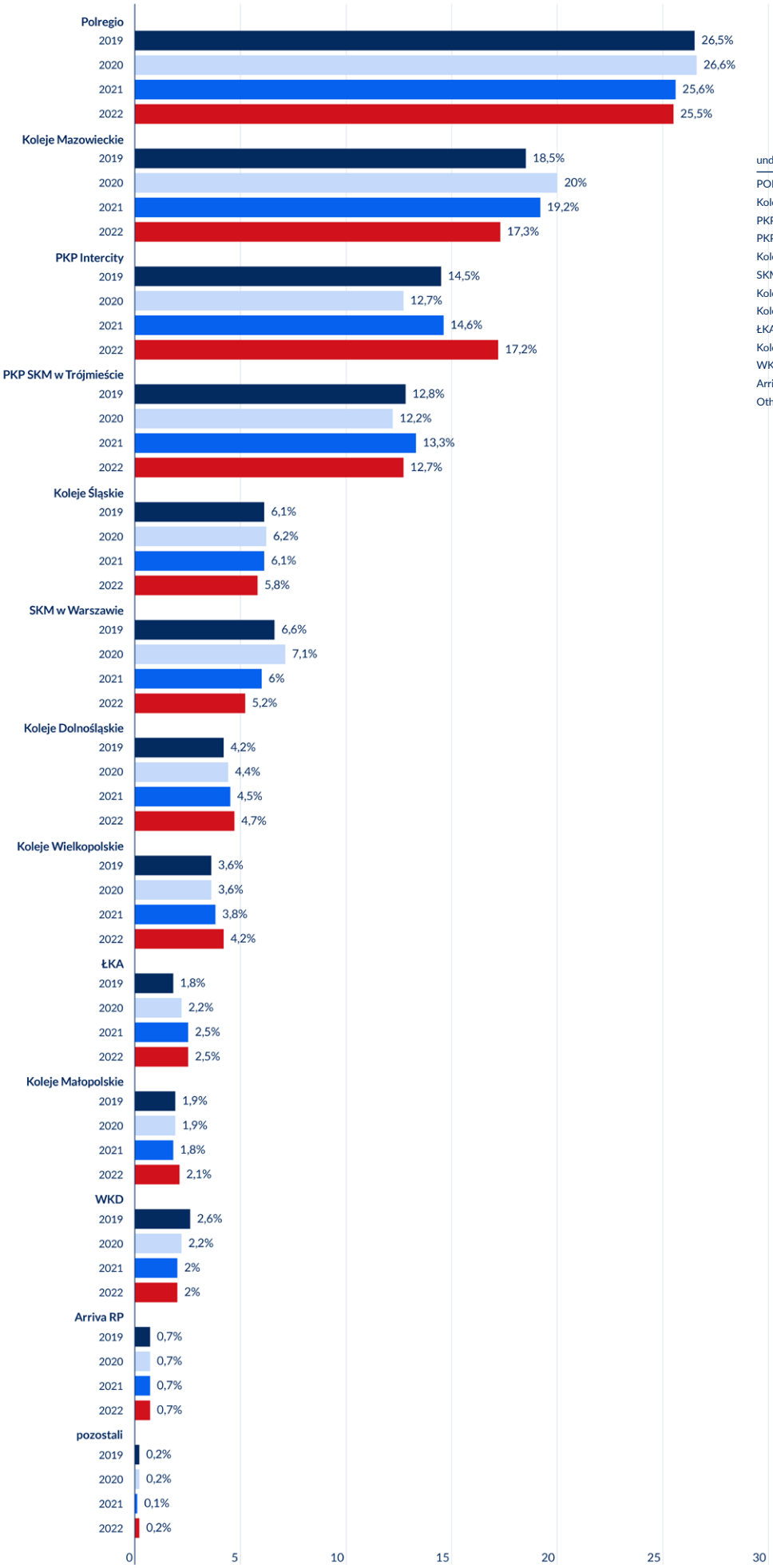
▼ Fig. 23 Change in the number of passengers (in millions) and the dynamics of changes in this parameter (in %) by undertakings 2022/2019





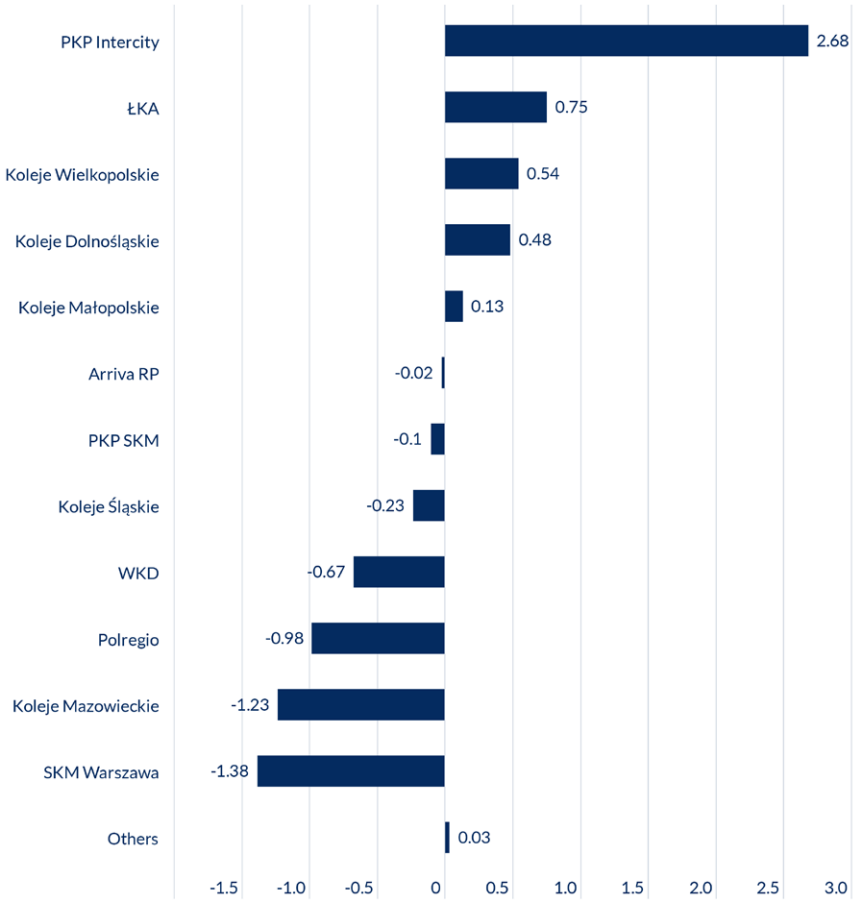
◀ Fig. 24 Share of passenger railway undertakings by the number of passengers in 2022 (%)

undertaking	share
POLREGIO	25.5%
Koleje Mazowieckie	17.3%
PKP Intercity	17.2%
PKP SKM	12.7%
Koleje Śląskie	5.8%
SKM Warszawa	5.2%
Koleje Dolnośląskie	4.7%
Koleje Wielkopolskie	4.2%
ŁKA	2.5%
Koleje Małopolskie	2.1%
WKD	2.0%
Arriva RP	0.7%
Pozostali	0.2%



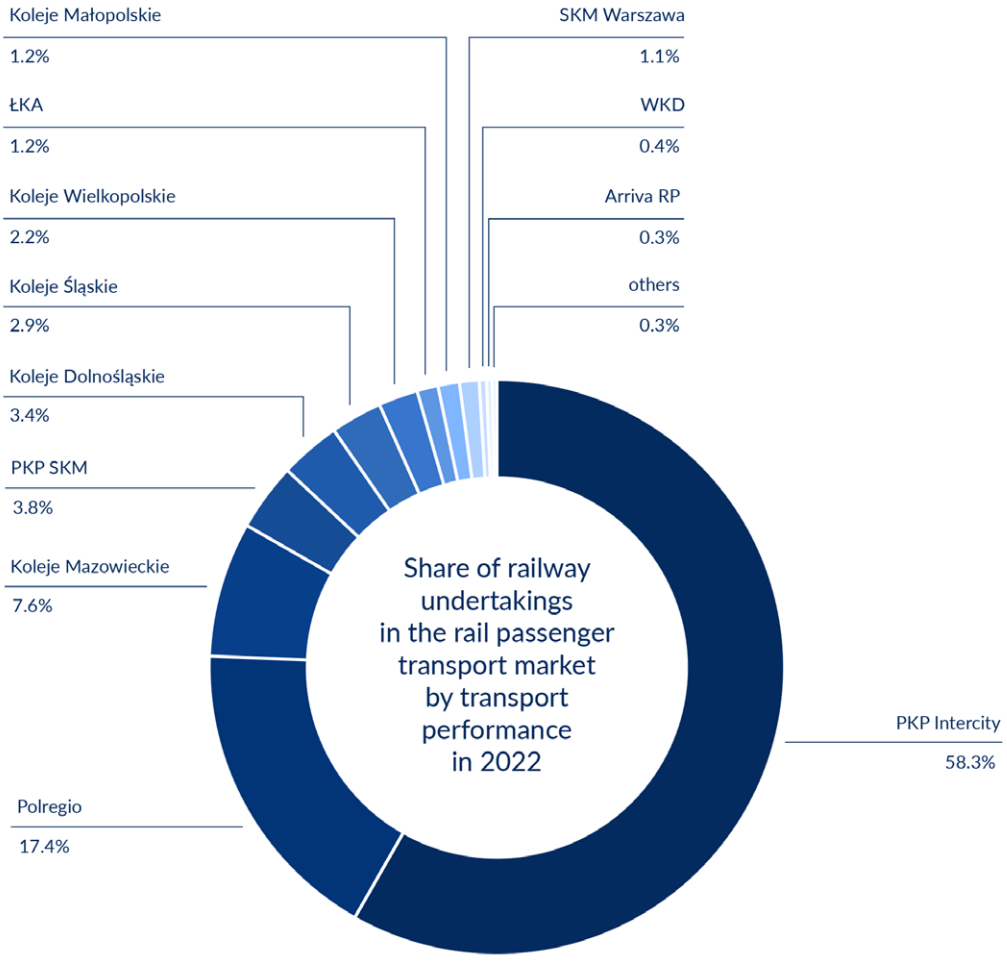
◀ Fig. 25 Share of railway undertakings in the rail passenger transport market by the number of passengers in 2019–2022

undertaking	2019	2020	2021	2022
POLREGIO	26.5%	26.6%	25.6%	25.5%
Koleje Mazowieckie	18.5%	20%	19.2%	17.3%
PKP Intercity	14.5%	12.7%	14.6%	17.2%
PKP SKM	12.8%	12.2%	13.3%	12.7%
Koleje Śląskie	6.1%	6.2%	6.1%	5.8%
SKM Warszawa	6.6%	7.1%	6%	5.2%
Koleje Dolnośląskie	4.2%	4.4%	4.5%	4.7%
Koleje Wielkopolskie	3.6%	3.6%	3.8%	4.2%
ŁKA	1.8%	2.2%	2.5%	2.5%
Koleje Małopolskie	1.9%	1.9%	1.8%	2.1%
WKD	2.6%	2.2%	2.0%	2.0%
Arriva RP	0.7%	0.7%	0.7%	0.7%
Others	0.2%	0.2%	0.1%	0.2%



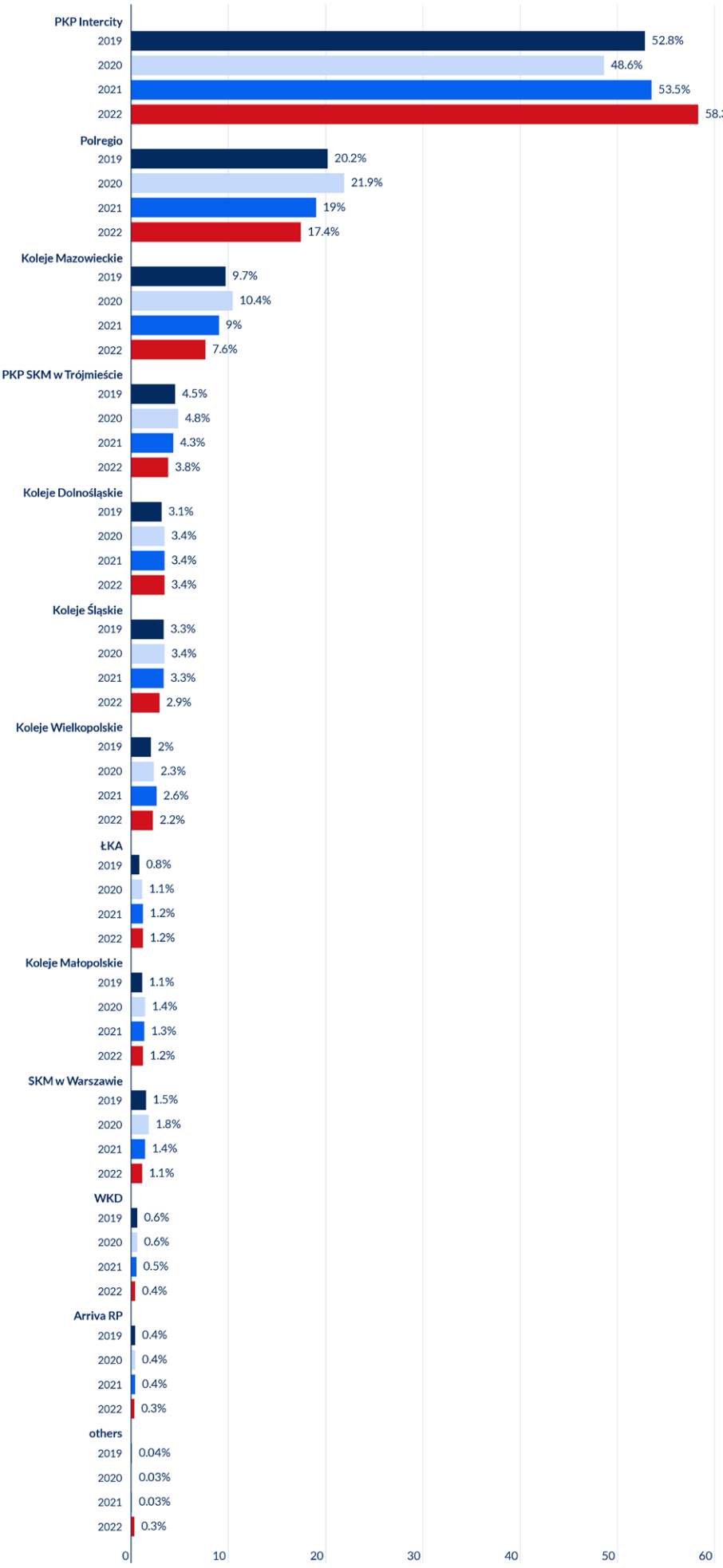
◀ Fig. 26 Change in shares by number of passengers for individual undertakings in 2022 compared to 2019 (percentage points)

undertaking	change
PKP Intercity	2.68
ŁKA	0.75
Koleje Wielkopolskie	0.54
Koleje Dolnośląskie	0.48
Koleje Małopolskie	0.13
Arriva RP	-0.02
PKP SKM	-0.10
Koleje Śląskie	-0.23
WKD	-0.67
POLREGIO	-0.98
Koleje Mazowieckie	-1.23
SKM Warszawa	-1.38
Others	0.03



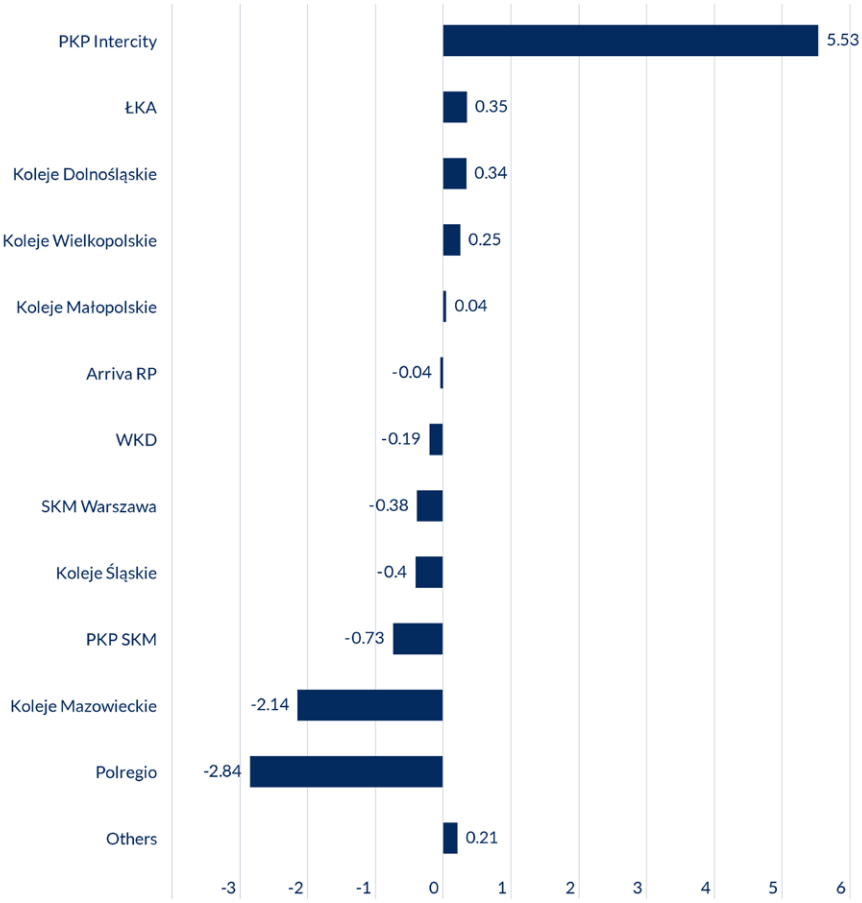
◀ Fig. 27 Share of railway undertakings in the rail passenger transport market by transport performance in 2022

undertaking	share
PKP Intercity	58.3%
POLREGIO	17.4%
Koleje Mazowieckie	7.6%
PKP SKM	3.8%
Koleje Dolnośląskie	3.4%
Koleje Śląskie	2.9%
Koleje Wielkopolskie	2.2%
ŁKA	1.2%
Koleje Małopolskie	1.2%
SKM Warszawa	1.1%
WKD	0.4%
Arriva RP	0.3%
Others	0.3%



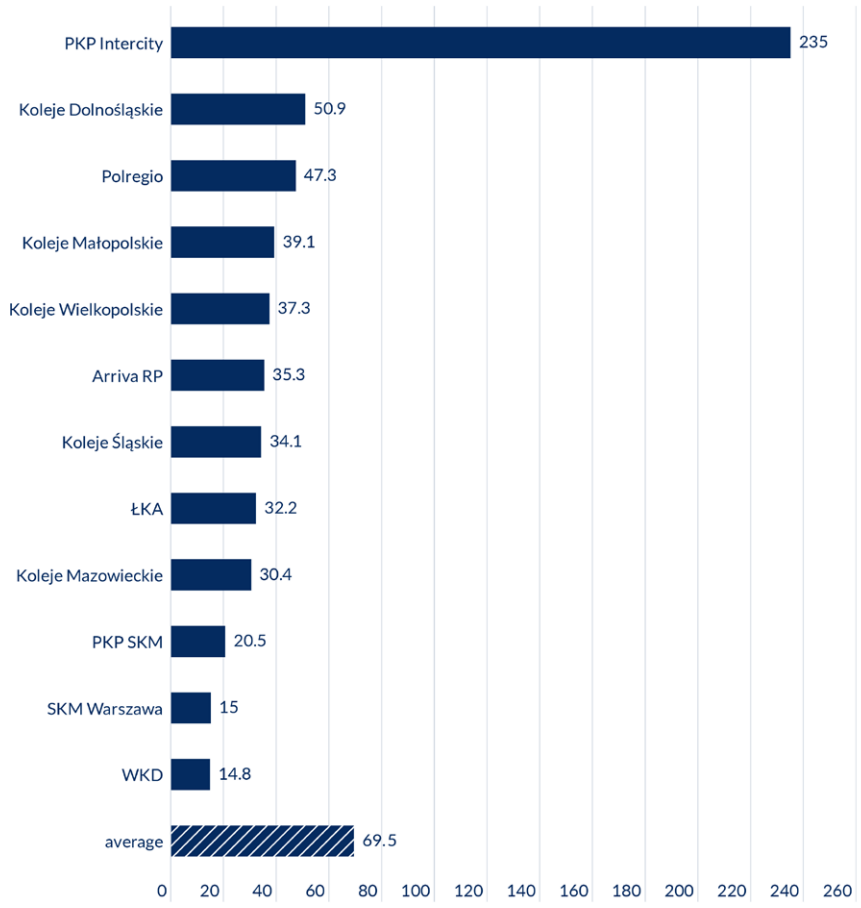
◀ Fig. 28 Share of railway undertakings in the rail passenger transport market by transport performance in 2019–2022

undertaking	2019	2020	2021	2022
PKP Intercity	52.8%	48.6%	53.5%	58.3%
POLREGIO	20.2%	21.9%	19%	17.4%
Koleje Mazowieckie	9.7%	10.4%	9%	7.6%
PKP SKM	4.5%	4.8%	4.3%	3.8%
Koleje Dolnośląskie	3.1%	3.4%	3.4%	3.4%
Koleje Śląskie	3.3%	3.4%	3.3%	2.9%
Koleje Wielkopolskie	2.0%	2.3%	2.6%	2.2%
ŁKA	0.8%	1.1%	1.2%	1.2%
Koleje Małopolskie	1.1%	1.4%	1.3%	1.2%
SKM Warszawa	1.5%	1.8%	1.4%	1.1%
WKD	0.6%	0.6%	0.5%	0.4%
Arriva RP	0.4%	0.4%	0.4%	0.3%
others	0.04%	0.03%	0.03%	0.3%



◀ Fig. 29 Change in shares by transport performance for individual undertakings in 2022 compared to 2019 (percentage points)

undertaking	change
PKP Intercity	5.53
ŁKA	0.35
Koleje Dolnośląskie	0.34
Koleje Wielkopolskie	0.25
Koleje Małopolskie	0.04
Arriva RP	-0.04
WKD	-0.19
SKM Warszawa	-0.38
Koleje Śląskie	-0.40
PKP SKM	-0.73
Koleje Mazowieckie	-2.14
POLREGIO	-2.84
Others	0.21



◀ Fig. 30 Average travel distance per passenger (km) in 2022 for individual undertakings

undertaking	average distance
PKP Intercity	235.0
Koleje Dolnośląskie	50.9
POLREGIO	47.3
Koleje Małopolskie	39.1
Koleje Wielkopolskie	37.3
Arriva RP	35.3
Koleje Śląskie	34.1
ŁKA	32.2
Koleje Mazowieckie	30.4
PKP SKM	20.5
SKM Warszawa	15.0
WKD	14.8
average	69.4

1.6. Employment at passenger railway undertakings

Total number of employees employed in 2022 in the passenger transport sector amounted to 24,138 people. Compared to the previous year, this is an increase of 2.8% and at the same time the highest number of employees working in the sector in the last decade.

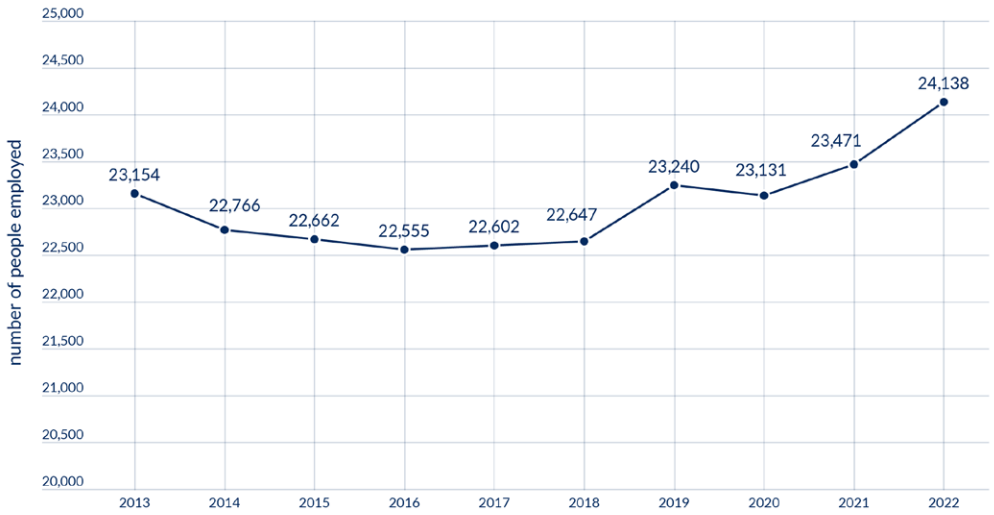
The vast majority of passenger rail companies increased their employment levels in 2022. The main employer in the passenger transport market – PKP Intercity increased its employment by the highest number of employees among all companies – by 217 people. However, the largest percentage increase took place at Koleje Dolnośląskie (16.2%) and Koleje Małopolskie (15.1%). The only company to record a decrease in employment in relation to 2021 was PKP SKM in Tricity (decrease of 7.5%).

In 2022, the number of e.g. traffic controllers, train drivers, adjusters and switchmen. By contrast, there are fewer train managers, shunters, signallers, rolling stock inspectors, track supervisors or railway vehicle drivers on the market. Despite an overall increase in employment, for the second year in a row, however, the number of employees in regulated professions decreased.

Among the non-regulated professions examined, declines in employment at passenger undertakings concerned only ticket clerks. Stationary ticket offices operated by undertakings are being reduced at somepoints, but at the same time new agency ticket offices and travel agency ticketing outlets may be established. The total number of employees employed in regulated (10,829) and non-regulated (6,534) professions represents 72% of all employees in the passenger transport sector, while those employed only in regulated professions represent 45% of the total number of employees in the sector.

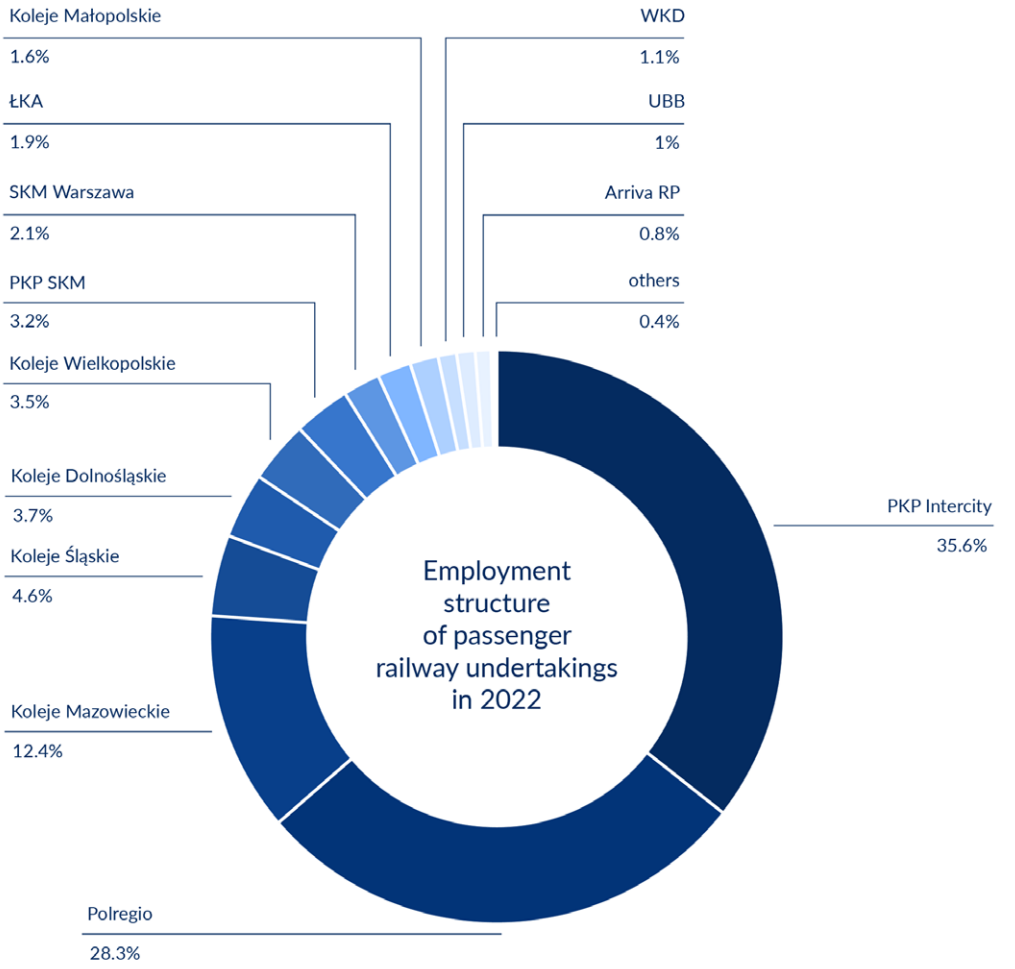
In 2022, the number of employees in each age group by working time equivalents increased. There was an increase in the under-30 group from 3,578 to 3,717 (a 3.9% increase), in the 30-50 group from 10,087 to 10,438 (a 3.5% increase) and in the over-50 group from 9,169 to 9,632 (a 5.0% increase). The largest percentage increase was in the group of employees over 50 years of age, however, an increase of 3.9% in the number of employees under 30 years of age is cause for optimism. Despite the overall increase in the number of employees and the number of working time equivalents, the number of drivers in the under-30 group fell from 1,063 to 1,004 (a decrease of 5.5%).

The number of women in the rail industry is increasing. In 2021, 6,480 women were employed according to working time equivalents, and in 2022 - 6,909 (increase by 6.6%). The share of women in terms of working time equivalent in total employment in 2022 was 29.0% (increase by 0.6 percentage point). An increase of 13% in terms of working time equivalents was also recorded in the employment of women as train drivers.



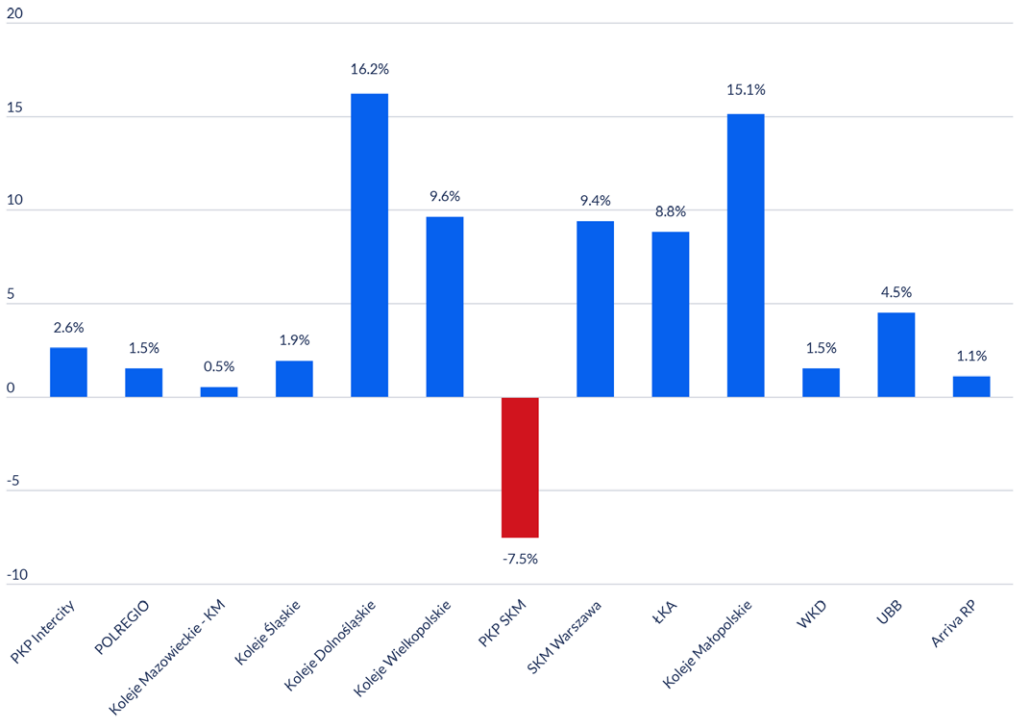
◀ Fig. 31 Employment in the passenger transport sector in 2013–2022

	employment
2013	23,154
2014	22,766
2015	22,662
2016	22,555
2017	22,602
2018	22,647
2019	23,240
2020	23,131
2021	23,471
2022	24,138



◀ Fig. 32 Employment structure of passenger railway undertakings in 2022[5]

undertaking	share
PKP Intercity	35.6%
POLREGIO	28.3%
Koleje Mazowieckie – KM	12.4%
Koleje Śląskie	4.6%
Koleje Dolnośląskie	3.7%
Koleje Wielkopolskie	3.5%
PKP SKM	3.2%
SKM Warszawa	2.1%
ŁKA	1.9%
Koleje Małopolskie	1.6%
WKD	1.1%
UBB	1.0%
Arriva RP	0.8%
others	0.4%



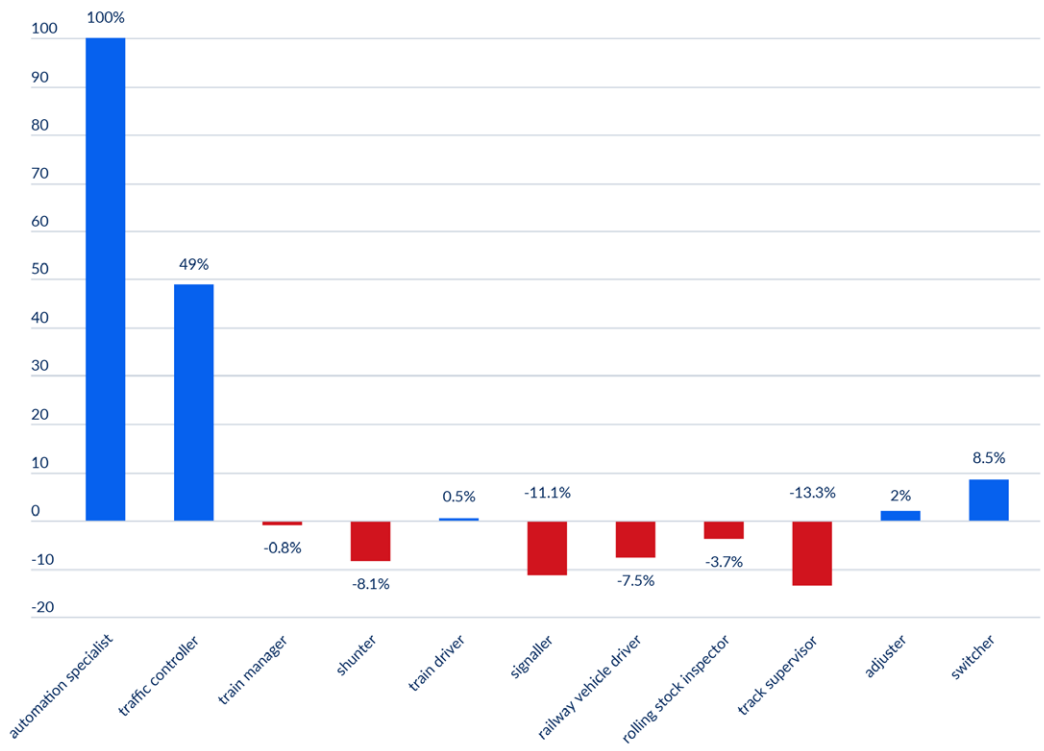
◀ Fig. 33 Dynamics of changes in employment among undertakings in 2022/2021

undertaking	change
PKP Intercity	2.6%
POLREGIO	1.5%
Koleje Mazowieckie - KM	0.5%
Koleje Śląskie	1.9%
Koleje Dolnośląskie	16.2%
Koleje Wielkopolskie	9.6%
PKP SKM	-7.5%
SKM Warszawa	9.4%
ŁKA	8.8%
Koleje Małopolskie	15.1%
WKD	1.5%
UBB	4.5%
Arriva RP	1.1%
others	0.4%

5 When calculating the share of individual undertakings in the employment structure, Leo Express and Regiojet were not taken into account due to the employment of employees outside Poland.

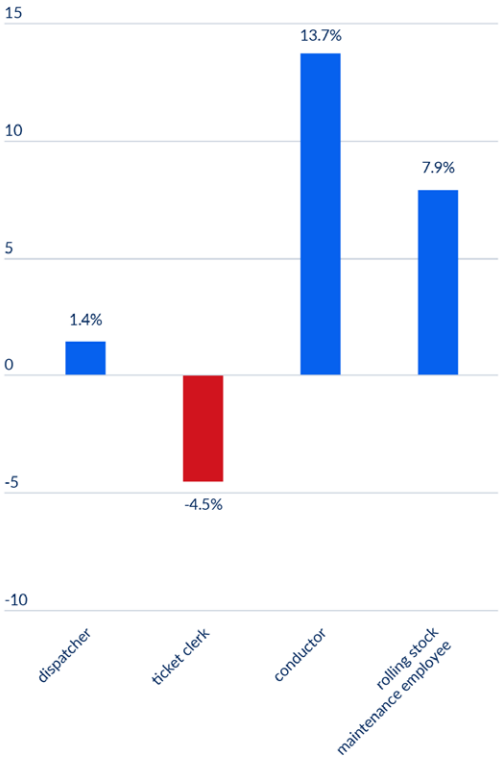
job title	2021	2022
regulated professions	10,854	10,830
automation specialist	1	2
level crossing attendant	0	0
traffic controller	51	76
train manager	4,050	4,019
shunter	136	125
train driver	5,353	5,380
signaller	63	56
railway vehicle driver	106	98
rolling stock inspector	764	736
track supervisor	15	13
adjuster	256	261
switcher	59	64
non-regulated professions	6,175	6,547
dispatcher	737	747
ticket clerk	1,213	1,159
conductor	1,439	1,636
rolling stock maintenance employee	2,786	3,005

◀ Tab. 23 Employment structure by individual professions at passenger undertakings in 2021–2022



◀ Fig. 34 Dynamics of changes in employment in regulated railway professions in 2022/2021

undertaking	zmiana
automation specialist	100.0%
traffic controller	49.0%
train manager	-0.8%
shunter	-8.1%
train driver	0.5%
signaller	-11.1%
railway vehicle driver	-7.5%
rolling stock inspector	-3.7%
track supervisor	-13.3%
adjuster	2.0%
switcher	8.5%



◀ Fig. 35 Dynamics of changes in employment in non-regulated railway professions in 2022/2021

undertaking	change
dispatcher	1.4%
ticket clerk	-4.5%
conductor	13.7%
rolling stock maintenance employee	7.9%

◀ Tab. 24 Comparison of number of employees and of authorisations for regulated professions in 2022

job title	number of employees	number of authorisations
regulated professions	10,830	11,163
automation specialist	2	2
level crossing attendant	0	0
traffic controller	76	71
train manager	4,019	4,048
shunter	125	136
train driver	5,380	5,522
signaller	56	56
railway vehicle driver	98	109
rolling stock inspector	736	813
track supervisor	13	15
adjuster	261	313
switcher	64	78

▼ Tab. 25 Number of employees by gender and age structure in 2022

job title	women	men	employees up to 30 years of age	employees between 30 and 50 years of age	employees over 50 years of age
automation specialist	0	2	0	0	2
dispatcher	315	432	71	270	406
traffic controller	40	36	8	42	26
ticket clerk	1,068	91	133	315	711
train manager	1,421	2,598	435	1,928	1,656
conductor	872	764	795	666	175
shunter	0	125	33	58	34
train driver	52	5,333	887	2,837	1,661
signaller	38	18	13	25	18
rolling stock maintenance employee	897	2,108	406	991	1,608
railway vehicle driver	0	98	4	64	30
rolling stock inspector	14	722	49	231	456
track supervisor	0	13	1	6	6
adjuster	0	261	9	98	154
switcher	25	39	9	24	31
others	2,330	4,431	975	3,261	2,525

▼ Tab. 26 Age structure of all employees working for passenger undertakings by working time equivalents in 2021–2022[6]

year	age structure	employees up to 30 years of age	employees between 30 and 50 years of age	employees over 50 years of age
2021	In FTEs	3,578	10,087	9,169
	percentage share	15.7%	44.2%	40.2%
2022	In FTEs	3,717	10,438	9,632
		15.6%	43.9%	40.5%
change 2022/2021		3.9%	3.5%	5.0%

▼ Tab. 27 Age structure of train drivers employed by passenger railway undertakings by working time equivalents in 2021–2022[6]

year	age structure	employees up to 30 years of age	employees between 30 and 50 years of age	employees over 50 years of age
2021	In FTEs	1,063	2,715	1,711
	percentage share	19.4%	49.5%	31.2%
2022	In FTEs	1,004	2,951	1,754
		17.6%	51.7%	30.7%
change 2022/2021		-5.5%	8.7%	2.5%

▼ Tab. 28 Gender structure of all employees working for passenger undertakings by working time equivalents in 2021–2022[6]

year	gender structure	women	men
2021	In FTEs	6,480	16,354
	percentage share	28.4%	71.6%
2022	In FTEs	6,909	16,878
		29.0%	71.0%
change 2022/2021		6.6%	3.2%

▼ Tab. 29 Gender structure of train drivers employed by passenger railway undertakings by working time equivalents in 2021–2022[6]

year	gender structure	women	men
2021	In FTEs	50	5,439
	percentage share	0.9%	99.1%
2022	In FTEs	57	5,652
		1.0%	99.0%
change 2022/2021		13.0%	3.9%

6 The age structure is calculated on the basis of full-time equivalents (FTEs) in rail transport operations from 1 January to 31 December 2021, and from 1 January to 31 December 2022. The FTE should be understood as the total number of hours (including overtime) worked in a given position, divided by the average number of hours worked annually in the full-time position

1.7. Financial performance of passenger railway undertakings

Data provided by railway undertakings carrying out passenger transport in 2022 shows that their total revenue from operating activities amounted to PLN 8.98 billion and was higher by PLN 0.33 billion than the costs incurred for these activities. In the last decade (between 2013 and 2022), revenue and cost values have maintained an upward trend.

Every year, in the revenue structure of passenger undertakings, in addition to revenue from ticket sales, a high position is occupied by subsidies for the provision of public services and for infrastructure maintenance. In 2022, the share of subsidies in the revenue structure amounted to 54.5%, which is 7.0 percentage points lower in the year-on-year terms (61.5% in 2021).

Among the sources of funding for the provision of public services, subsidies granted by local government units remain dominant. In 2022, the share of these subsidies amounted to 58.8%, an increase of 5.4 percentage points compared to a year earlier. Compared to 2021, the share of compensation for the use of statutory concessions also increased, by 3.8 percentage points to 14.1%. In contrast, the share of subsidies granted from the state budget decreased from 35.1% in 2021 to 26.6% in 2022.

Of all the costs, passenger undertakings saw the highest increase in costs incurred for fuel and traction energy in 2022 (up 31.9%). Expenses for material and energy purchases increased by 27.6%. In the year-on-year terms, the undertakings' expenditure on employee benefits also increased by 18.9%.

In the structure of costs generated by passenger undertakings, employee benefits maintain the largest share. In 2022, the share of these costs[7] increased to 30% (from 29.7% in 2021). The share of fuel and traction energy costs increased the most - by 2.1 percentage points (from 17.8% in 2021 to 19.9% in 2022). With regard to infrastructure access costs, their share of the cost structure decreased by 1.8 percentage points – to 13.7%, with the value of these costs increasing by 4.3% in the year-on-year terms.

Passenger transport saw a large increase in the number of travellers in 2022, by almost 40%, with less than 5% growth in operational performance.

Compared to 2021, revenue per passenger (excluding subsidies) increased by 3.5%, while costs per passenger decreased by 15.4%. Compared to the previous year, the value of the subsidy per passenger decreased by 22.4%. EBITDA per passenger in 2022 was PLN 3.36 vs. PLN 3.58 in 2021.

◀ Fig. 36 Results of operations of passenger railway undertakings (PLN billion) in 2013–2022

Year	operating revenue	operating costs
2013	4.8	5.0
2014	4.8	4.8
2015	5.1	5.2
2016	5.5	5.5
2017	5.7	5.6
2018	6.1	6.0
2019	6.6	6.3
2020	6.2	6.3
2021	7.4	7.3
2022	9.0	8.6

7 The structure of costs by type estimated on the basis of the value of individual costs by type provided by 11 passenger undertakings (97.7% market share by number of passengers in 2022).

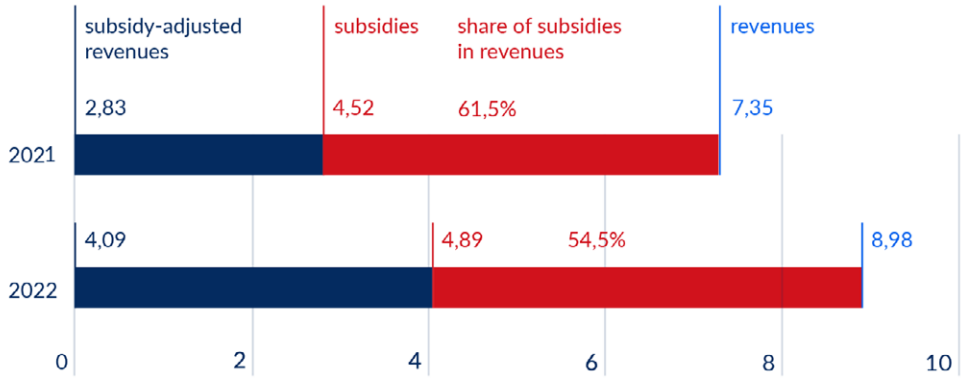


Fig. 37 Structure of revenues of passenger railway undertakings in 2021–2022 (PLN billion)

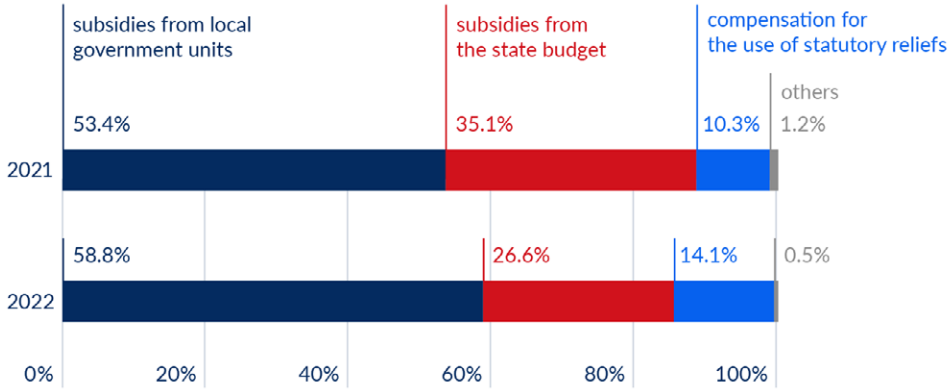


Fig. 38 Structure of public service subsidies by source of funding in 2021–2022

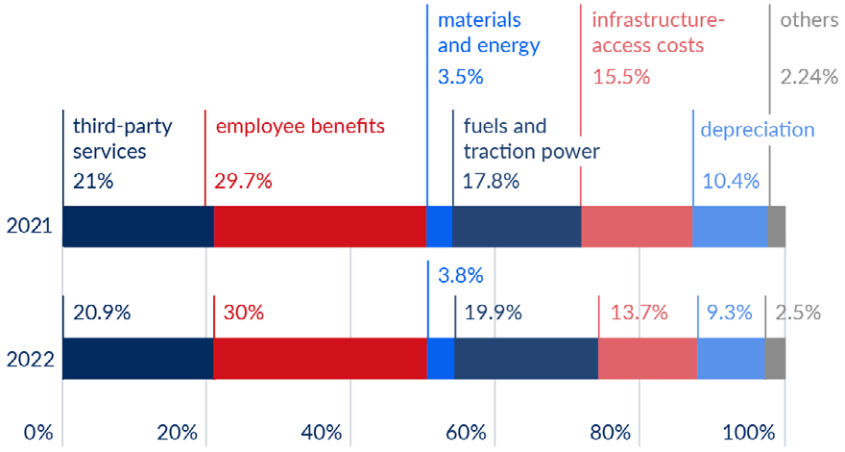
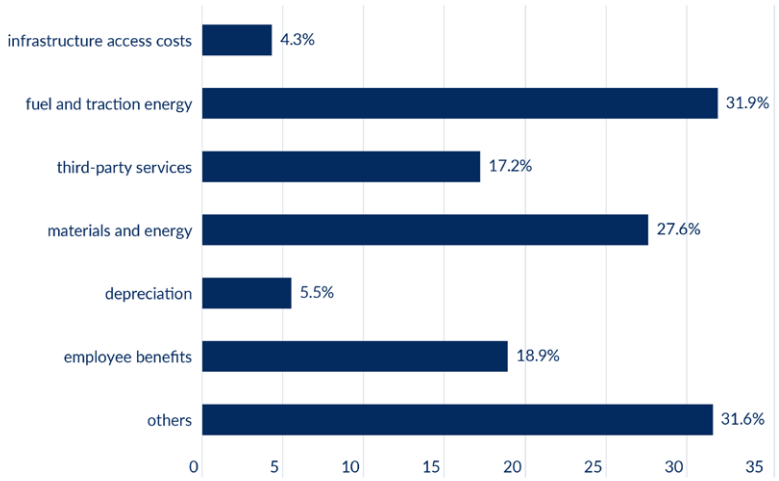


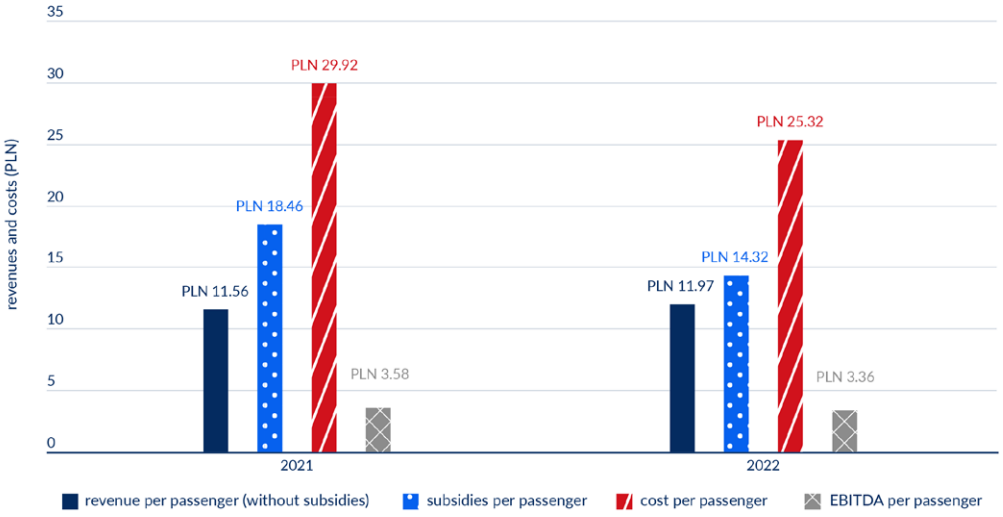
Fig. 39 Cost structure of passenger railway undertakings in 2021–2022[8]

8 Structure estimated on the basis of full data on all costs by type of 11 passenger undertakings (97.7% market share by number of passengers in 2022).



◀ Fig. 40 Growth dynamics of outlays for individual costs by type in 2022 compared to 2021[9]

	growth dynamics
infrastructure access costs	4.3%
fuel and traction energy	31.9%
third-party services	17.2%
materials and energy	27.6%
depreciation	5.5%
employee benefits	18.9%



◀ Fig. 41 Revenues and costs generated by one passenger in 2021–2022

	2021	2022
revenue per passenger (without subsidies)	PLN 11.56	PLN 11.97
subsidies per passenger	PLN 18.46	PLN 14.32
cost per passenger	PLN 29.92	PLN 25.32
EBITDA per passenger	PLN 3.58	PLN 3.36

1.8. Commercial offer of undertakings

There was an increase in the number of passengers in all categories of transport on the Polish rail network in 2022 compared to 2021. There was a significant increase in the number of passengers on inter-province trains thanks to the expansion of PKP Intercity's offer on these routes. In contrast, provincial services carried fewer passengers compared to 2019, the last year before the COVID-19 pandemic (277,144 in 2022 and 284,203 in 2019)

The war in Ukraine has led to a significant increase in the number of passengers travelling on occasional trains. Compared to the previous year, more than 1.2 million more passengers were transported in this way. There is also a steady increase in interest among travellers in tourist connections, and the extensive offer in this area encourages the use of rail transport in addition to daily journeys to work and school. In total, however, commercial and occasional services accounted for just 2.48% of the total transport market in 2022.

Currently, the entity running more than 95% of all commercial connections in Poland is PKP Intercity. In 2022, commercial connections on the basis of an issued decision to grant open access were operated by seven railway undertakings[10] and

9 Growth dynamics estimated for aggregated data on individual costs by type of 11 passenger undertakings (97.7% market share by number of passengers in 2022)

10 Koleje Dolnośląskie, Koleje Mazowieckie, Leo Express, PKP Cargo, PKP Intercity, POLREGIO, RegioJet.

occasional connections by 13 undertakings[11]. A large number of entities were running trains intended for the evacuation of refugees from Ukraine in this form.

The tables also include information on the number of passengers travelling between cities with a population of more than 50,000 inhabitants and selected cities with lower populations with hub stations of importance for international traffic. The data for a given relationship is presented as the sum of the number of passengers travelling in both directions.

It should be noted that the tables below do not contain information on certain railway connections between cities with population over 50,000, due to the sale of non-relative tickets by the railway undertakings PKP SKM and SKM Warsaw, which carry out agglomeration transport in particular. Therefore, the following list does not include such routes as Warszawa – Pruszków or Gdańsk – Gdynia, which are very popular with passengers, but it is impossible to precisely determine their number on the basis of available data. The list also includes the most popular PKP Intercity connections, but without giving the number of passengers transported on these connections[12].

Based on the collected data, the largest number of passengers was directly transported between Warsaw and Siedlce in 2022, as many as 3.5 million people. Rail transport between the two centres is characterised by a very high level of service, bearing in mind not only the modern low-floor rolling stock which has been in use for more than 13 years, but also the comprehensive commercial offer aimed ideally at the needs of Siedlce residents. This route is significantly dominated by passengers travelling on the basis of season tickets.

For the purpose of analysing the effectiveness of rail transport in direct connections, the connection indicator of railway use was introduced. The value of the indicator is the quotient Na podstawie danych o liczbie podróżnych of the number of passengers travelling annually on a given section (back and forth) and the sum of the number of inhabitants of both cities. Based on the number of travellers and the size of the population, it is possible to determine an indicator for each relationship. The indicator makes it possible to compare their potential with each other, to identify differences and potential opportunities for the development of rail transport.

The competitive advantage in the provincial rail transport market is maintained by POLREGIO, which ended 2022 with a 31.1% share (1.1 percentage points more than in the corresponding period of 2021). The undertaking is responsible for the provision of public service transport in 15 provinces. Among the undertaking's basic offer in the provincial transport segment, it is necessary to distinguish REGIO category trains running almost throughout the country.

PKP Intercity has the largest share in the segment of inter-province rail transport. The railway undertaking launches inter-province express transport services of a public service character and inter-province express transport services on a commercial basis, based on the decision of the President of UTK regarding open access.

As in the case of inter-province transport, PKP Intercity is increasing its share of the international transport market in relation to 2021. The company continues to operate international express and public service express services launched on a commercial basis. International trains are available to passengers travelling on the domestic section.

A 1.4 per cent share of the international transport market was achieved by the private railway undertaking RegioJet, which started its operations in Poland by launching occasional humanitarian connections for refugees from Ukraine. Subsequently, the undertaking started to launch its services on the basis of the open access decision obtained.

11 Cargo Master, Koleje Dolnośląskie, Koleje Śląskie, Koleje Wielkopolskie, PKP SKM w Trójmieście, SKPL Cargo, Koleje Małopolskie, RegioJet. Parowozownia Wolsztyn, POLREGIO, Koleje Mazowieckie, PKP Cargo, Freightliner PL.

12 Data on the number of passengers between cities with more than 50,000 inhabitants has been covered by PKP Intercity's corporate secret.

▼ Tab. 30 Number of passengers (in thousands) by transport category in 2015–2022

	2015	2016	2017	2018	2019	2020	2021	2022
total	280,309	292,549	303,555	310,284	335,900	209,399	245,060	342,229
province	244,336	251,611	258,453	261,761	284,203	180,886	205,985	277,144
inter-province	33,367	38,099	41,962	44,410	47,069	25,932	35,355	55,694
international	2,455	2,724	2,997	4,007	4,435	2,278	2,281	6,746
occasional	151	114	143	106	194	302	1,439	2,645

▼ Tab. 31 Number of passengers (in thousands) by organization and method of financing transport in 2015–2022

	2015	2016	2017	2018	2019	2020	2021	2022
total	280,309	292,549	303,555	310,284	335,900	209,399	245,060	342,229
PSO	270,520	284,676	296,608	302,968	327,699	205,658	239,348	333,732
commercial	9,638	7,759	6,804	7,210	8,008	3,438	4,273	5,852
occasional	151	114	143	106	194	302	1,439	2,645

▼ Tab. 32 Most popular rail travel connections by total number of passengers in 2022[13]

	number of passengers		% share of ticket sales		connection-specific rail usage rate
connection	2022	per day	single tickets	season tickets	
Warszawa – Siedlce	3.5 million	9.7 thousand	18.9%	81.1%	1.817
Warszawa – Kraków	–	–	100.0%	–	–
Warszawa – Łódź	2.0 million	5.4 thousand	72.2%	27.8%	0.773
Warszawa – Radom	1.6 million	4.4 thousand	30.2%	69.8%	0.776
Warszawa – Gdańsk	–	–	100.0%	–	–
Warszawa – Poznań	–	–	100.0%	–	–
Katowice – Tychy	1.2 million	3.2 thousand	63.5%	36.5%	2.874
Gdańsk – Tczew	1.1 million	2.9 thousand	36.1%	63.9%	1.977
Warszawa – Legionowo	1.1 million	2.9 thousand	15.9%	84.1%	0.555
Wrocław – Legnica	1.1 million	2.9 thousand	73.5%	26.5%	1.381
Łódź – Zgierz	1.0 million	2.8 thousand	39.3%	60.7%	1.445
Warszawa – Wrocław	–	–	100.0%	–	–
Warszawa – Katowice	–	–	100.0%	–	–
Wrocław – Poznań	1.0 million	2.6 thousand	85.5%	14.5%	0.789
Poznań – Gniezno	1.0 million	2.6 thousand	56.1%	43.9%	1.560

13 Data on the Warszawa – Kraków, Warszawa – Gdańsk, Warszawa – Poznań, Warszawa – Wrocław and Warszawa – Katowice connections has been covered by the company secret of PKP Intercity. PKP Intercity has 100% market share in these connections.

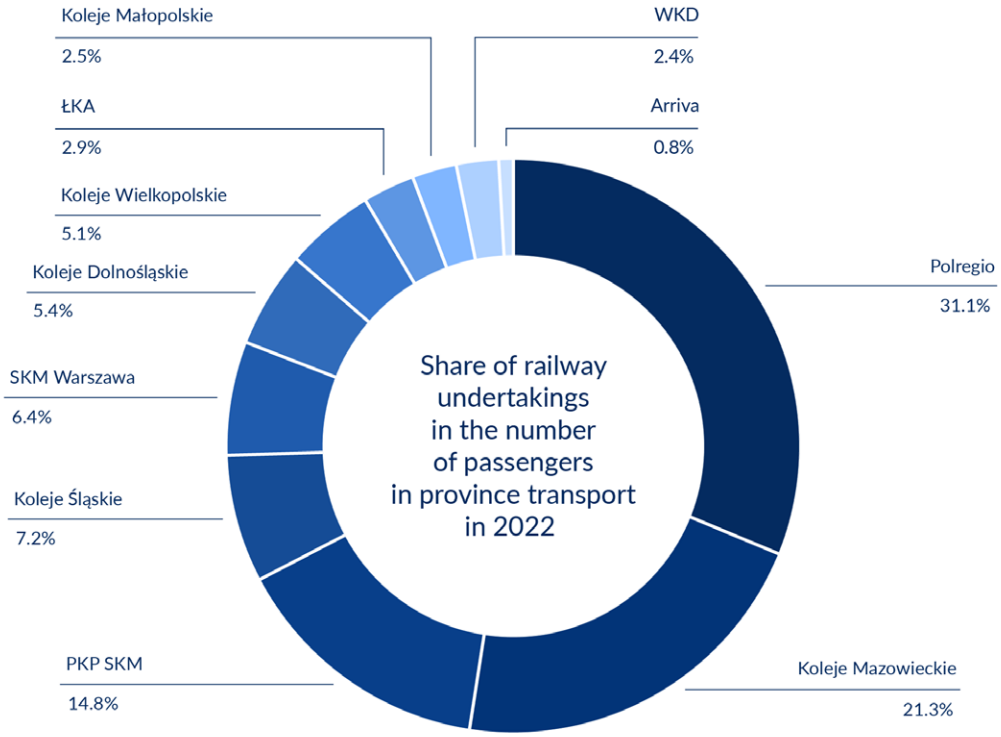
▼ Tab. 33 The most popular rail travel connections according to the rail usage rate in 2022

connection	number of passengers		% share of ticket sales		connection-specific rail usage rate
	2022	per day	single tickets	season tickets	
Katowice – Tychy	1.2 million	3.2 thousand	63.5%	36.5%	2.874
Gdańsk – Tczew	1.1 million	2.9 thousand	36.1%	63.9%	1.977
Katowice – Gliwice	895.5 thousand	2.5 thousand	68.4%	31.6%	1.966
Warszawa – Siedlce	3.5 million	9.7 thousand	18.9%	81.1%	1.817
Szczecin – Stargard	811.0 thousand	2.2 thousand	59.0%	41.0%	1.757
Poznań – Gniezno	1.0 million	2.6 thousand	56.1%	43.9%	1.560
Łódź – Zgierz	1.0 million	2.8 thousand	39.3%	60.7%	1.445
Wrocław – Legnica	1.1 million	2.9 thousand	73.5%	26.5%	1.381
Legnica – Lubin	195.7 thousand	0.5 thousand	68.4%	31.6%	1.199
Bydgoszcz – Toruń	635.7 thousand	1.7 thousand	69.4%	30.6%	1.197
Opole – Kędzierzyn-Koźle	209.4 thousand	0.6 thousand	52.2%	47.8%	1.146
Kraków – Tarnów	902.2 thous.	2.5 thousand	69.7%	30.3%	0.994
Kielce – Skarżysko-Kamienna	209.1 thousand	0.6 thousand	73.5%	26.5%	0.918
Wrocław – Wałbrzych	701.9 thousand	1.9 thousand	82.0%	18.0%	0.903
Rzeszów – Dębica	204.5 thousand	0.6 thousand	72.2%	27.8%	0.852

▼ Tab. 34 Range of services provided by passenger railway undertakings in 2022[14]

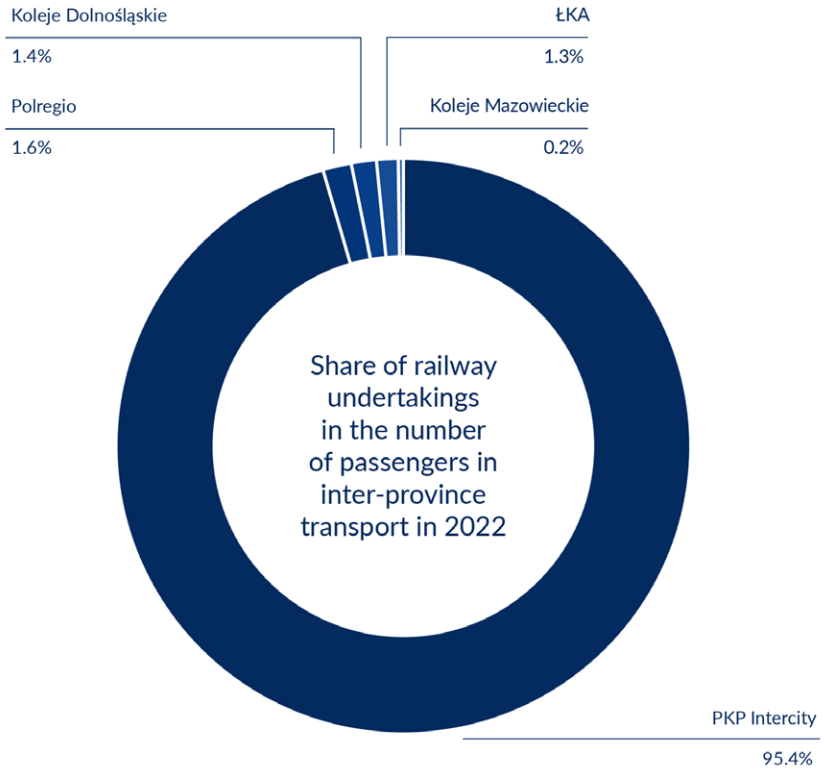
undertaking	number of passengers in 2022	number of trains dispatched during the year	services			
			domestic	international	public-service	on the basis of decisions granting open access.
Arriva	2.3 million	43,481	●	○	●	○
Koleje Dolnośląskie	16.0 million	130,706	●	●	●	●
Koleje Małopolskie	7.1 million	68,098	●	●	●	○
Koleje Mazowieckie	59.1 million	258,868	●	○	●	●
Koleje Śląskie	20.0 million	144,299	●	●	●	○
Koleje Wielkopolskie	14.3 million	93,496	●	○	●	○
Leo Express	0.02 million	209	○	●	○	●
ŁKA	8.7 million	76,862	●	○	●	○
PKP Cargo	0.04 million	98	●	○	○	●
PKP Intercity	59.0 million	142,501	●	●	●	●
PKP SKM	43.6 million	89,652[15]	●	○	●	○
POLREGIO	87.2 million	603,851	●	●	●	●
RegioJet	0.1 million	645	○	●	○	●
SKM Warszawa	17.7 million	84,196	●	○	●	○
SKPL Cargo	0.04 million	1,003	●	○	●	○
UBB	0.5 million	16,572[16]	○	●	○	○
WKD	6.7 million	59,859[17]	●	○	●	○

14 The number represents all passenger stations on the railway network in Poland, where more than 100 stopovers of trains of a given undertaking were recorded in 2022.
15 The number of running trains on the PKP SKM network, excluding the PKP PLK network.
16 Number of trains running on the UBB network in Poland.
17 Number of running trains on the WKD network.



◀ Fig. 42 Share of railway undertakings in the number of passengers in province transport in 2022[18]

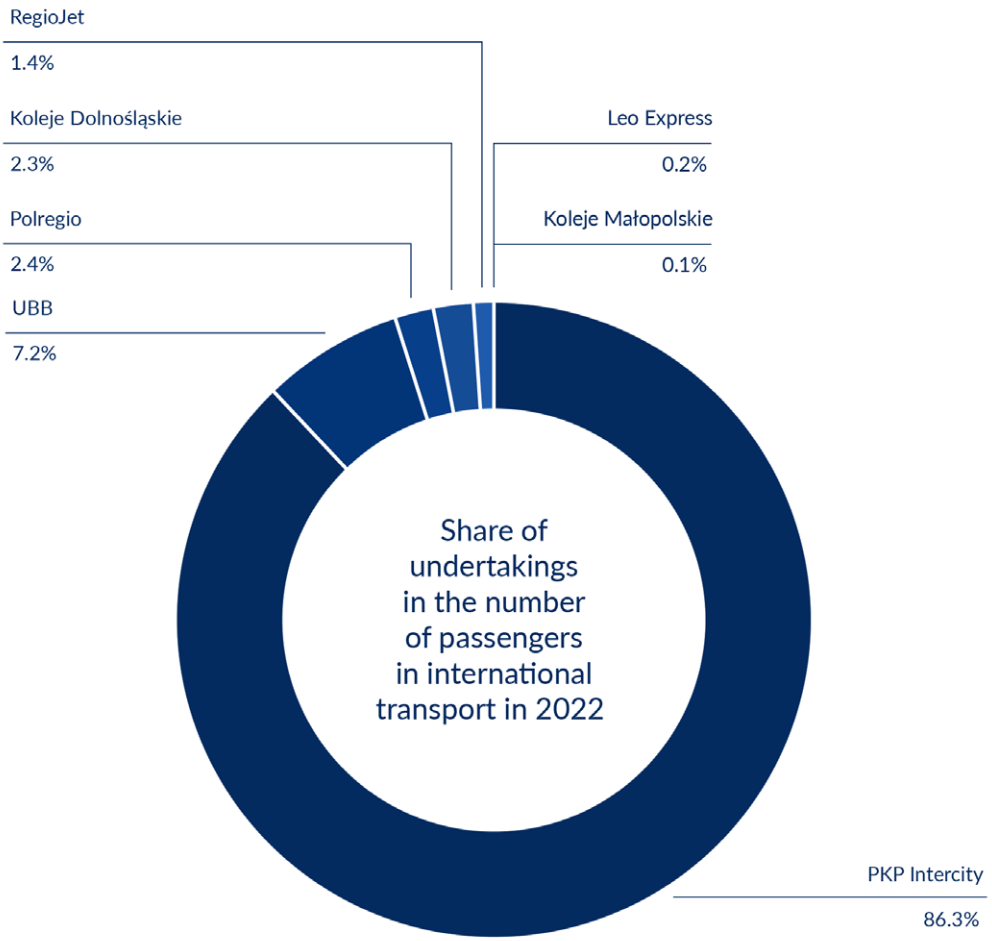
undertaking	share
POLREGIO	31.1%
Koleje Mazowieckie	21.3%
PKP SKM	14.8%
Koleje Śląskie	7.2%
SKM Warszawa	6.4%
Koleje Dolnośląskie	5.4%
Koleje Wielkopolskie	5.1%
ŁKA	2.9%
Koleje Małopolskie	2.5%
WKD	2.4%
Arriva	0.8%



◀ Fig. 43 Share of railway undertakings in the number of passengers in inter-province transport in 2022

undertaking	share
PKP Intercity	95.4%
POLREGIO	1.6%
Koleje Dolnośląskie	1.4%
ŁKA	1.3%
Koleje Mazowieckie	0.2%

18 The majority of railway undertakings which are operators of public collective transport, according to the contracts for public passenger transport services, qualify passenger trains as provincial, even if the transport is performed to a location outside the home province of the respective public collective transport organiser.



◀ Fig. 44 Share of undertakings in the number of passengers in international transport in 2022

undertaking	share
PKP Intercity	86.3%
UBB	7.2%
POLREGIO	2.4%
Koleje Dolnośląskie	2.3%
RegioJet	1.4%
Leo Express	0.2%
Koleje Małopolskie	0.1%

1.9. Ticket sales and distribution

For the first time since the beginning of UTK's data collection in this area, more tickets were sold via apps and the Internet (35.0%) than at stationary ticket offices (29.3%). For several years, the share of channels enabling self-purchase of tickets has been increasing significantly.

In 2022, the share of online channels in the number of tickets sold increased by 7.1 percentage points year-on-year. This form of purchase made it possible to take advantage of promotional offers that undertakings are increasingly making available electronically. Among the ticket distribution channels, a higher use of ticket machines has also been recorded for several years. The need to purchase tickets from conductor teams has decreased (usually this form of obtaining a ticket entails additional costs). The biggest decreases in distribution channels have been observed in stationary ticket offices for years. In 2018, their share was still over 50%, in 2022 it was below 30% of all tickets sold.

The most common way to buy single tickets, long-distance and advance tickets is via the Internet. As the share of Internet purchases increases, revenue from these purchases increases. In 2022, the share of the Internet in ticket distribution revenues increased by 7.3 percentage points (from 27% to 34.3%). The share in revenues at stationary ticket offices decreased by 5.1 percentage points. Most often, it is at the ticket offices that long-distance tickets are sold, which generate more revenue – so the drop in revenue is not as significant as the share of sales. Due to the war in Ukraine, many of the country's citizens travelled without cost in the early months of the conflict, on passport only, so they may not be included in this statistic.

With the increase in the number of passengers by almost 100 million, the number of tickets sold in 2022 increased. The largest number of sold tickets were single tickets, which accounted for 49.5% of total sales. This is 50.4 million more than in 2021 and an increase in the share of all tickets sold by 0.9 percentage points (48.6% to 49.5%). Sales of season tickets increased in 2022 compared to 2021 by 38.5 million, but the share of this category decreased by 0.6 percentage points (from 41.9% to 41.3%). Similarly

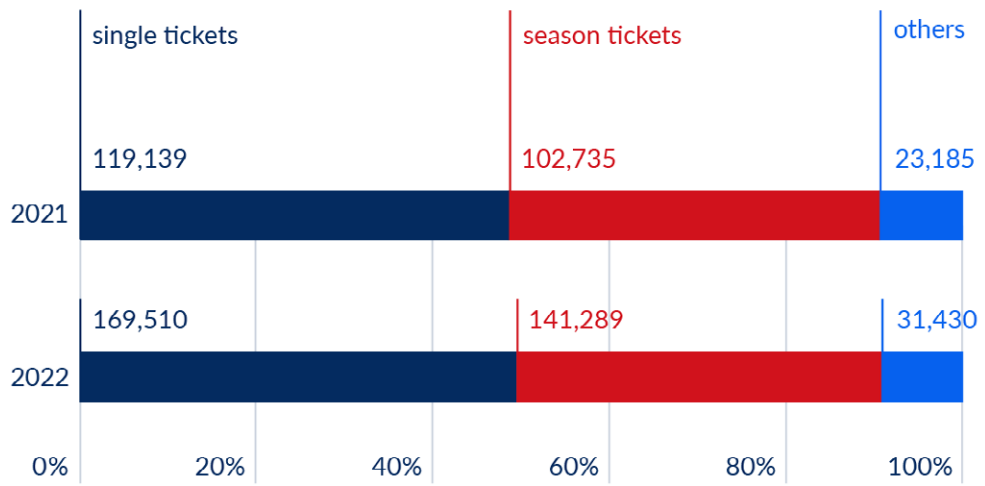
for the ‚other tickets' category, of which 8,200 more were sold, but this group's share of total tickets sold was down by 0.3 percentage points (from 9.5% to 9.2%). Over the last years, the share of single ticket sales has increased. This may be related, for example, to remote work and occasional commuting.

◀ Tab. 35 Share of distribution channels by number of tickets sold in 2019–2022

distribution channel	2019	2020	2021	2022
stationary ticket offices	46.5%	39.3%	35.1%	29.3%
applications and online sales systems	14.3%	18.2%	27.9%	35.0%
on-board service (conductor teams)	16.2%	17.6%	21.5%	20.8%
stationary vending machines (at stations)	6.6%	7.5%	8.3%	8.4%
mobile vending machines (in vehicles)	0.6%	0.7%	0.9%	1.1%
other	15.8%	16.7%	6.2%	5.3%

◀ Tab. 36 Share of distribution channels in ticket sales revenues in 2021–2022

distribution channel	2021	2022
stationary ticket offices	40.9%	35.8%
applications and online sales systems	27.0%	34.3%
on-board service (conductor teams)	17.6%	16.7%
stationary vending machines (at stations)	7.6%	6.8%
mobile vending machines (in vehicles)	0.8%	0.9%
other	6.1%	5.4%



◀ Fig. 45 Number of passengers (in thousands) by the validity period of the purchased ticket in 2021–2022

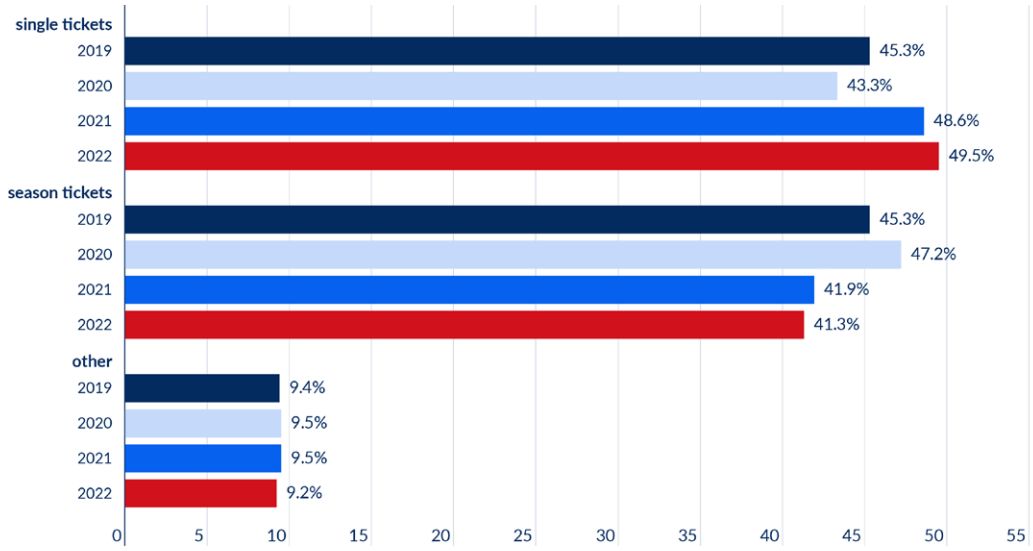


Fig. 46 Share of individual types of tickets in the total number of tickets sold in 2019–2022

	2019	2020	2021	2022
single tickets	45.3%	43.3%	48.6%	49.5%
season tickets	45.3%	47.2%	41.9%	41.3%
other	9.4%	9.5%	9.5%	9.2%

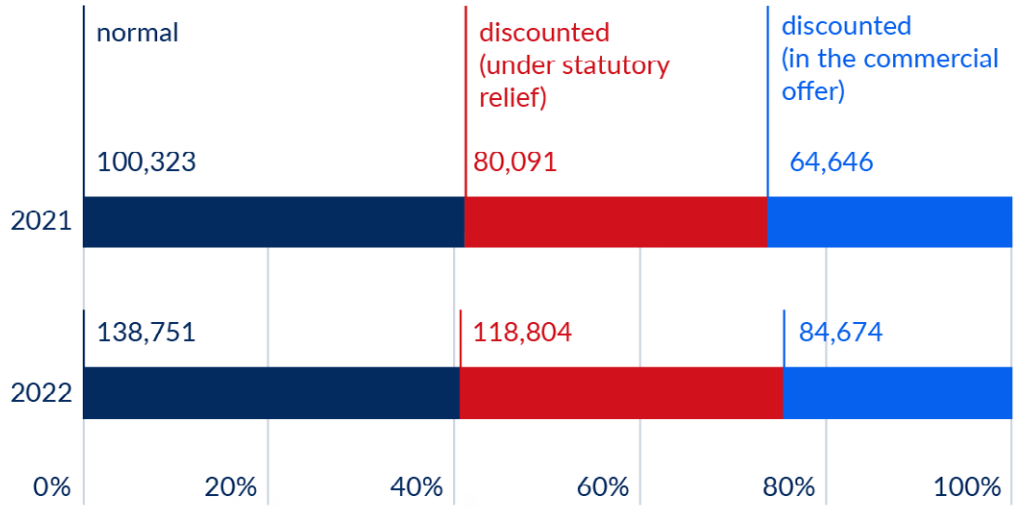


Fig. 47 Number of passengers (in thousands) according to the price of the ticket purchased in 2021–2022

1.10. Punctuality of passenger railway undertakings

The 2022 passenger punctuality level was 88.62%, 1.49 percentage points lower than in 2021 and 6 percentage points lower than in 2020, and 3.84 percentage points lower than in 2019. These figures are calculated according to the indicator on the arrival of the train at the terminus station, i.e. the last place where the passenger train stops and passengers disembark. The punctuality indicator is calculated for on-time trains and those whose delay did not exceed 5 minutes 59 seconds. The punctuality score of 88.62% in 2022 can be explained by the war in Ukraine, which significantly affected the functioning of railways in Poland. Special trains for war refugees were launched, and large amounts of energy resources were transported, especially coal. Adding to the situation caused by the war in Ukraine were challenges such as the availability and technical performance of rolling stock, damage to infrastructure during works, or delays caused by clashes with persons in prohibited places and road vehicles. Violent weather events that damaged infrastructure and hindered drivers were also among the factors causing train delays.

In 2022, a greater number of trains were launched not only compared to 2021, but also to 2019, i.e. the time before the pandemic. In total, more than 4.7% more trains were run

than in 2021 and 6.3% more than in 2019. However, some undertakings reported decreases in the number of trains run – e.g. Koleje Mazowieckie (down 3.4% from 268,099 to 258,868 trains), PKP SKM in the Tricity (down 2.5% from 91,937 to 89,652 trains), WKD (down 0.9% from 60,380 to 59,859 trains). The largest decrease was recorded by ODEG Ostdeutsche, whose trains pass through Poland (down 49.8% from 11,751 to 5,902 trains). On the other hand, the largest increase in the number of trains running in 2022 took place for Koleje Małopolskie, which increased the number of runs from 45,003 to 68,098 (+51.3%) due to the reinstatement of some trains on previously decommissioned routes.

The number of delayed trains in 2022 has increased compared to 2021 in selected ranges by:

- 13,1% (46.2 thousand more delayed trains) for the time interval up to 5 min 59 s, this interval is included in the trains defined as punctual;
- 18,8% (30.6 thousand more delayed trains) for the period from 6 minutes to 59 minutes 59 seconds;
- 36,2% (2.6 thousand more delayed trains) for the period from 60 min to 119 min 59 s;
- 92,9% (2.1 thousand more delayed trains) for the range from 120 min.

The significant increase in delays from 120 minutes at the terminus station can be a worrying phenomenon. Trains running in March in connection with the evacuation of refugees from the Polish-Ukrainian border region, when more than a thousand trains were delayed more than 120 minutes, contributed significantly to this result. March also saw the failure of more than a dozen Local Control Centres. In total, throughout the year, the number of all trains delayed for more than 120 minutes was 4,256 – of which 1,006 trains delayed in this range took place in March 2022.

The average delay calculated as the quotient of the delay time and the number of trains was close to 25 min for trains delayed more than 5 min 59 s and more than 10 min when all delays are included.

The highest punctuality rate for undertakings carrying out daily passenger transport was achieved by Warszawska Kolej Dojazdowa with 99.4%, followed by PKP SKM in the Tricity with a punctuality rate of 96.7%. In this ranking, the lowest punctuality was recorded by the long-distance undertaking PKP Intercity – 66.6%.

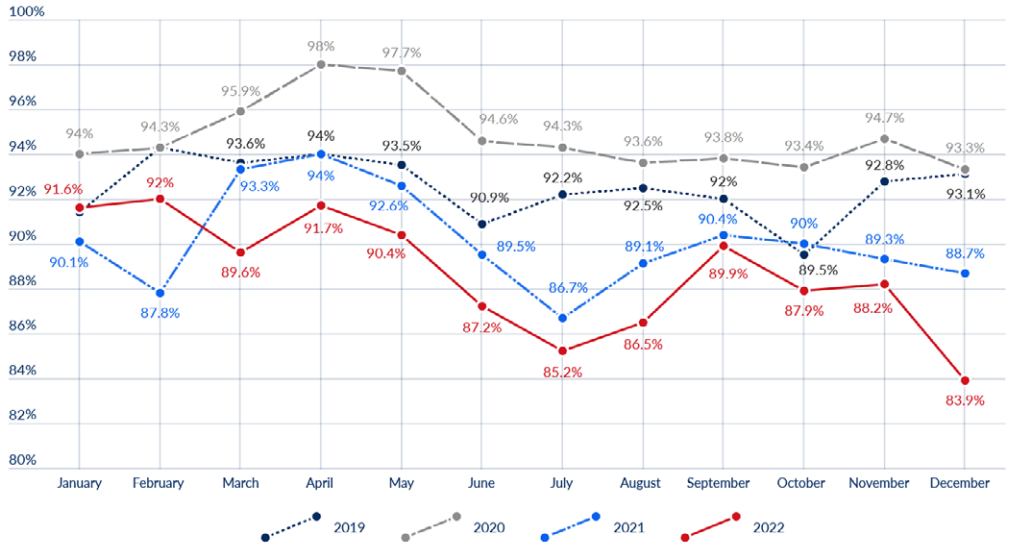
A total of nearly 23,100 trains were cancelled in 2022. The most trains were cancelled in April, May and June, the fewest in November and September. A cancellation classified in the UTK punctuality statistics differs from the broad concept of train cancellation. Only those cancellations that were reported by the undertaking as commercial cancellations of trains scheduled to run are included. The situation on the Polish-Ukrainian border made it necessary to run additional trains within the individual timetable. Due to dynamic changes at the border, their routing date was uncertain and had an impact on train cancellations.

As a rule, the causes of delays can be classified into nine groups:

1. operation, planning;
2. infrastructure devices;
3. civil engineering;
4. caused by other managers, including foreign managers;
5. commercial causes;
6. rolling stock;
7. caused by railway undertakings, including foreign undertakings;
8. external causes;
9. related (secondary) causes.

The following section shows what impact these causes had on the punctuality of passenger trains in Poland in each month of 2022. In particular, the number of cases from each group and the total duration of the delays that occurred are presented.

Additional information on the number of trains running and punctuality at undertakings can be found in the compilation ‘Punctuality of passenger trains in 2022’ available at dane.utk.gov.pl



◀ Fig. 48 Punctuality on arrival in individual months in the years 2019–2022 (with delays exceeding 5 minutes and 59 seconds)

month	2019	2020	2021	2022
January	91.4%	94.0%	90.1%	91.6%
February	94.3%	94.3%	87.8%	92.0%
March	93.6%	95.9%	93.3%	89.6%
April	94.0%	98.0%	94.0%	91.7%
May	93.5%	97.7%	92.6%	90.4%
June	90.9%	94.6%	89.5%	87.2%
July	92.2%	94.3%	86.7%	85.2%
August	92.5%	93.6%	89.1%	86.5%
September	92.0%	93.8%	90.4%	89.9%
October	89.5%	93.4%	90.0%	87.9%
November	92.8%	94.7%	89.3%	88.2%
December	93.1%	93.3%	88.7%	83.9%

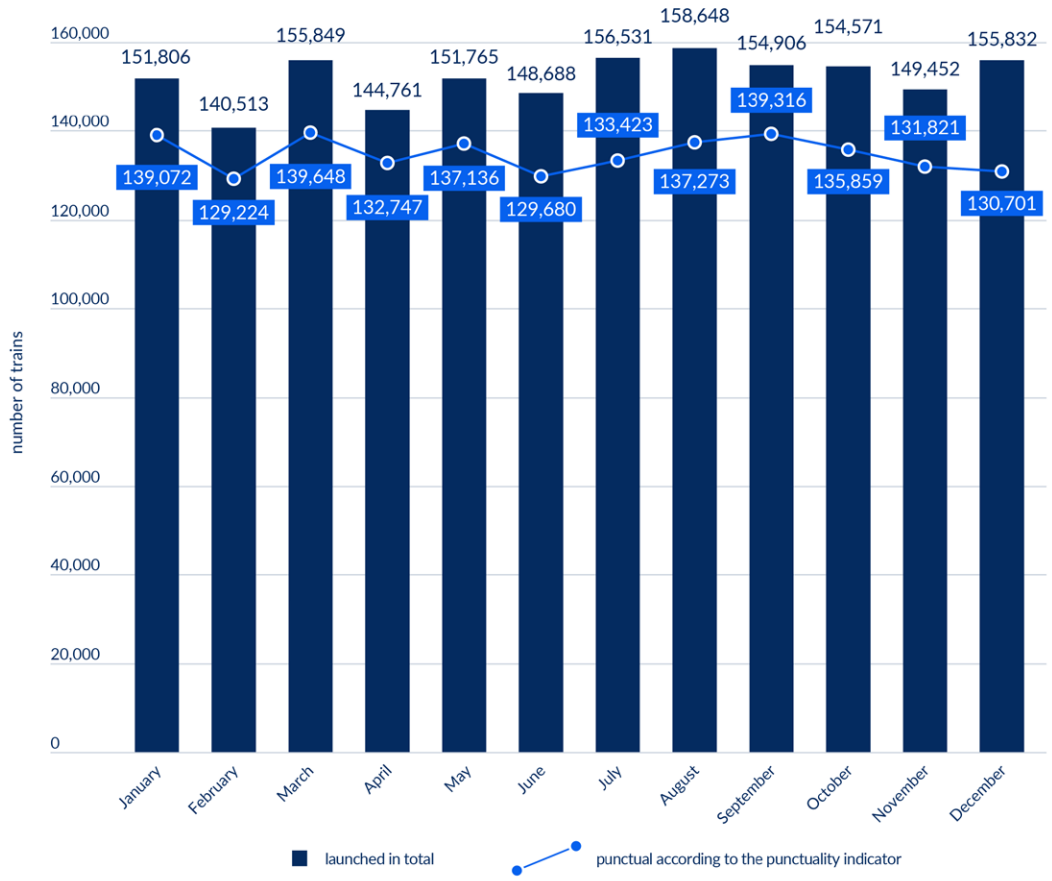
◀ Tab. 37 Punctuality on arrival in individual months in 2019–2022 (with delays exceeding 5 min 59 s)

	2019	2020	2021	2022
January	91.42%	93.95%	90.09%	91.61%
February	94.34%	94.28%	87.77%	91.97%
March	93.55%	95.94%	93.27%	89.60%
April	94.00%	98.00%	94.01%	91.70%
May	93.54%	97.70%	92.62%	90.36%
June	90.92%	94.56%	89.48%	87.22%
July	92.18%	94.33%	86.73%	85.24%
August	92.47%	93.64%	89.08%	86.53%
September	91.98%	93.83%	90.37%	89.94%
October	89.46%	93.35%	89.97%	87.89%
November	92.76%	94.68%	89.30%	88.20%
December	93.12%	93.25%	88.74%	83.87%

▼ Tab. 38 Basic parameters of punctuality in 2022, broken down by quarters

parameters	1st quarter	2nd quarter	3rd quarter	4th quarter
punctuality indicator on arrival (from 6 min)	91.02%	89.75%	87.22%	86.63%
number of trains running	448,168	445,214	470,085	459,855
number of trains delayed for more than 6 minutes	40,224	45,651	60,073	61,474

Fig. 49 Number of running trains total and punctual in individual months of 2022



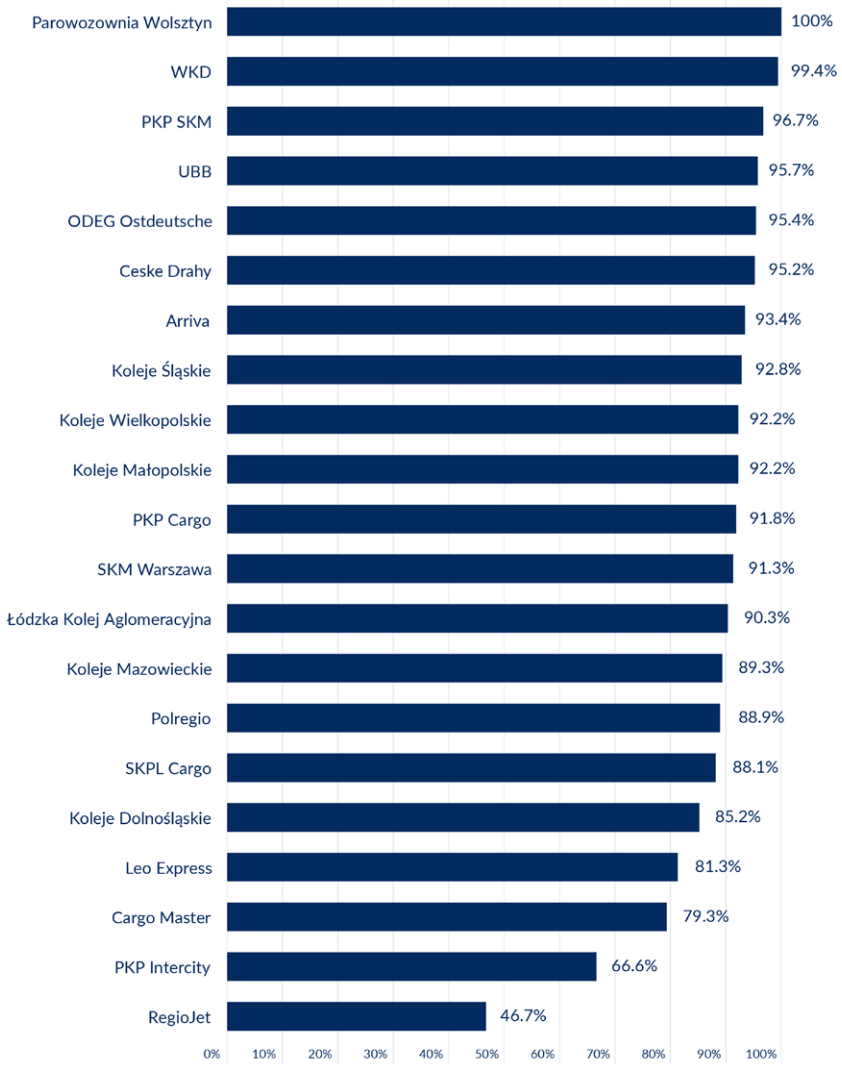
month	January	February	March	April	May	June	July	August	September	October	November	December
running in total	151,806	140,513	155,849	144,761	151,765	148,688	156,531	158,648	154,906	154,571	149,452	155,832
punctual according to the punctuality indicator	139,072	129,224	139,648	132,747	137,136	129,680	133,423	137,273	139,316	135,859	131,821	130,701

Tab. 39 Number of delayed and punctual trains in 2022

month	running in total	punctual according to the punctuality indicator	delayed according to the punctuality indicator (more than 5 min 59 sec)	opóźnionych ogółem (również poniżej 5 min 59 s)
January	151,806	139,072	12,734	41,947
February	140,513	129,224	11,289	37,093
March	155,849	139,648	16,201	48,330
April	144,761	132,747	12,014	40,007
May	151,765	137,136	14,629	46,166
June	148,688	129,680	19,008	52,206
July	156,531	133,423	23,108	58,165
August	158,648	137,273	21,375	56,852
September	154,906	139,316	15,590	50,412
October	154,571	135,859	18,712	57,431
November	149,452	131,821	17,631	54,945
December	155,832	130,701	25,131	63,515
total	1,823,322	1,615,900	207,422	607,069

◀ Tab. 40 Number of delayed trains in 2022 by time of delays divided into months

month	total number of delayed trains	delayed up to 5 min 59 sec	delayed from 6 min to 59 min 59 sec	delayed from 60 min up to 119 minutes 59 seconds	opóźnione od 120 min
January	41 947	29 213	11 888	619	227
February	37 093	25 804	10 214	652	423
March	48 330	32 129	14 179	1 016	1 006
April	40 007	27 993	11 187	595	232
May	46 166	31 537	13 683	655	291
June	52 206	33 198	17 679	989	340
July	58 165	35 057	21 383	1 297	428
August	56 852	35 477	19 951	1 045	379
September	50 412	34 822	14 933	505	152
October	57 431	38 719	17 952	548	212
November	54 945	37 314	16 805	624	202
December	63 515	38 384	23 557	1 210	364
total	607 069	399 647	193 411	9 755	4 256



◀ Fig. 50 Punctuality on the arrival of undertakings in 2022 according to the punctuality indicator

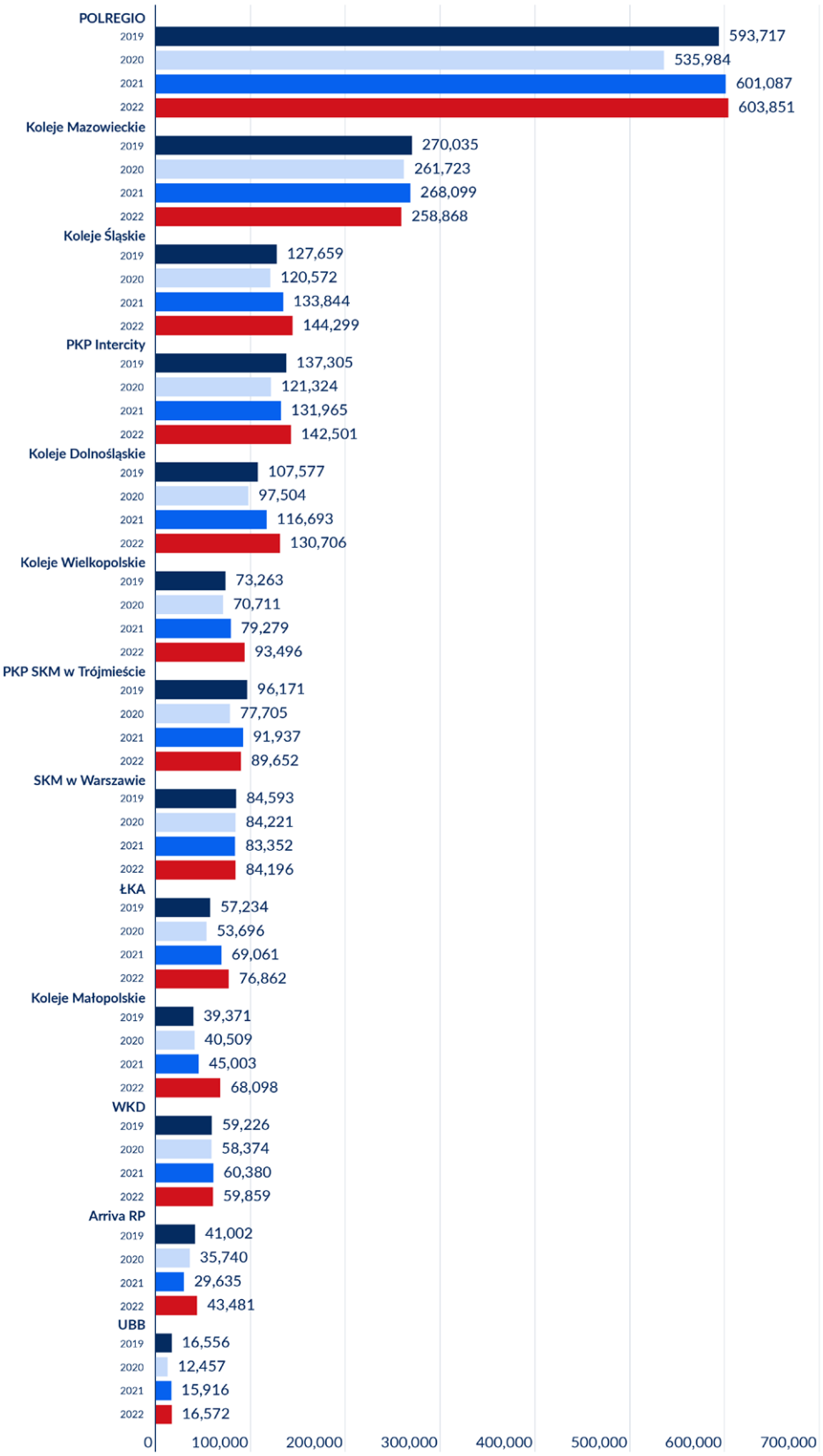
undertaking	Average punctuality
Parowozownia Wolsztyn	100.0%
WKD	99.4%
PKP SKM	96.7%
UBB	95.7%
ODEG Ostdeutsche	95.4%
Ceské Dráhy	95.2%
Arriva	93.4%
Koleje Śląskie	92.8%
Koleje Wielkopolskie	92.2%
Koleje Małopolskie	92.2%
PKP Cargo	91.8%
SKM Warszawa	91.3%
Łódzka Kolej Aglomeracyjna	90.3%
Koleje Mazowieckie	89.3%
POLREGIO	88.9%
SKPL Cargo	88.1%
Koleje Dolnośląskie	85.2%
Leo Express	81.3%
Cargo Master	79.3%
PKP Intercity	66.6%
RegioJet	46.7%

◀ Tab. 41 Punctuality of passenger railway undertakings in 2022

undertaking	2022	undertaking	2022
Parowozownia Wolsztyn	100.0%	SKM Warszawa	91.3%
WKD	99.4%	Łódzka Kolej Aglomeracyjna	90.3%
PKP SKM	96.7%	Koleje Mazowieckie	89.3%
UBB	95.7%	POLREGIO	88.9%
ODEG Ostdeutsche	95.4%	SKPL Cargo	88.1%
Ceské Dráhy	95.2%	Koleje Dolnośląskie	85.2%
Arriva	93.4%	Leo Express	81.3%
Koleje Śląskie	92.8%	Cargo Master	79.3%
Koleje Wielkopolskie	92.2%	PKP Intercity	66.6%
Koleje Małopolskie	92.2%	RegioJet	46.7%
PKP Cargo	91.8%		

▼ Tab. 42 Number of delays at the terminus station for selected time periods

undertaking	delayed up to 5 min 59 sec	delayed from 6 min to 59 min 59 sec	delayed from 60 min to 119 min 59 sec	delayed from 120 min
Arriva RP	7,871	2,747	116	30
Cargo Master	57	29	3	4
České Dráhy	212	127	6	0
Koleje Dolnośląskie	43,911	18,888	410	72
Koleje Małopolskie	14,682	5,212	74	35
Koleje Mazowieckie	62,196	26,337	1,062	252
Koleje Śląskie	29,412	10,194	207	50
Koleje Wielkopolskie	20,064	6,834	299	141
LEO Express	48	31	6	2
ŁKA	18,397	7261	151	44
ODEG Ostdeutsche	968	266	5	0
Parowozownia Wolsztyn	4	0	0	0
PKP Cargo	10	8	0	0
PKP Intercity	30,728	40,128	4,710	2,723
PKP SKM w Trójmieście	487	2,951	34	7
POLREGIO	143,565	63,989	2,331	812
RegioJet	52	209	88	47
SKM w Warszawie	26,944	7,048	229	20
SKPL Cargo	39	83	19	17
UBB	0	711	0	0
WKD	0	358	5	0
total	399,647	193,411	9,755	4,256



◀ Fig. 51 Number of trains running in 2019–2022

Tab. 43 Number of trains run by railway undertakings in 2019–2022

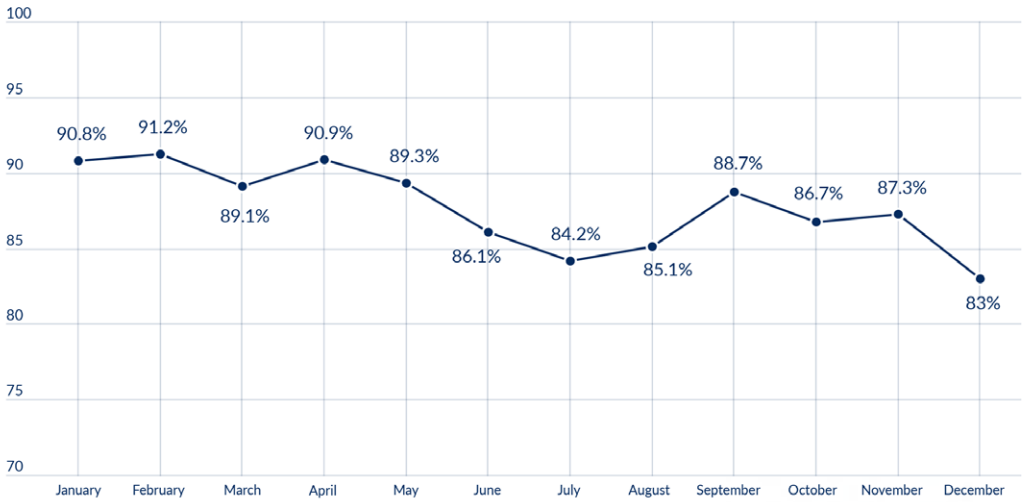
undertaking	2019	2020	2021	2022
POLREGIO	593,717	535,984	601,087	603,851
Koleje Mazowieckie	270,035	261,723	268,099	258,868
Koleje Śląskie	127,659	120,572	133,844	144,299
PKP Intercity	137,305	121,324	131,965	142,501
Koleje Dolnośląskie	107,577	97,504	116,693	130,706
Koleje Wielkopolskie	73,263	70,711	79,279	93,496
PKP SKM w Trójmieście	96,171	77,705	91,937	89,652
SKM w Warszawie	84,593	84,221	83,352	84,196
ŁKA	57,234	53,696	69,061	76,862
Koleje Małopolskie	39,371	40,509	45,003	68,098
WKD	59,226	58,374	60,380	59,859
Arriva RP	41,002	35,740	29,635	43,481
UBB	16,556	12,457	15,916	16,572
ODEG Ostdeutsche	7,783	7,908	11,751	5,902
Ceske Drahy	2,737	1,777	2,522	2,788
SKPL Cargo	1,066	353	256	1,003
RegioJet				645
LEO Express	307	286	109	209
Cargo Master	236	135	160	174
PKP Cargo	158	90	96	98
Parowozownia Wolsztyn	48	18	12	62
total	1,716,044	1,581,087	1,„741,157	1,823,322

Tab. 44 Number of cancelled trains in 2019–2022

month	2019	2020	2021	2022
January	1,439	1,135	1,546	1,219
February	795	1,290	2,369	1,643
March	1,015	3,004	1,028	2,625
April	713	2,509	873	3,261
May	933	2,389	1,126	2,449
June	1,894	2,052	1,318	2,182
July	1,232	991	1,485	2,723
August	1,362	1,013	1,734	1,564
September	1,068	912	1,443	943
October	1,099	1,454	1,298	1,747
November	1,169	923	1,099	836
December	1,326	836	1,739	1,875
total	14,045	18,508	17,058	23,067

undertaking	2019	2020	2021	2022
Arriva RP	107	32	54	99
Cargo Master	1	4	0	9
České Dráhy	4	796	6	128
Koleje Dolnośląskie	1,424	1,439	1,863	2,162
Koleje Małopolskie	221	67	117	228
Koleje Mazowieckie	1,630	1,104	1,913	1,703
Koleje Śląskie	1,568	752	1,854	1,238
Koleje Wielkopolskie	408	1,344	187	319
LEO Express	0	23	0	0
ŁKA	171	162	77	260
ODEG Ostdeutsche	40	1,040	981	1,485
Parowozownia Wolsztyn	2	0	0	0
PKP Cargo	0	0	0	2
PKP Intercity	753	1,549	1,493	2,503
PKP SKM w Trójmieście	494	365	601	475
POLREGIO	6,623	5,177	6,624	11,057
SKM w Warszawie	463	614	660	740
SKPL Cargo	4	1	0	5
UBB	50	3,989	516	574
WKD	82	50	112	76
RegioJet	,	,	,	4
total	14,045	18,508	17,058	23,067

◀ Tab. 45 Number of trains cancelled in 2019–2022 by individual railway undertakings



◀ Fig. 52 Punctuality rate at stations in 2022 on a monthly basis

	indicator
January	90.8%
February	91.2%
March	89.1%
April	90.9%
May	89.3%
June	86.1%
July	84.2%
August	85.1%
September	88.7%
October	86.7%
November	87.3%
December	83.0%

▼ Tab. 46 Number, duration of delays and their share – with the assignment of responsibility in January 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
other	10,722	146,990	26.8%	40.5%
Passenger railway undertaking	14,659	107,392	36.6%	29.6%
PKP Polskie Linie Kolejowe S.A.	9,846	60,506	24.6%	16.7%
Transport service – Energy	2,647	24,944	6.6%	6.9%
Foreign undertaking	1,091	12,313	2.7%	3.4%
Freight railway undertaking	959	10,281	2.4%	2.8%
Transport service – Telecommunications	110	465	0.3%	0.1%
Maintenance and repair transport	26	301	0.1%	0.1%
total	40,060	363,192	100.0%	100.0%

▼ Tab. 47 Number, duration of delays and their share – by group of reasons in January 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
8. External causes	8,057	108,127	20.1%	29.8%
6. Rolling stock	10,638	89,966	26.6%	24.8%
2. Infrastructure devices	6,141	53,236	15.3%	14.7%
9. Related (secondary) causes	2,831	41,447	7.1%	11.4%
3. Civil engineering	6,065	27,909	15.1%	7.7%
5. Commercial causes	4,880	26,184	12.2%	7.2%
7. caused by railway undertakings, including foreign undertakings;	1,019	11,564	2.5%	3.2%
1. Operation, planning	357	4,010	0.9%	1.1%
4. Caused by other managers, including foreign managers;	72	749	0.2%	0.2%
total	40,060	363,192	100.0%	100.0%

▼ Tab. 48 Number, duration of delays and their share with attribution of responsibility in February 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
other	12,226	210,470	36.2%	50.8%
Passenger railway undertaking	11,122	85,763	33.0%	20.7%
Foreign undertaking	885	47,369	2.6%	11.4%
PKP Polskie Linie Kolejowe S.A.	6,925	45,545	20.5%	11.0%
Transport service – Energy	1,550	12,877	4.6%	3.1%
Freight railway undertaking	779	11,256	2.3%	2.7%
Transport service – Telecommunications	239	746	0.7%	0.2%
Maintenance and repair transport	9	77	0.0%	0.0%
total	33,735	414,103	100.0%	100.0%

▼ Tab. 49 Number, duration of delays and their share – by group of reasons in February 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
8. External causes	10,275	181,693	30.5%	43.9%
6. Rolling stock	8,293	75,608	24.6%	18.3%
7. caused by railway undertakings, including foreign undertakings;	838	46,551	2.5%	11.2%
2. Infrastructure devices	4,178	34,088	12.4%	8.2%
9. Related (secondary) causes	2,219	32,398	6.6%	7.8%
3. Civil engineering	4,322	21,859	12.8%	5.3%
5. Commercial causes	3,501	20,730	10.4%	5.0%
4. Caused by other managers, including foreign managers;	47	818	0.1%	0.2%
1. Operation, planning	62	358	0.2%	0.1%
total	33,735	414,103	100.0%	100.0%

▼ Tab. 50 Number, duration of delays and their share with attribution of responsibility in March 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
Foreign undertaking	2,901	288,438	5.6%	34.2%
other	20,042	243,020	39.0%	28.8%
PKP Polskie Linie Kolejowe S.A.	11,913	154,503	23.2%	18.3%
Passenger railway undertaking	12,694	108,490	24.7%	12.8%
Transport service – Energy	2,832	40,071	5.5%	4.7%
Freight railway undertaking	918	9,313	1.8%	1.1%
Maintenance and repair transport	41	336	0.1%	0.1%
Transport service – Telecommunications	69	281	0.1%	0.03%
total	51,410	844,452	100.0%	100.0%

▼ Tab. 51 Number, duration of delays and their share – by group of reasons in March 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
7. caused by railway undertakings, including foreign undertakings;	2,804	287,556	5.5%	34.1%
8. External causes	16,819	199,757	32.7%	23.7%
2. Infrastructure devices	9,412	167,329	18.3%	19.8%
6. Rolling stock	10,199	93,783	19.8%	11.1%
9. Related (secondary) causes	3,311	44,521	6.4%	5.3%
3. Civil engineering	5,152	24,289	10.0%	2.9%
5. Commercial causes	3,424	23,602	6.7%	2.8%
1. Operation, planning	197	2,733	0.4%	0.3%
4. Caused by other managers, including foreign managers;	97	882	0.2%	0.1%
total	51,410	844,452	100.0%	100.0%

▼ Tab. 52 Number, duration of delays and their share – with the assignment of responsibility in April 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
Passenger railway undertaking	14,112	114,519	39.5%	30.9%
other	9,620	109,767	26.9%	29.6%
Foreign undertaking	1,644	66,649	4.6%	18.0%
PKP Polskie Linie Kolejowe S.A.	7,050	46,021	19.7%	12.4%
Transport service – Energy	2,076	18,268	5.8%	4.9%
Freight railway undertaking	1,156	15,258	3.2%	4.1%
Transport service – Telecommunications	43	188	0.12%	0.1%
Maintenance and repair transport	14	123	0.04%	0.03%
total	35,715	370,793	100.00%	100.0%

▼ Tab. 53 Number, duration of delays and their share – by group of reasons in April 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
6. Rolling stock	9,916	94,568	27.8%	25.5%
8. External causes	6,768	67,698	19.0%	18.3%
7. caused by railway undertakings, including foreign undertakings;	1,604	66,282	4.5%	17.9%
9. Related (secondary) causes	3,147	46,095	8.8%	12.4%
2. Infrastructure devices	5,349	44,468	15.0%	12.0%
5. Commercial causes	5,074	31,330	14.2%	8.4%
3. Civil engineering	3,707	19,090	10.4%	5.1%
1. Operation, planning	110	895	0.3%	0.2%
4. Caused by other managers, including foreign managers;	40	367	0.1%	0.1%
total	35,715	370,793	100.0%	100.0%

▼ Tab. 54 Number, duration of delays and their share with attribution of responsibility in May 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
Passenger railway undertaking	18,095	142,629	41.0%	33.4%
other	11,443	141,666	25.9%	33.2%
PKP Polskie Linie Kolejowe S.A.	8,737	53,959	19.8%	12.7%
Foreign undertaking	2,050	50,903	4.6%	11.9%
Transport service – Energy	2,330	20,770	5.3%	4.9%
Freight railway undertaking	1,296	15,333	2.9%	3.6%
Maintenance and repair transport	81	735	0.2%	0.2%
Transport service – Telecommunications	77	430	0.2%	0.1%
total	44,109	426,425	100.0%	100.0%

▼ Tab. 55 Number, duration of delays and their share – by group of reasons in May 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
6. Rolling stock	12,600	116,567	28.6%	27.3%
9. Related (secondary) causes	5,083	81,974	11.5%	19.2%
8. External causes	6,760	64,689	15.3%	15.2%
7. caused by railway undertakings, including foreign undertakings;	1,946	49,830	4.4%	11.7%
2. Infrastructure devices	5,972	45,779	13.5%	10.7%
5. Commercial causes	6,479	37,435	14.7%	8.8%
3. Civil engineering	5,037	27,954	11.4%	6.6%
1. Operation, planning	128	1,124	0.3%	0.3%
4. Caused by other managers, including foreign managers;	104	1,073	0.2%	0.3%
total	44,109	426,425	100.0%	100.0%

▼ Tab. 56 Number, duration of delays and their share with attribution of responsibility in June 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
Passenger railway undertaking	25,246	206,877	41.7%	36.80%
other	16,618	167,440	27.4%	29.80%
PKP Polskie Linie Kolejowe S.A.	10,812	71,678	17.8%	12.80%
Foreign undertaking	3,908	70,240	6.4%	12.50%
Transport service – Energy	2,630	28,035	4.3%	5.00%
Freight railway undertaking	1,229	15,790	2.0%	2.80%
Maintenance and repair transport	92	1,254	0.2%	0.20%
Transport service – Telecommunications	59	176	0.1%	0.03%
total	60,594	561,490	100.0%	100.00%

▼ Tab. 57 Number, duration of delays and their share – by group of reasons in June 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
6. Rolling stock	15,521	153,495	25.6%	27.3%
8. External causes	11,853	110,342	19.6%	19.7%
9. Related (secondary) causes	5,470	71,861	9.0%	12.8%
7. caused by railway undertakings, including foreign undertakings;	3,477	65,789	5.7%	11.7%
2. Infrastructure devices	7,078	65,067	11.7%	11.6%
5. Commercial causes	10,492	58,557	17.3%	10.4%
3. Civil engineering	6,134	30,904	10.1%	5.5%
4. Caused by other managers, including foreign managers;	431	4,451	0.7%	0.8%
1. Operation, planning	138	1,024	0.2%	0.2%
total	60,594	561,490	100.0%	100.0%

▼ Tab. 58 Number, duration of delays and their share with attribution of responsibility in July 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
Passenger railway undertaking	30,997	247,331	41.31%	35.2%
Other	18,307	204,595	24.4%	29.1%
Foreign undertaking	6,244	95,600	8.3%	13.6%
PKP Polskie Linie Kolejowe S.A.	13,208	87,447	17.6%	12.4%
Transport service – Energy	4,458	47,618	5.9%	6.8%
Freight railway undertaking	1,363	16,264	1.8%	2.3%
Maintenance and repair transport	277	4,251	0.4%	0.6%
Transport service – Telecommunications	173	628	0.2%	0.1%
total	75,027	703,734	100.0%	100.0%

▼ Tab. 59 Number, duration of delays and their share – by group of reasons in July 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
6. Rolling stock	19,641	197,541	26.2%	28.1%
8. External causes	13,290	142,176	17.7%	20.2%
2. Infrastructure devices	9,837	91,924	13.1%	13.1%
7. caused by railway undertakings, including foreign undertakings;	3,908	70,610	5.2%	10.0%
5. Commercial causes	12,626	66,678	16.8%	9.5%
9. Related (secondary) causes	5,424	66,490	7.2%	9.4%
3. Civil engineering	7,684	40,990	10.2%	5.8%
4. Caused by other managers, including foreign managers;	2,336	24,990	3.1%	3.6%
1. Operation, planning	281	2,335	0.4%	0.3%
total	75,027	703,734	100.0%	100.0%

▼ Tab. 60 Number, duration of delays and their share – with the assignment of responsibility in August 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
Passenger railway undertaking	27,944	213,354	40.1%	33.7%
other	17,956	207,205	25.8%	32.7%
Foreign undertaking	6,848	94,647	9.8%	15.0%
PKP Polskie Linie Kolejowe S.A.	11,701	64,501	16.8%	10.2%
Transport service – Energy	3,336	33,422	4.8%	5.3%
Freight railway undertaking	1,557	17,020	2.2%	2.7%
Maintenance and repair transport	107	1,892	0.2%	0.3%
Transport service – Telecommunications	230	692	0.3%	0.1%
total	69,679	632,733	100.0%	100.00%

▼ Tab. 61 Number, duration of delays and their share – by group of reasons in August 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
6. Rolling stock	17,352	171,969	24.9%	27.2%
9. Related (secondary) causes	7,631	109,333	11.0%	17.3%
8. External causes	10,943	102,628	15.7%	16.2%
2. Infrastructure devices	7,319	62,378	10.5%	9.9%
7. caused by railway undertakings, including foreign undertakings;	3,637	59,552	5.2%	9.4%
5. Commercial causes	11,653	55,572	16.7%	8.8%
3. Civil engineering	7,801	35,137	11.2%	5.6%
4. Caused by other managers, including foreign managers;	3,211	35,095	4.6%	5.5%
1. Operation, planning	132	1,069	0.2%	0.2%
total	69,679	632,733	100.0%	100.0%

▼ Tab. 62 Number, duration of delays and their share – with the assignment of responsibility in September 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
Passenger railway undertaking	17,544	128,210	41.0%	34.2%
other	9,958	112,205	23.3%	30.0%
PKP Polskie Linie Kolejowe S.A.	9,317	62,128	21.8%	16.6%
Foreign undertaking	3,256	42,455	7.6%	11.3%
Transport service – Energy	1,835	18,775	4.3%	5.0%
Freight railway undertaking	794	9,603	1.9%	2.6%
Maintenance and repair transport	40	985	0.1%	0.3%
Transport service – Telecommunications	35	139	0.1%	0.0%
total	42,779	374,500	100.0%	100.0%

▼ Tab. 63 Number, duration of delays and their share – by group of reasons in September 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
6. Rolling stock	11,027	101,746	25.8%	27.2%
8. External causes	6,792	73,768	15.9%	19.7%
2. Infrastructure devices	4,646	41,293	10.9%	11.0%
9. Related (secondary) causes	3,512	39,503	8.2%	10.5%
3. Civil engineering	6,139	37,652	14.4%	10.1%
5. Commercial causes	7,236	36,334	16.9%	9.7%
7. caused by railway undertakings, including foreign undertakings;	1,551	24,272	3.6%	6.5%
4. Caused by other managers, including foreign managers;	1,705	18,183	4.0%	4.9%
1. Operation, planning	171	1,749	0.4%	0.5%
total	42,779	374,500	100.0%	100.0%

▼ Tab. 64 Number, duration of delays and their share – with the assignment of responsibility in October 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
Passenger railway undertaking	20,080	139,781	38.9%	30.9%
other	13,681	151,033	26.5%	33.4%
PKP Polskie Linie Kolejowe S.A.	11,282	79,677	21.8%	17.6%
Foreign undertaking	3,124	42,175	6.0%	9.3%
Transport service – Energy	1,872	17,591	3.6%	3.9%
Freight railway undertaking	1,403	19,863	2.7%	4.4%
Transport service – Telecommunications	110	463	0.2%	0.1%
Maintenance and repair transport	97	1,280	0.2%	0.3%
Total	51,649	451,863	100.0%	100.0%

▼ Tab. 65 Number, duration of delays and their share – by group of reasons in October 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
6. Rolling stock	13,023	118,795	25.2%	26.3%
8. External causes	8,871	87,248	17.2%	19.3%
9. Related (secondary) causes	5,297	68,834	10.3%	15.2%
3. Civil engineering	7,656	51,714	14.8%	11.4%
2. Infrastructure devices	5,226	43,821	10.1%	9.7%
5. Commercial causes	8,285	37,905	16.0%	8.4%
7. caused by railway undertakings, including foreign undertakings;	1,464	26,342	2.8%	5.8%
4. Caused by other managers, including foreign managers;	1,660	15,833	3.2%	3.5%
1. Operation, planning	167	1,371	0.3%	0.3%
total	51,649	451,863	100.0%	100.0%

▼ Tab. 66 Number, duration of delays and their share with attribution of responsibility in November 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
Passenger railway undertaking	20,996	145,285	41.2%	33.6%
other	10,726	106,061	21.1%	24.6%
PKP Polskie Linie Kolejowe S.A.	12,156	85,856	23.9%	19.9%
Foreign undertaking	3,198	42,271	6.3%	9.8%
Transport service – Energy	2,410	32,771	4.7%	7.6%
Freight railway undertaking	1,371	19,365	2.7%	4.5%
Transport service – Telecommunications	66	313	0.1%	0.1%
Maintenance and repair transport	9	88	0.0%	0.0%
total	50,932	432,010	100.0%	100.0%

▼ Tab. 67 Number, duration of delays and their share – by group of reasons in November 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
6. Rolling stock	13,772	128,445	27.0%	29.7%
2. Infrastructure devices	6,406	70,572	12.6%	16.3%
8. External causes	6,948	59,524	13.6%	13.8%
9. Related (secondary) causes	4,314	48,132	8.5%	11.1%
3. Civil engineering	7,611	45,424	14.9%	10.5%
5. Commercial causes	8,394	34,887	16.5%	8.1%
4. Caused by other managers, including foreign managers;	2,241	23,288	4.4%	5.4%
7. caused by railway undertakings, including foreign undertakings;	957	18,983	1.9%	4.4%
1. Operation, planning	254	2,415	0.5%	0.6%
5. Commercial causes	35	340	0.1%	0.1%
total	50,932	432,010	100.0%	100.0%

▼ Tab. 68 Number, duration of delays and their share – with the assignment of responsibility in December 2022

responsible party	number of delays by responsible party	duration of delays	share in the number of delays	share in the time of delays
Passenger railway undertaking	33,815	270,292	43.6%	38.9%
other	17,909	184,155	23.1%	26.5%
PKP Polskie Linie Kolejowe S.A.	14,831	106,764	19.1%	15.4%
Foreign undertaking	6,494	88,023	8.4%	12.7%
Transport service – Energy	2,798	27,163	3.6%	3.9%
Freight railway undertaking	1,341	17,743	1.7%	2.6%
Transport service – Telecommunications	261	930	0.3%	0.1%
Maintenance and repair transport	22	316	0.0%	0.0%
total	77,471	695,386	100.0%	100.0%

▼ Tab. 69 Number, duration of delays and their share – by group of reasons in December 2022

group of causes	number of delays with a given code	duration of delays	share in the number of delays	share in the time of delays
6. Rolling stock	22,209	219,327	28.7%	31.5%
8. External causes	13,832	133,060	17.9%	19.1%
2. Infrastructure devices	9,493	83,103	12.3%	12.0%
5. Commercial causes	12,566	66,705	16.2%	9.6%
9. Related (secondary) causes	4,717	53,932	6.1%	7.8%
4. Caused by other managers, including foreign managers;	4,217	51,068	5.4%	7.3%
3. Civil engineering	7,800	48,869	10.1%	7.0%
7. caused by railway undertakings, including foreign undertakings;	2,277	36,955	2.9%	5.3%
1. Operation, planning	360	2,367	0.5%	0.3%
total	77,471	695,386	100.0%	100.0%

1.11. Transport performance in 2022 and forecasts for passenger transport

The Sustainable Transport Development Strategy to 2030 (Sustainable Transport Development Strategy to 2030) provides forecasts for passenger transport. It is a document that was produced prior to the Coronavirus pandemic[19], which is of particular relevance with regard to the decline in transport between 2020 and 2021. However, the market, after an unexpected decline to 209.4 million passengers in 2020 and a gradual recovery in 2021 (245.1 million passengers) reached a very good figure of 342.2 million passengers in 2022, the highest recorded since 2000.

After the difficult period of the pandemic, which for example caused restrictions on the operations of some manufacturing facilities, modification of supply chains, changing demand for selected products and services, and widespread use of remote work, in 2022 the geopolitical situation related to Russia's aggression against Ukraine brought further changes - migration of refugees, but also an energy crisis, rising inflation and slowing global economic growth. For this reason, the assumptions of the Sustainable Transport Development Strategy to 2030, which were made in 2019, are difficult to assess as feasible, also due to the fact that the document does not include updated data, as well as new possible risks in the following years, such as the economic crisis or armed conflicts.

A comparison of the number of passengers carried in 2022 with the projections for 2025 and 2030 shows that more than 96% of the volume projected for 2025 (of 356 million passengers) and almost 91% of the volume projected for 2030 (of 377 million passengers) has been achieved in 2022. The maximum variant adopted in the document, on the other hand, assumes that passenger traffic will reach 418 million passengers in 2025 and 466 million in 2030. Given that the increase in passenger numbers in 2022 actually made up for the losses caused by the pandemic, it is reasonable to assume that only passenger volumes in 2024 shall allow a closer estimate of whether the minimum variant will be reached in 2025 or whether it will be exceeded and passenger numbers will be within the forecast ranges.

An opportunity to get closer to the realisation of the maximum variant in terms of passenger numbers is the further increase in the use of rail as a mode of transport in agglomeration transport, together with the development of long-distance connections. This means that the railway undertakings' offer must become increasingly attractive to users of individual transport (passenger cars). If they perceive the advantages of the railway (convenient journey times, competitive journey times, comfortable, modern rolling stock), they will be more likely to switch to trains. For this purpose, it is necessary to continue the railway investments related to the construction of new lines and improvement of parameters.

19 The document was adopted by the Council of Ministers on 24 September 2019. The Sustainable Transport Development Strategy to 2030 uses data available at the end of 2015. According to a footnote included in the document, „The forecast in the 2017 Sustainable Transport Development Strategy 2030 is based on data available at the end of 2015 and is therefore an extrapolation of the trends possible to diagnose at that stage. The forecast is based on the assumption of a continuation of the outlined trends and does not take into account landmark projects such as, for example, the construction of CPK. The forecast is therefore a diagnostic instrument constituting a key element of the decision on the appropriate selection of intervention directions and actions that would influence the maintenance of positive and, at the same time, reversal of unfavourable trends outlined in the forecast. This includes strengthening the role of rail transport in passenger and freight transport. The measures adopted in the draft Sustainable Transport Development Strategy until 2030 are in line with the assumptions adopted in the SOR and are aimed at changing the face of the transport sector. At the same time, based on the initial data for the preparation of the forecast, it was not possible to include breakthrough projects, which took real shape only after the adoption of the SOR. These projects, in the opinion of the Government of the Republic of Poland, shall definitely influence the future shape of the state's transport policy, making the sector more sustainable, pro-environmental and user- and environment-friendly" – Sustainable Transport Development Strategy to 2030, footnote 47, p. 63.

▼ Tab. 70 Number of passengers transported in 2022 and the forecast of the Sustainable Transport Development Strategy until 2030 in 2025 and 2030

	2022 volume achieved	2025 minimum forecast	2030 minimum forecast
number of passengers in passenger transport (million passengers)	342	356	377
share of volume in 2022 compared to 2025 and 2030		96.13%	90.78%
	2022 volume achieved	2025 maximum forecast	2030 maximum forecast
number of passengers in passenger transport (million passengers)	342	418	466
share of volume in 2022 compared to 2025 and 2030		81.87%	73.44%

▼ Tab. 71 Transport performance for passenger transport in 2022 and the forecast of the Sustainable Transport Development Strategy until 2030 in 2025 and 2030

	2022 volume achieved	2025 minimum forecast	2030 minimum forecast
transport performance in railway passenger transport (billion pas-km)	23.8	28	31
share of volume in 2022 compared to 2025 and 2030		84.88%	76.66%
	2022 volume achieved	2025 maximum forecast	2030 maximum forecast
transport performance in railway passenger transport (billion pas-km)	23.8	41	48
share of volume in 2022 compared to 2025 and 2030		57.97%	49.51%

1.12. Passenger transport services in Poland compared to other European countries

For the purpose of examining how the rail passenger transport market in Poland compares to other European countries, the available national statistics of UTK were used and set against data made available by Eurostat on the number of rail passengers for 28 countries[20]. In total, these countries carried almost 7,560 million passengers in 2022. Compared to over 5,428.3 million passengers in 2021, this was an increase of 39.3%. As a rule, the European market has recovered from the declines caused by the pandemic. This trend is also visible in Poland. The passenger growth rate in 2022 compared to 2021 was 39.6 per cent, 0.3 percentage points higher than the European average.

In 2022, Germany (2,530.1 million), France (1,126.5 million) and Italy (675.2 million) maintain their positions in the top three European countries with the highest number of rail passengers. German railways carried 33.5% of all passengers among the 28 countries examined, French railways 14.9% and Italian railways 8.9%. Polish railways, with 342.2 million passengers transported, ranked sixth in this list, and their share of the European passenger transport market was over 4.5%.

In all 28 countries, the number of rail passengers increased year-on-year in the list. The highest number of travellers came on trains in Germany (+774 million), France

20 Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Latvia, Lithuania, Luxembourg, Hungary, Netherlands, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, Norway, Switzerland, Bosnia and Herzegovina, North Macedonia and Turkey.

(+232.1 million) and Italy (+194.9 million). Railways in Poland in 2022.

compared to 2021, served 97.2 million more passengers – in terms of the increase in the number of passengers, Poland ranks seven among 28 countries.

When analysing the year-on-year growth in passenger numbers in individual countries, the number of people travelling by train in Ireland increased the most, more than doubling (by 105.9%) (from 17.4 million in 2021 to 35.8 million in 2022). A significant percentage increase can also be seen in the case of Bosnia and Herzegovina (+76.4%) and Turkey (+73.6%). Poland, with a year-on-year growth rate of 39.6%, ranks 14th in this list.

By comparing data on the number of rail passengers checked in by country with the number of residents[21], the rail usage rate per country was calculated. Analysis of the data shows that throughout 2022, as in previous years, the most frequent rail traveller was a resident of Switzerland (50.1 times per year), followed by Luxembourg (33.6 times) and Denmark (31.3 times).

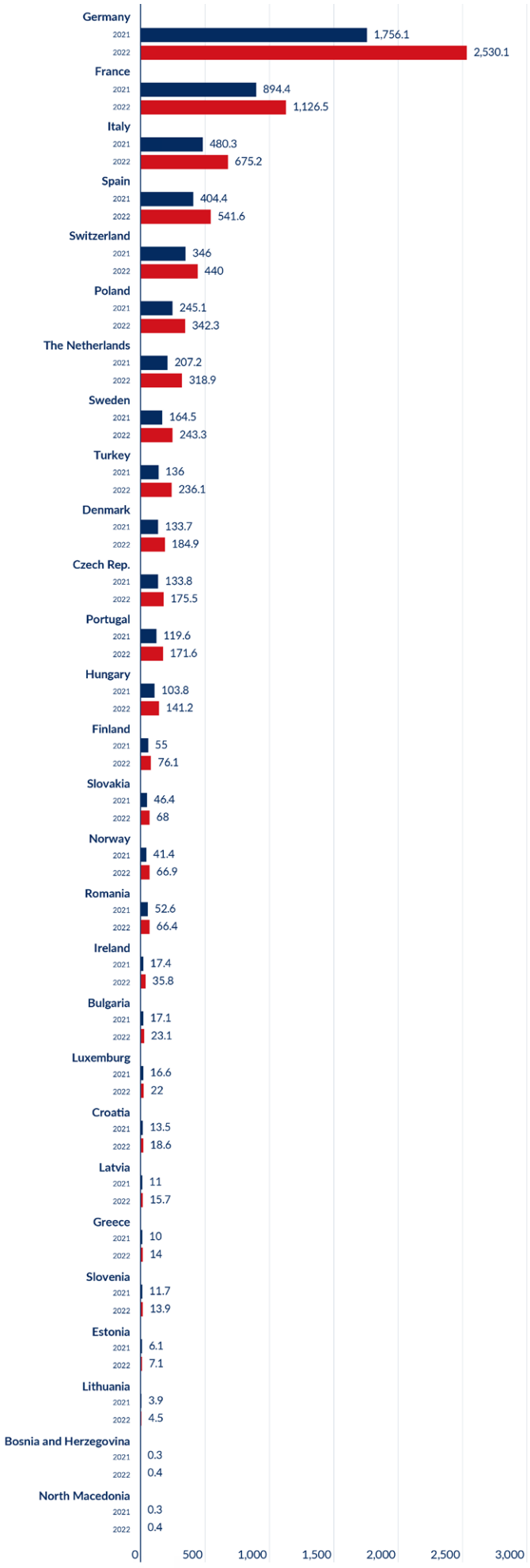
On average, a statistical Pole travelled by train 9.1 times in 2022 – 2.7 more than in 2021 (+41.5%). At the same time, this result is significantly lower than the European average (for the 28 countries analysed, the average use of the railway is 16.9 in 2022).

In the year-on-year comparison, the highest increase in the rate took place in Switzerland (+10.4 journeys per capita), as well as in Germany (+9.1) and Denmark (+8.5). In percentage terms, the highest increase in the rail usage rate was recorded in Ireland (+102.2%), Bosnia and Herzegovina (+76.8%) and Turkey (+71.8%).

An analysis of available Eurostat data shows that, in 2022, the highest transport work was carried out by rail in France (over 101 billion passenger-kilometres), followed by Germany (94.6 billion) and Italy (45.8 billion). The share of these countries in total transport work (for 27 countries) represented respectively: 24.8%, 23.3% and 11.3%. Poland, with almost 23.8 billion passenger-kilometres, ranked fifth in this list, gaining a 5.8% share of the total market.

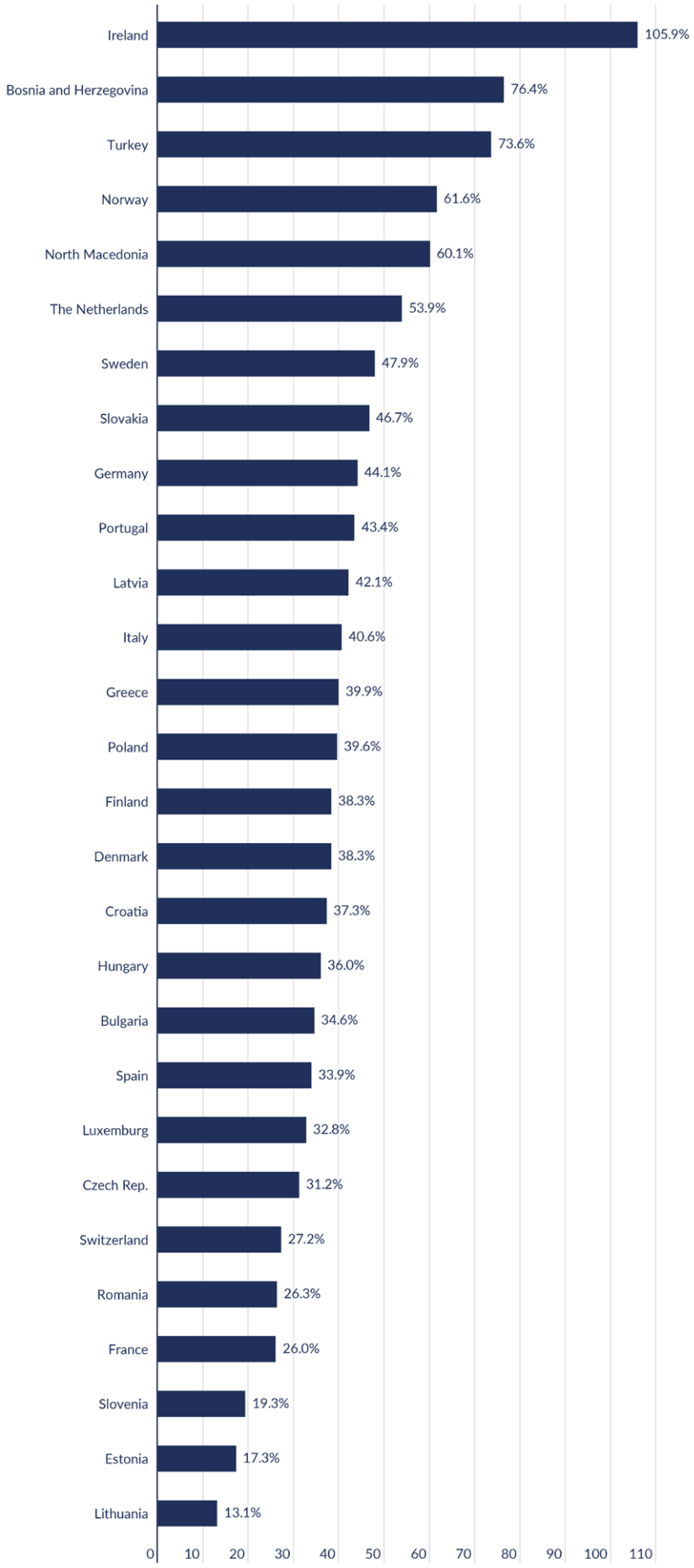
In 2022, the average distance covered by an average rail passenger in France was 89.7 km, in Lithuania it was 85.3 km. For Poland, the figure was 69.4 km – this is above the European average of 53.8 km.

21 According to Eurostat data, population as of January 1st in the analyzed years 2022 and 2021.



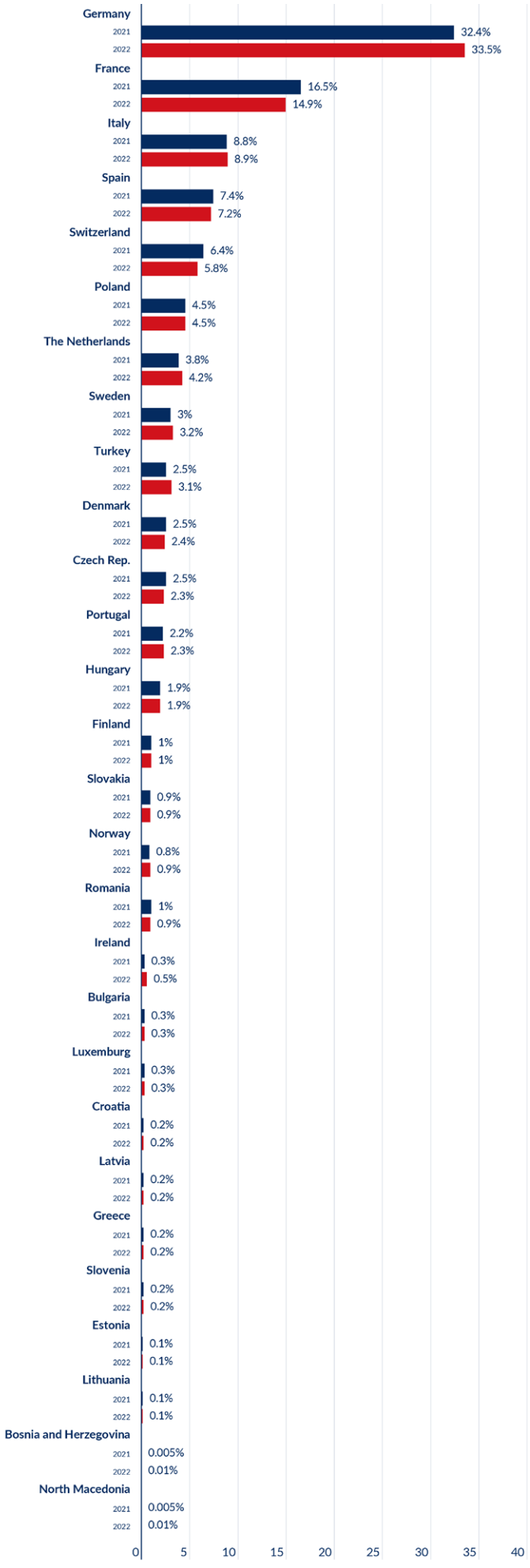
◀ Fig. 53 Number of rail transport passengers in individual European countries in 2021 and 2022 (in millions)
Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
Germany	1,756.1	2,530.1
France	894.4	1,126.5
Italy	480.3	675.2
Spain	404.4	541.6
Switzerland	346	440
Poland	245.1	342.3
The Netherlands	207.2	318.9
Sweden	164.5	243.3
Turkey	136	236.1
Denmark	133.7	184.9
Czech Rep.	133.8	175.5
Portugal	119.6	171.6
Hungary	103.8	141.2
Finland	55.0	76.1
Slovakia	46.4	68
Norway	41.4	66.9
Romania	52.6	66.4
Ireland	17.4	35.8
Bulgaria	17.1	23.1
Luxemburg	16.6	22
Croatia	13.5	18.6
Latvia	11	15.7
Greece	10	14
Slovenia	11.7	13.9
Estonia	6.1	7.1
Lithuania	3.9	4.5
Bosnia and Herzegovina	0.3	0.4
North Macedonia	0.3	0.4



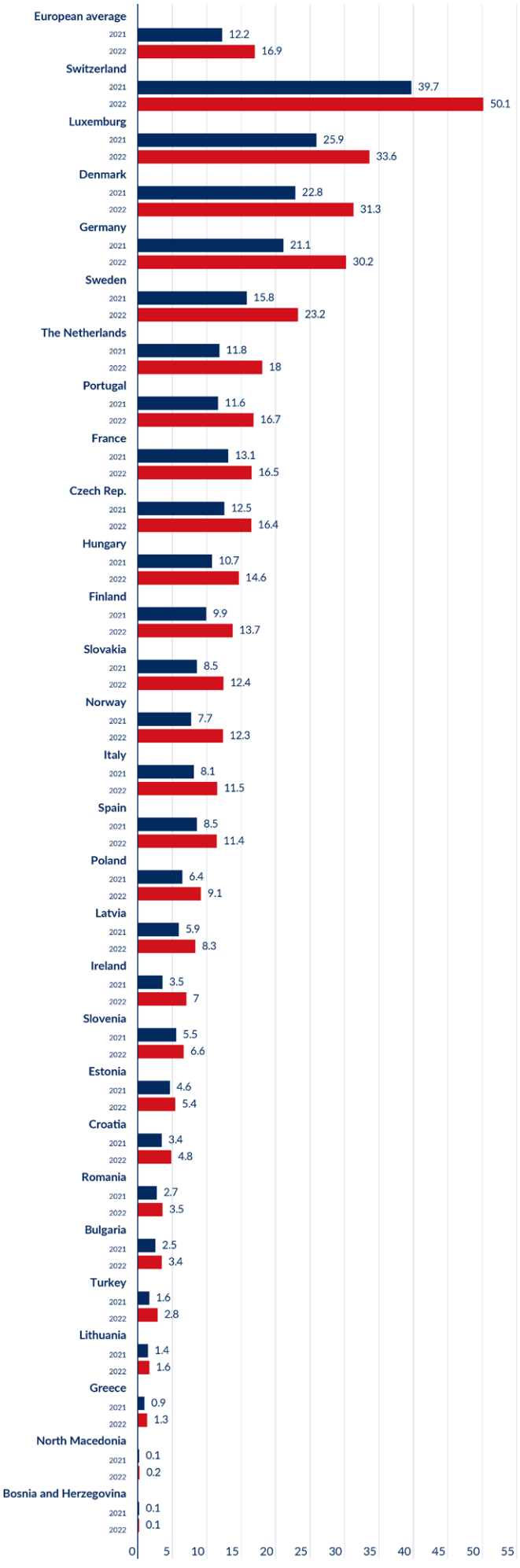
◀ Fig. 54 Dynamics of changes in the number of passengers in individual European countries in 2022 vs. 2021
Source: compiled by the company on the basis of UTK and Eurostat data.

	Dynamics 2022/2021
Ireland	105.9%
Bosnia and Herzegovina	76.4%
Turkey	73.6%
Norway	61.6%
North Macedonia	60.1%
The Netherlands	53.9%
Sweden	47.9%
Slovakia	46.7%
Germany	44.1%
Portugal	43.4%
Latvia	42.1%
Italy	40.6%
Greece	39.9%
Poland	39.6%
Finland	38.3%
Denmark	38.3%
Croatia	37.3%
Hungary	36.0%
Bulgaria	34.6%
Spain	33.9%
Luxemburg	32.8%
Czech Rep.	31.2%
Switzerland	27.2%
Romania	26.3%
France	26.0%
Slovenia	19.3%
Estonia	17.3%
Lithuania	13.1%



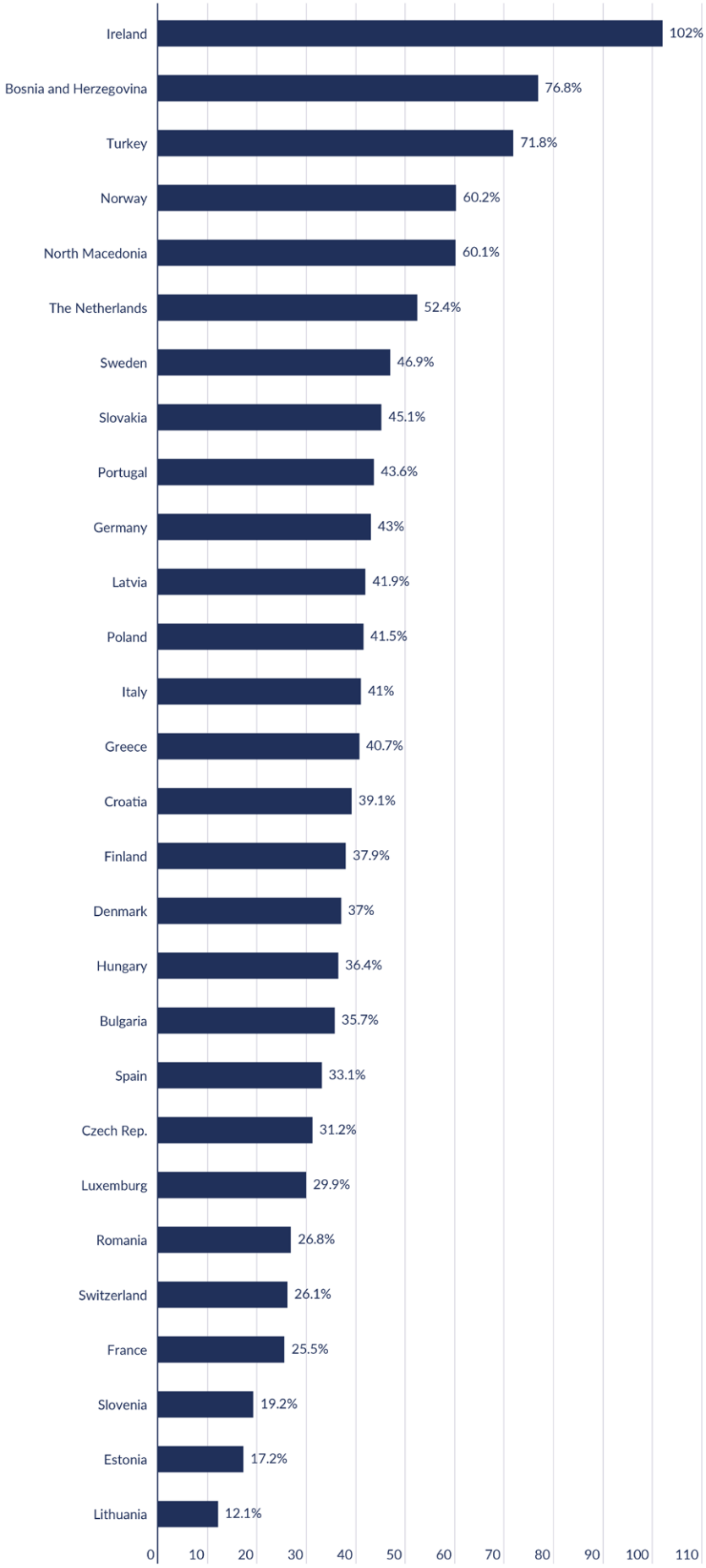
◀ Fig. 55 Share of individual European countries in the total number of rail passengers in 2021 and 2022
Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
Germany	32.4%	33.5%
France	16.5%	14.9%
Italy	8.8%	8.9%
Spain	7.4%	7.2%
Switzerland	6.4%	5.8%
Poland	4.5%	4.5%
The Netherlands	3.8%	4.2%
Sweden	3.0%	3.2%
Turkey	2.5%	3.1%
Denmark	2.5%	2.4%
Czech Rep.	2.5%	2.3%
Portugal	2.2%	2.3%
Hungary	1.9%	1.9%
Finland	1.0%	1%
Slovakia	0.9%	0.9%
Norway	0.8%	0.9%
Romania	1%	0.9%
Ireland	0.3%	0.5%
Bulgaria	0.3%	0.3%
Luxemburg	0.3%	0.3%
Croatia	0.2%	0.2%
Latvia	0.2%	0.2%
Greece	0.2%	0.2%
Slovenia	0.2%	0.2%
Estonia	0.1%	0.1%
Lithuania	0.1%	0.1%
Bosnia and Herzegovina	0.005%	0.01%
North Macedonia	0.005%	0.01%



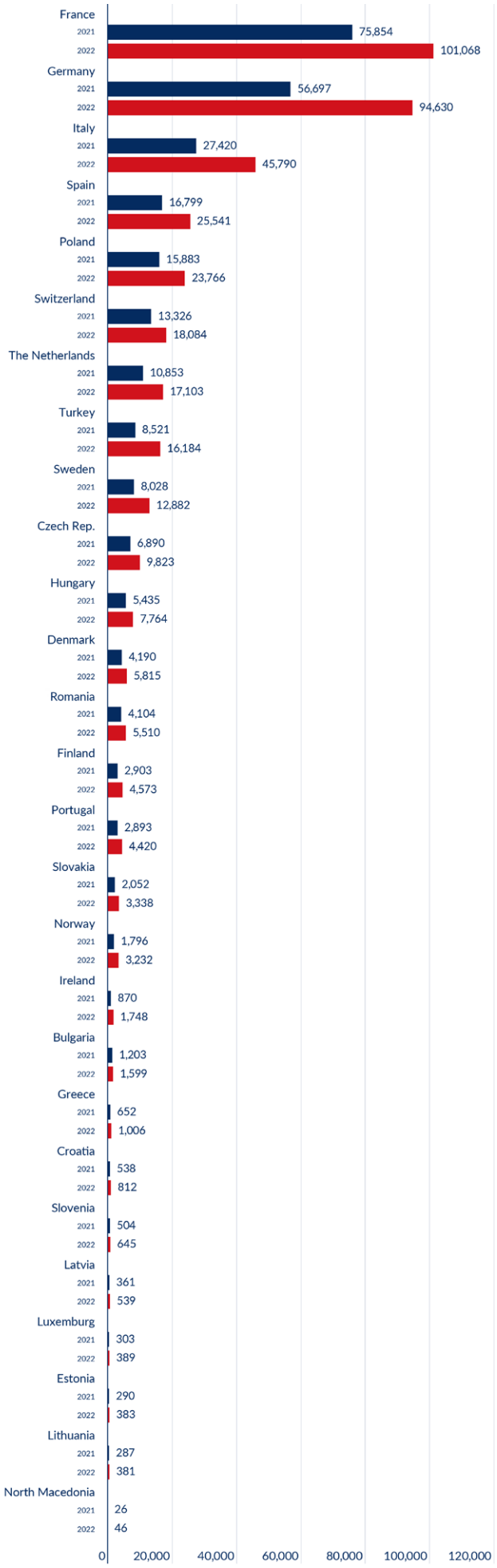
◀ Fig. 56 Railway usage rate in individual European countries in 2021 and 2022 (number of trips per inhabitant)
Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
European average	12.2	16.9
Switzerland	39.7	50.1
Luxemburg	25.9	33.6
Denmark	22.8	31.3
Germany	21.1	30.2
Sweden	15.8	23.2
The Netherlands	11.8	18.0
Portugal	11.6	16.7
France	13.1	16.5
Czech Rep.	12.5	16.4
Hungary	10.7	14.6
Finland	9.9	13.7
Slovakia	8.5	12.4
Norway	7.7	12.3
Italy	8.1	11.5
Spain	8.5	11.4
Poland	6.4	9.1
Latvia	5.9	8.3
Ireland	3.5	7.0
Slovenia	5.5	6.6
Estonia	4.6	5.4
Croatia	3.4	4.8
Romania	2.7	3.5
Bulgaria	2.5	3.4
Turkey	1.6	2.8
Lithuania	1.4	1.6
Greece	0.9	1.3
North Macedonia	0.1	0.2
Bosnia and Herzegovina	0.1	0.1



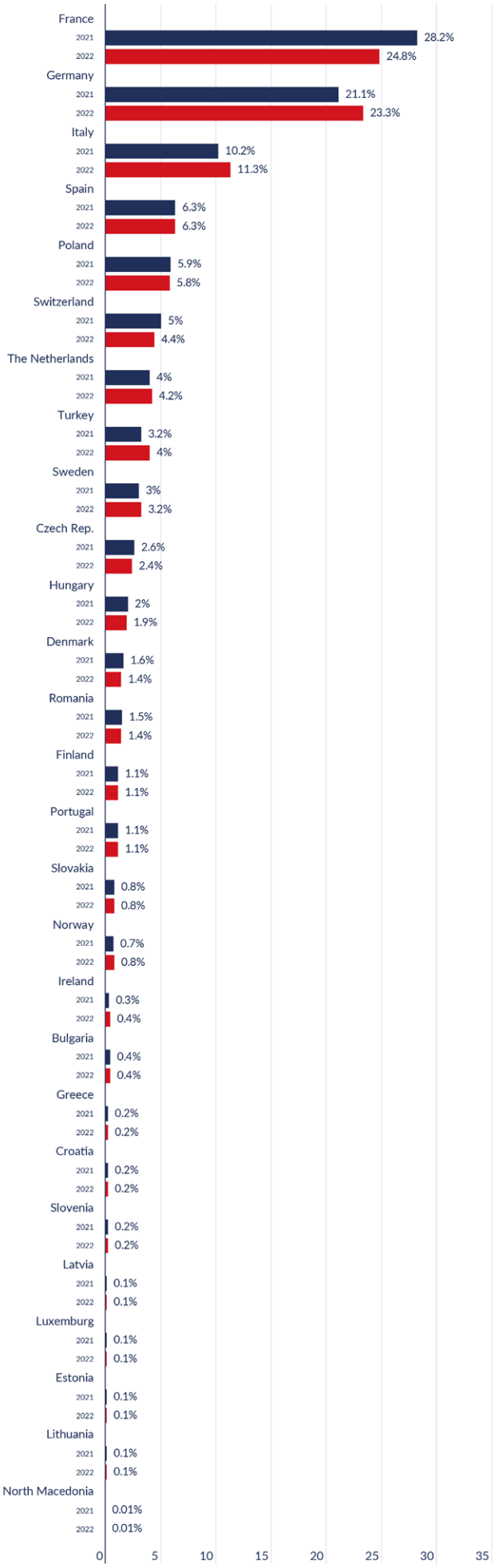
◀ Fig. 57 Dynamics of changes in the railway usage rate (number of trips per inhabitant) in individual European countries in 2022 vs. 2021
Source: compiled by the company on the basis of UTK and Eurostat data.

	Dynamics 2022/2021
Ireland	102.0%
Bosnia and Herzegovina	76.8%
Turkey	71.8%
Norway	60.2%
North Macedonia	60.1%
The Netherlands	52.4%
Sweden	46.9%
Slovakia	45.1%
Portugal	43.6%
Germany	43.0%
Latvia	41.9%
Poland	41.5%
Italy	41.0%
Greece	40.7%
Croatia	39.1%
Finland	37.9%
Denmark	37.0%
Hungary	36.4%
Bulgaria	35.7%
Spain	33.1%
Czech Rep.	31.2%
Luxemburg	29.9%
Romania	26.8%
Switzerland	26.1%
France	25.5%
Slovenia	19.2%
Estonia	17.2%
Lithuania	12.1%



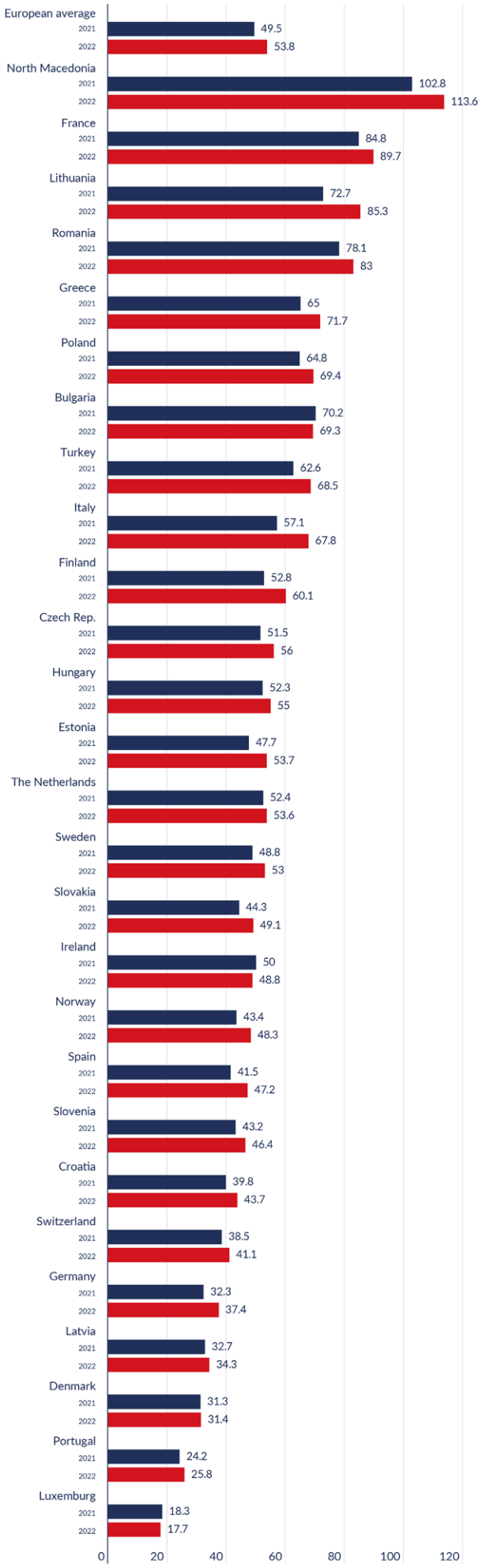
◀ Fig. 58 Transport performance in rail passenger transport in individual European countries in 2022 and 2021 (in million pass-km) Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
France	75,854	101,068
Germany	56,697	94,630
Italy	27,420	45,790
Spain	16,799	25,541
Poland	15,883	23,766
Switzerland	13,326	18,084
The Netherlands	10,853	17,103
Turkey	8,521	16,184
Sweden	8,028	12,882
Czech Rep.	6,890	9,823
Hungary	5,435	7,764
Denmark	4,190	5,815
Romania	4,104	5,510
Finland	2,903	4,573
Portugal	2,893	4,420
Slovakia	2,052	3,338
Norway	1,796	3,232
Ireland	870	1,748
Bulgaria	1,203	1,599
Greece	652	1,006
Croatia	538	812
Slovenia	504	645
Latvia	361	539
Luxemburg	303	389
Estonia	290	383
Lithuania	287	381
North Macedonia	26	46



◀ Fig. 59 Share of individual 27 European countries by total transport performance in 2022 and 2021
Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
France	28.2%	24.8%
Germany	21.1%	23.3%
Italy	10.2%	11.3%
Spain	6.3%	6.3%
Poland	5.9%	5.8%
Switzerland	5%	4.4%
The Netherlands	4%	4.2%
Turkey	3.2%	4%
Sweden	3.0%	3.2%
Czech Rep.	2.6%	2.4%
Hungary	2%	1.9%
Denmark	1.6%	1.4%
Romania	1.5%	1.4%
Finland	1.1%	1.1%
Portugal	1.1%	1.1%
Slovakia	0.8%	0.8%
Norway	0.7%	0.8%
Ireland	0.3%	0.4%
Bulgaria	0.4%	0.4%
Greece	0.2%	0.2%
Croatia	0.2%	0.2%
Slovenia	0.2%	0.2%
Latvia	0.1%	0.1%
Luxemburg	0.1%	0.1%
Estonia	0.1%	0.1%
Lithuania	0.1%	0.1%
North Macedonia	0.0%	0.01%



◀ Fig. 60 Average travel distance of 1 passenger by country in 2021 and 2022 (in km)
Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
European average	49.5	53.8
North Macedonia	102.8	113.6
France	84.8	89.7
Lithuania	72.7	85.3
Romania	78.1	83
Greece	65.0	71.7
Poland	64.8	69.4
Bulgaria	70.2	69.3
Turkey	62.6	68.5
Italy	57.1	67.8
Finland	52.8	60.1
Czech Rep.	51.5	56
Hungary	52.3	55
Estonia	47.7	53.7
The Netherlands	52.4	53.6
Sweden	48.8	53
Slovakia	44.3	49.1
Ireland	50.0	48.8
Norway	43.4	48.3
Spain	41.5	47.2
Slovenia	43.2	46.4
Croatia	39.8	43.7
Switzerland	38.5	41.1
Germany	32.3	37.4
Latvia	32.7	34.3
Denmark	31.3	31.4
Portugal	24.2	25.8
Luxemburg	18.3	17.7

2. Freight transport

2.1. The basic parameters of the freight transport market

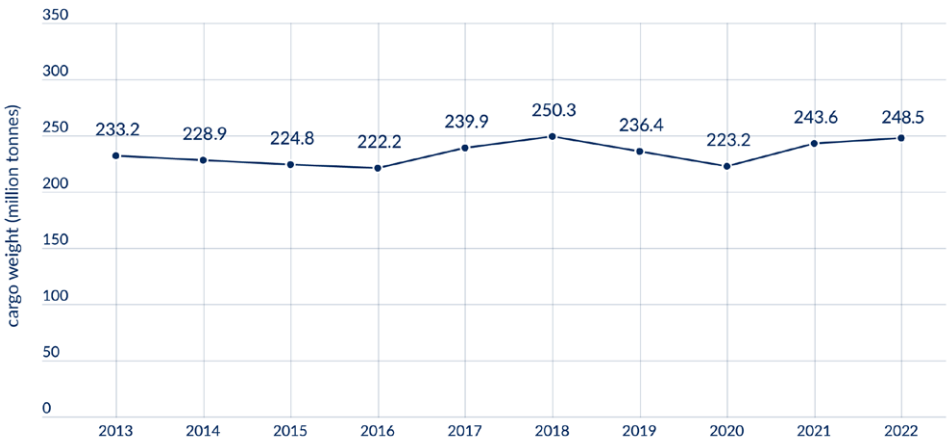
The total weight of goods transported by rail in 2022 reached the second highest result in the last 10 years. A total of 248.5 million tonnes of goods were transported by trains, an increase of 2.0% compared to the freight performance in 2021 (243.6 million tonnes). In each of the quarters, the mass transported exceeded 61 million tonnes. The highest cargo mass was carried in March, which could be linked to the outbreak of the conflict in Ukraine and the market's reaction to the uncertain situation among manufacturers, suppliers and shippers, who had to adjust to the new reality. Freight performance in March 2022 was the highest, on a monthly statement, in the last decade.

The volume of transport performance in 2022 exceeded 60 billion tonne-kilometres for the first time in more than two decades. Compared to 2021, the volume of transport performance in 2022 increased from 56.0 billion tonne-kilometres to 62.5 billion tonne-kilometres (an increase of 6.5 billion tonne-kilometres representing +11.7%). This was influenced by, for example, higher domestic freight realisation and transport from seaports.

Increased transport performance was carried out from March. On average, a monthly transport performance of 5.2 billion tonne-kilometres was carried out. Only January and February were weaker in this respect, with transport performance of no more than 4.6 billion tonne-kilometres realised in these months.

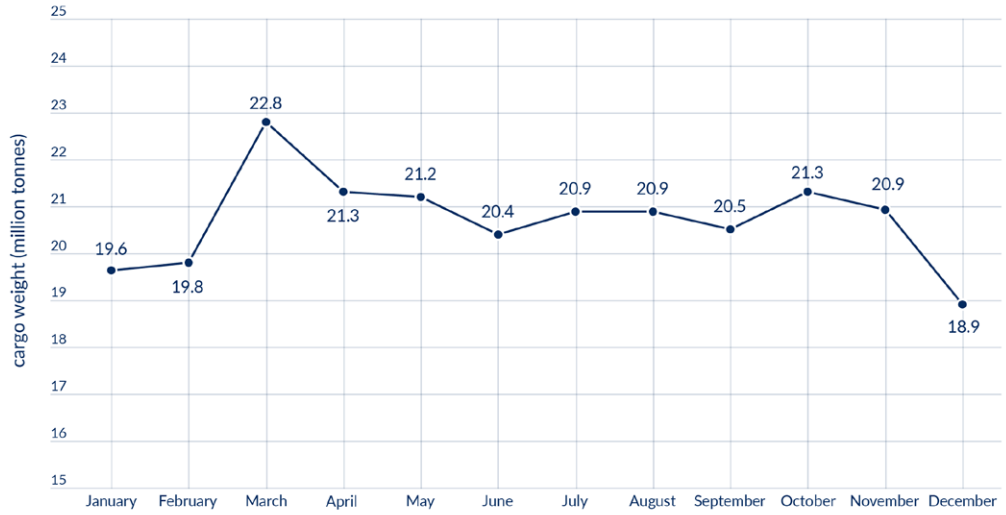
Operational performance in 2022 reached 87.0 million, the second best result for this parameter over the last decade (in 2018, operational performance reached 88.0 million train-kilometres). In 2022, 6.5% more train-kilometres were performed than the year before.

The average transport distance of 1 tonne of freight was at a record high. The chart showing the aforementioned annual average distances shows a dynamic increase in the parameter compared to previous years. This is related not only to the increased demand for transport, but also with nationwide repairs of the railway infrastructure, which extended some routes.



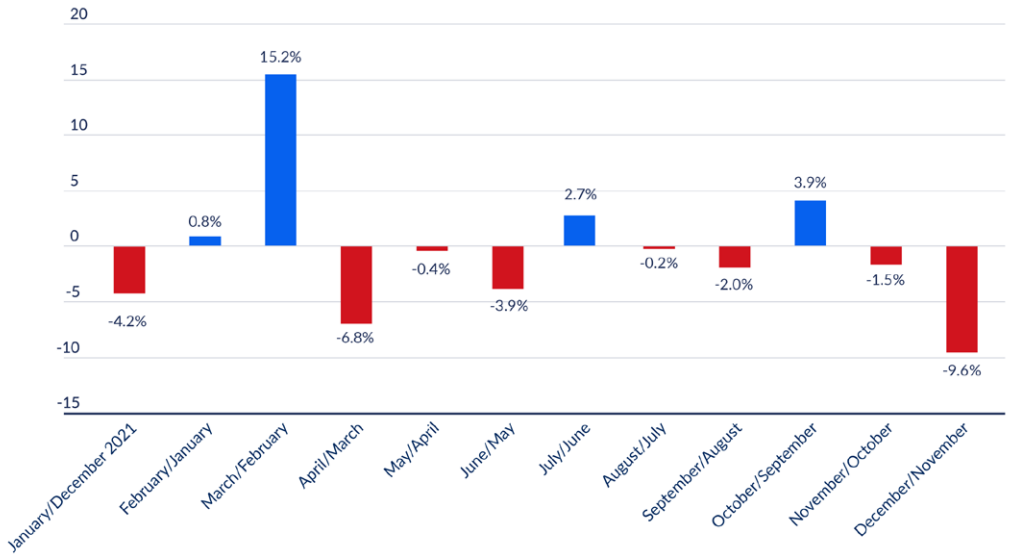
◀ Fig. 61 Cargo weight (in m tonnes) in freight rail transport in 2013 – 2022

	cargo weight
2013	19.7
2014	228.9
2015	224.8
2016	222.2
2017	239.9
2018	250.3
2019	236.4
2020	223.2
2021	243.6
2022	248.5



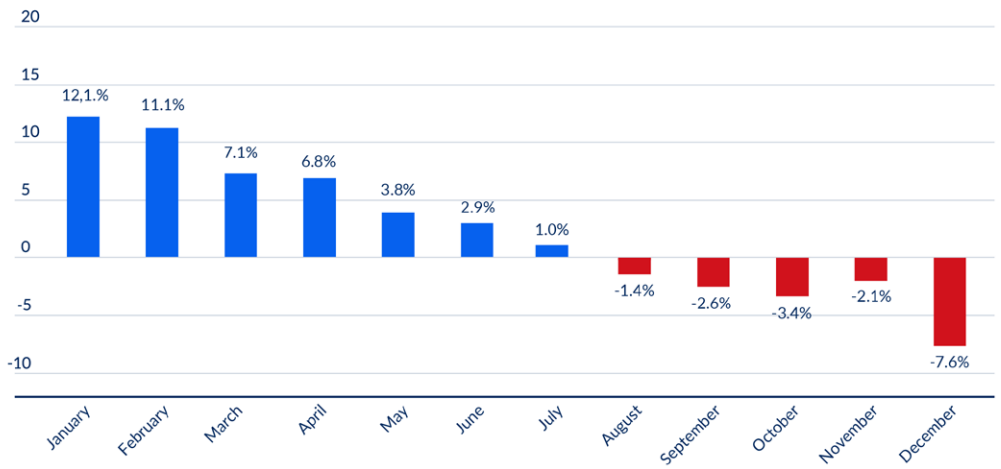
◀ Fig. 62 The weight of goods transported in individual months of 2022 (in m tonnes)

	cargo weight
January	19.6
February	19.8
March	22.8
April	21.3
May	21.2
June	20.4
July	20.9
August	20.9
September	20.5
October	21.3
November	20.9
December	18.9



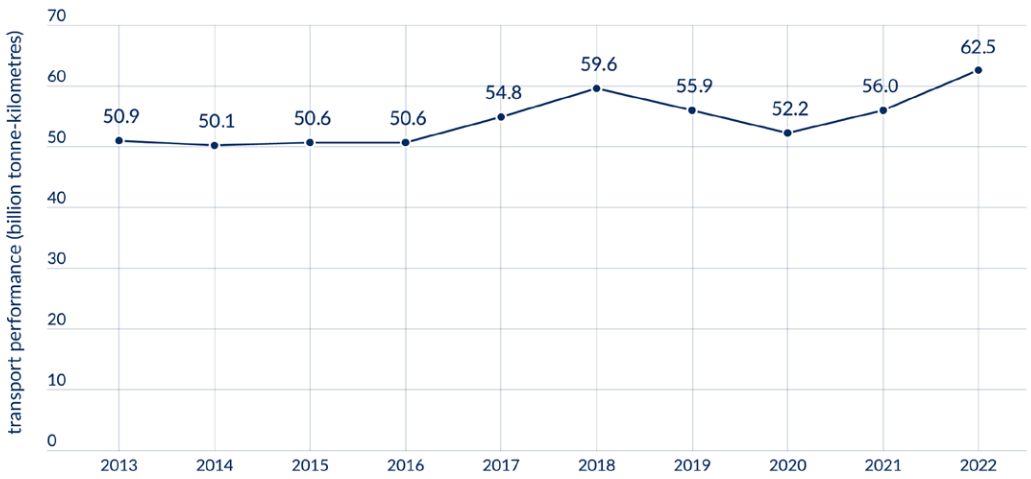
◀ Fig. 63 Month-on-month dynamics of the change in the weight of goods transported in 2022

	the dynamics of change
January/December 2021	-4.2%
February/January	0.8%
March/February	15.2%
April/March	-6.8%
May/April	-0.4%
June/May	-3.9%
July/June	2.7%
August/July	-0.2%
September/August	-2.0%
October/September	3.9%
November/October	-1.5%
December/November	-9.6%



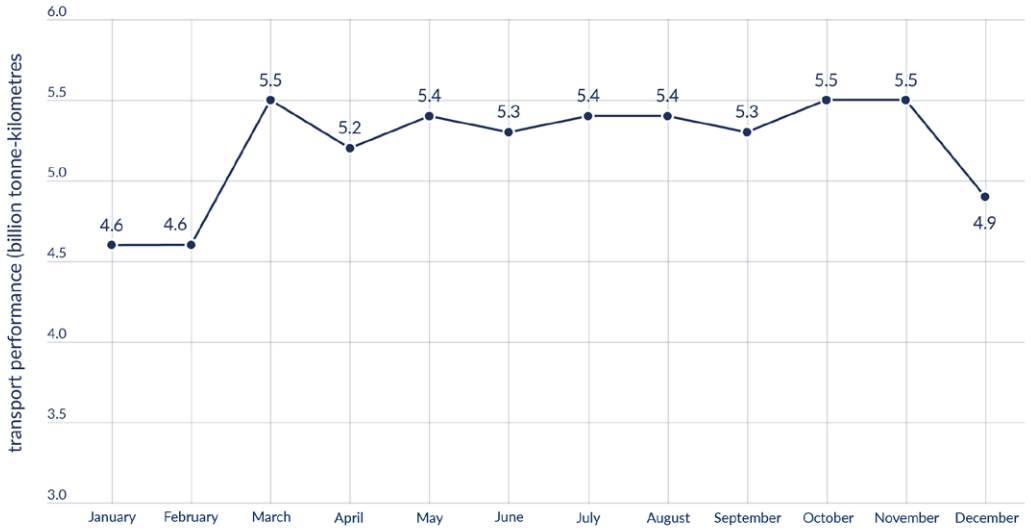
◀ Fig. 64 Month-on-month dynamics of the change in the weight of goods transported in 2022/2021

	the dynamics of change
January	12.1%
February	11.1%
March	7.1%
April	6.8%
May	3.8%
June	2.9%
July	1.0%
August	-1.4%
September	-2.6%
October	-3.4%
November	-2.1%
December	-7.6%



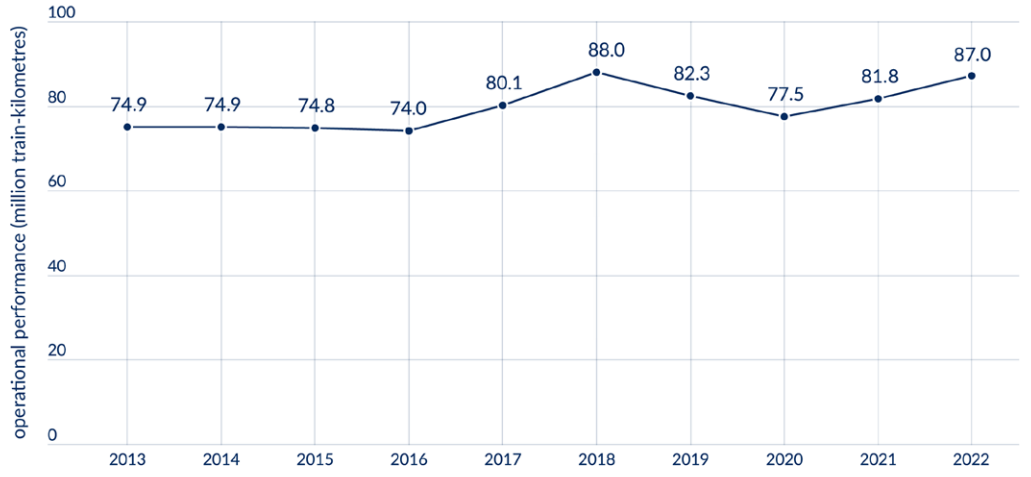
◀ Fig. 65 Transport performance in freight rail transport in 2013–2022 (billion tonne-km)

	transport performance
2013	50.9
2014	50.1
2015	50.6
2016	50.6
2017	54.8
2018	59.6
2019	55.9
2020	52.2
2021	56.0
2022	62.5



◀ Fig. 66 Transport performance (in bn tonne-km) in individual months of 2022

	transport performance
January	4.6
February	4.5
March	5.5
April	5.2
May	5.4
June	5.3
July	5.4
August	5.4
September	5.3
October	5.5
November	5.5
December	4.9



◀ Fig. 67 Operational performance in freight rail transport in 2013–2022 (in million train-km)

	operational performance
2013	74.9
2014	74.9
2015	74.8
2016	74.0
2017	80.1
2018	88.0
2019	82.3
2020	77.5
2021	81.8
2022	87.0

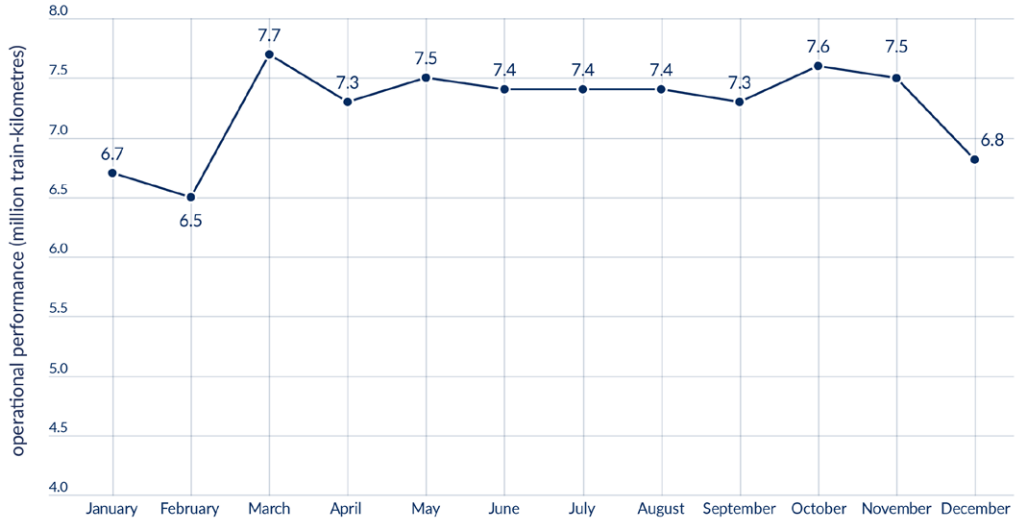


Fig. 68 Operational performance (in m train-km) in individual months of 2022

	operational performance
January	6.7
February	6.5
March	7.7
April	7.3
May	7.5
June	7.4
July	7.4
August	7.4
September	7.3
October	7.6
November	7.5
December	6.8

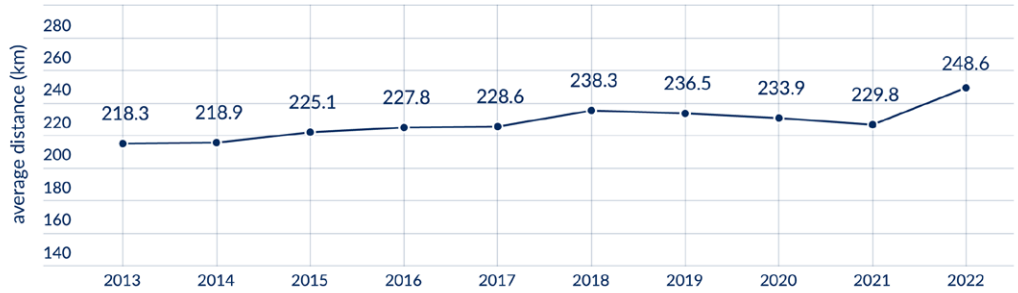


Fig. 69 Average transport distance of 1 tonne in freight rail transport in 2013–2022 (in km)

	distance
2013	218.3
2014	218.9
2015	225.1
2016	227.8
2017	228.6
2018	238.3
2019	236.5
2020	233.9
2021	229.8
2022	248.6

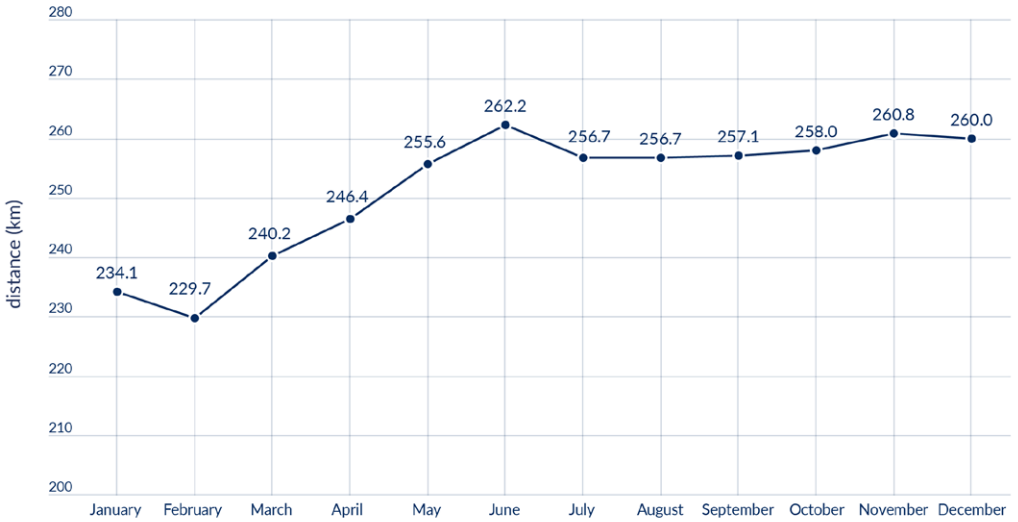


Fig. 70 Average transport distance of 1 tonne of cargo in individual months in 2022 (in km)

	distance
January	234.1
February	229.7
March	240.2
April	246.4
May	255.6
June	262.2
July	256.7
August	256.7
September	257.1
October	258.0
November	260.8
December	260.0

2.2. The main cargo groups

Two groups had the largest share in rail freight transport in 2022:

- *hard coal, lignite, oil and natural gas* – the share of this group in the total weight of goods transported and transport performance was 35.3% and 26.4% respectively, a decrease of 1.6 percentage points in weight and an increase of 2.6 percentage points in transport performance in relation to 2021.

- *metal ores and mining products* – the share of this group in weight and transport performance was 26% in the weight of goods transported and 26% in the transport performance, i.e. an increase of 1 percentage point in weight and a decrease of 0.6 of a percentage point intransport performance compared to 2021.

There have been significant changes in commodity groups and subgroups in 2022 compared to 2021. Many groups saw the largest increases or decreases over the past few years. The largest year-on-year increase took place in the *grain* subgroup, where the weight of goods transported was 386.5% higher and the transport performance 335% higher than in 2021. Such a large change was also reflected in the results of the main product group of *agriculture, hunting, forestry, fishing and fisheries*, where the rate of change was an increase of 135.9% by weight carried and 116.7% by transport performance. These results contributed to a record in the total weight of *agricultural, hunting, forestry, fishing and fishery* products transported by rail in recent years - amounting to more than 6.7 million tonnes (including 4.1 million tonnes of cereals).

A very large increase compared to 2021 was recorded in the subgroup *other construction materials*, where the weight of goods transported was 84.3% higher and the transport performance 72.8% higher. This subgroup belongs to the group of products from *other non-metallic raw materials*, in which a decrease in the volume of goods from the group of *cement, lime, gypsum* was recorded by 0.52 million tonnes of cargo (-17.3%).

Food products were another group that saw a year-on-year increase, with their transported weight increasing by 42.4% and transport performance by 31.9%.

For some groups, the dynamic pandemic situation and changing geopolitical conditions had a very strong impact on transport performance. This was the case for transport equipment, devices and electrical machinery electrical equipment, as well as furniture and other finished products. In the case of *transport equipment*, there was a decrease of 10.8% by weight and 8% by transport performance; in the group of furniture, other finished products, there was a decrease of 64.7% by weight; and in the group of *machinery, devices, electrical and electronic equipment*, the weight of goods decreased by 43.8%. The share of these groups of goods is not large, but important from the point of view of their value, in particular transport equipment or electrical machinery. Luxury goods can also be assigned to this group.

The railway undertaking is usually only responsible for the carriage of the cargo on part of the relationship and is therefore not responsible for the transport as a freight forwarder, but is merely a service provider to the freight forwarder, who carries out the process on behalf of the customer. This relationship creates a situation in which containerised cargo – often due to significant value or commercial contracts – is not precisely defined for the railway undertaking or the railway undertaking does not define this group.

The dynamically changing geopolitical situation in 2022 required appropriate action on the part of the companies responsible for the supply chain of the goods groups concerned. Some undertakings had to open up to new destinations and start transporting commodities such as coal or grain on a larger scale than in previous years. In addition, due to the EU sanctions that were imposed on Russia and Belarus, the transport of goods to and from these countries was hampered. Many shippers and cargo recipients abandoned the transport of goods via the Eurasian corridor after Russia's aggression against Ukraine.

For these reasons, the structure of groups of goods in individual quarters of 2022 was diversified. The reasons for changes in the structure of transport at that time include:

- the war that erupted after Russia's aggression against Ukraine - it affected the functioning of transport chains, but also the level of industrial production in Ukraine;

- a decrease in the rate of production using some raw materials on a global scale;

- disruptions in the supply of agricultural products due to the hampered operation of seaports in Ukraine providing transport to countries in the Middle East or Africa and the launch of new transport directions, e.g. to Poland and through Polish seaports and in transit;

- a decrease in the transport of energy raw materials from Russia and Belarus, launching new deliveries using Polish seaports;
- the presence of local restrictions, especially in China, due to the SARS-CoV-2 threat;
- the modernisation of railway infrastructure, e.g. as part of KPK investments or the railway station modernisation plan;
- a crisis in manufacturing industries, e.g. paper, steel, *automotive*.

Hard coal, lignite, oil and natural gas

The weight of cargo transported in the *hard coal, lignite, oil and natural gas* group reached in 2022. 87.8 million tonnes, with a transport performance of 16.5 billion tonne-kilometres. This group's share of the total market in 2022 was 35.3% in weight and 26.4% in transport performance. The weight of freight carried in this group is down by 2.2 million tonnes (-2.5%) compared to the 2021 results, while transport performance increased by 3.2 billion tonne-kilometres (23.9%) compared to 2021. The reason for this large disparity was, for example, the increase in the distance of international coal transport. Although the total share of the weight of coal transported in international transport increased from 22.8% to 25.5% compared to 2021, transport performance accounted for 40.0% of the transport of the hard coal, lignite, oil and natural gas group compared to 34.8% in 2021.

Metal ores and mining products

Transportation in the group of *metal ores and mining products* reached 64.6 million tonnes in 2022 and 16 billion tonne-kilometres. The share of this group in 2022 amounted to 26% of the total transported weight and 25.6% of the total transport performance. Compared to 2021, the volume of transported weight was higher by 3.7 million tonnes (6.1%), and transport performance by 1.3 billion tonne-kilometres (9%).

Aggregate transport showed a fairly strong stability, which was influenced, for example, by the continuation of modernisation works under the National Railway Programme carried out by PKP PLK. With high probability, it can be assumed that in the coming years, if all investment plans are implemented, the weight of aggregate transported will be comparable to that observed in 2022.

The group's results were mostly influenced by the transport of aggregate, which accounted for 79.4% of the transported weight and 70.6% of the transport performance. Transport services in this group were provided by 60 railway undertakings, with 12 of these recording transport of over 1 m tonnes. Aggregate transport accounted for 85.5% of the weight and 82.4% of the transport performance within the entire group of metal ores and mining products. Domestic transport was dominant in this group, accounting for 83.5% of the weight transported and 74.4% of the transport performance in this group. The role of aggregate in rail transport continues to be very important from the point of view of the supply of construction materials for infrastructure projects.

Coke, briquettes, refined petroleum products

The weight of cargo carried in the *coke, briquettes, refined petroleum products* group amounted to 2022. 30.7 million tonnes, an increase of just under 1.4 million tonnes, or 4.7% compared to the result from 2021. The transport performance performed by railway undertakings in 2022 reached the level of 10.9 billion tonne-kilometres, while in 2021 it was 10.3 billion tonne-kilometres. This group's share in total transport is 12.4% by transported weight and 17.4% by transport performance. Refined petroleum products accounted for 62.4% of the weight share of goods transported in the discussed group and 73.3% according to transport performance. Transport in the group of coke, briquettes and refined petroleum products was carried out by 32 undertakings, of which 6 carried out transports weighing more than 1 million tonnes. The share of these 6 undertakings accounted for 87.9% in terms of transported weight and 90.0% in terms of transport performance in this group.

Chemicals, chemical products

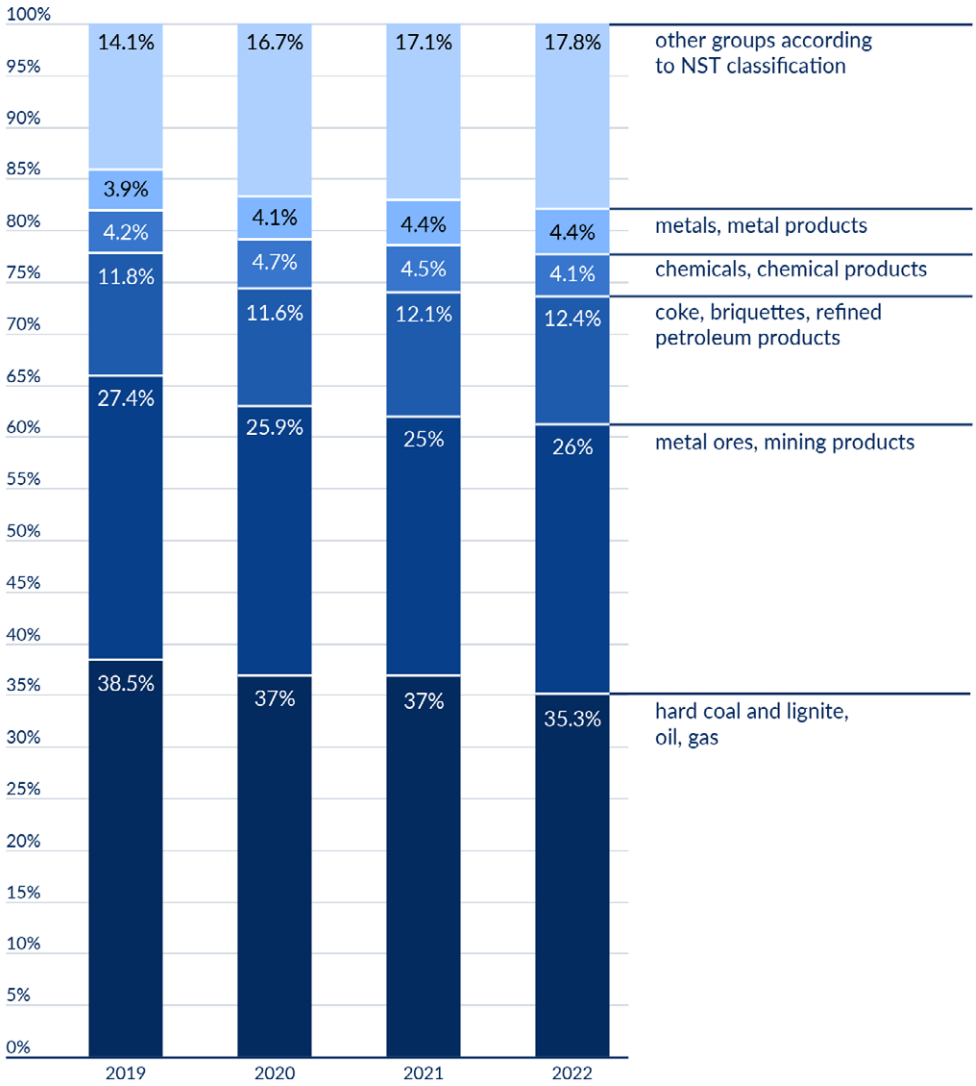
In the transport of products from the group of *chemicals and chemical products*, the weight of transported goods reached the level of 10.1 million tonnes, and the transport performance amounted to 3.3 billion tonnes. Compared to 2021, there is a decrease of 0.8 million tonnes (-7.5%) by weight and 59,000 tonne-kilometres (-1.8%) by transport performance, respectively. 28 undertakings transported commodities in this group, and 2 of them recorded transport at a level above million tonnes. The share of these two companies in the transport carried out within this group was 49.9% in terms of transported weight and 60.1% in terms of transport performance.

Metals, metal products

The geopolitical situation had a significant impact on the transport results of the metals, metal products group. Significant changes in transport in this group were visible depending on the quarter. In 2022, 11 million tonnes of goods were transported by rail within the group metals, metal products, an increase of 2.4% compared to 2021. Transport performance is 2.6 billion tonne-kilometres – the increase in transport performance was 16.7% compared to 2021. The group's share in the total volume of transport is 4.4% by weight and 4.1% by transport performance. Transport of goods from the metals and metal products group was carried out by 29 undertakings, of which 4 transported cargo exceeding 1 million tonnes. The share of these 4 undertakings in the transport of goods in this group amounted to 74.4% in terms of transported weight and 71.3% in terms of transport performance.

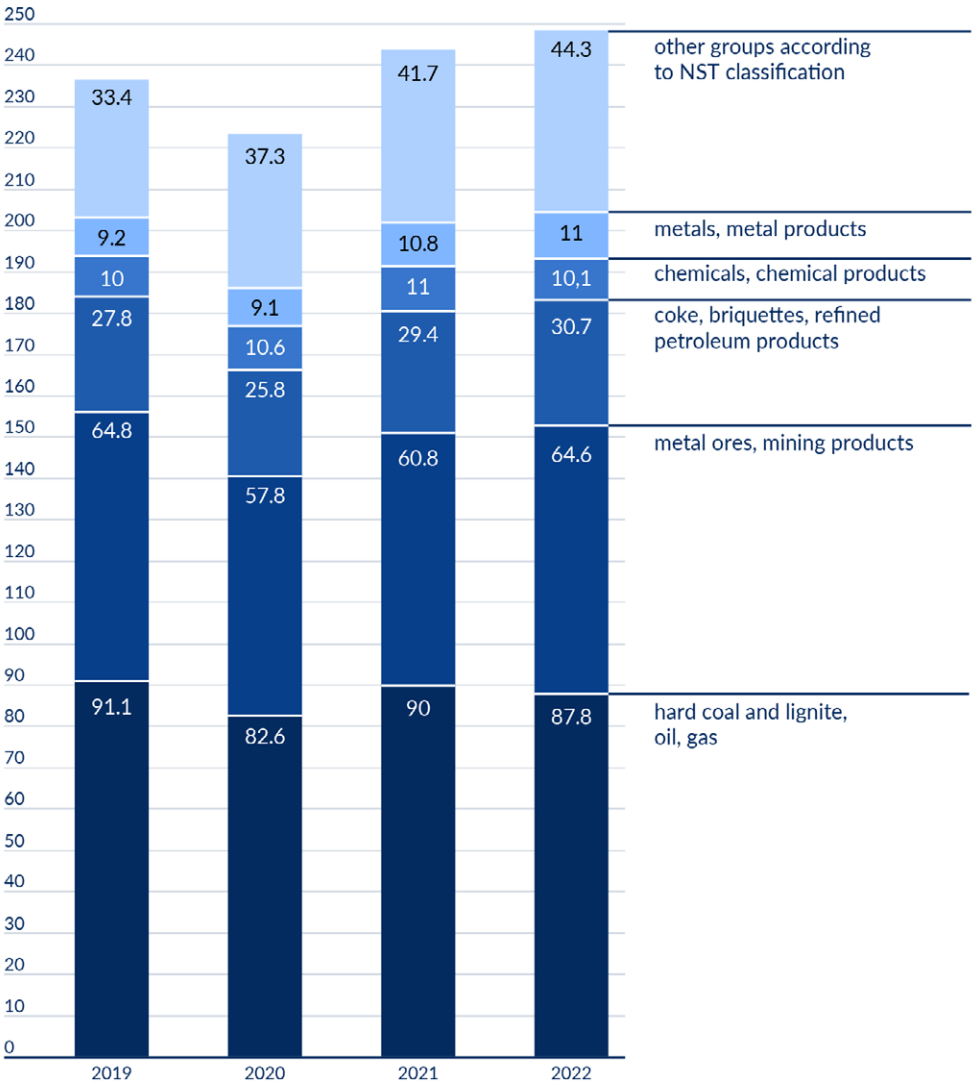
National and international communication in groups of goods

In international communication, approximately 35.6% of the weight of all freight transported was carried and 43.9% of the total transport performance was realised. In 2022, due to the geopolitical situation, the directions of international transport changed significantly. The uncertain economic situation, the introduction of sanctions by the committee and countries such as the UK and the US on the carriage of goods from selected countries, as well as changes in transport routes, have forced freight companies to carry out rail transport on new routes and relations.



◀ Fig. 71 Share of selected cargo groups in the weight of transported goods in 2019–2022

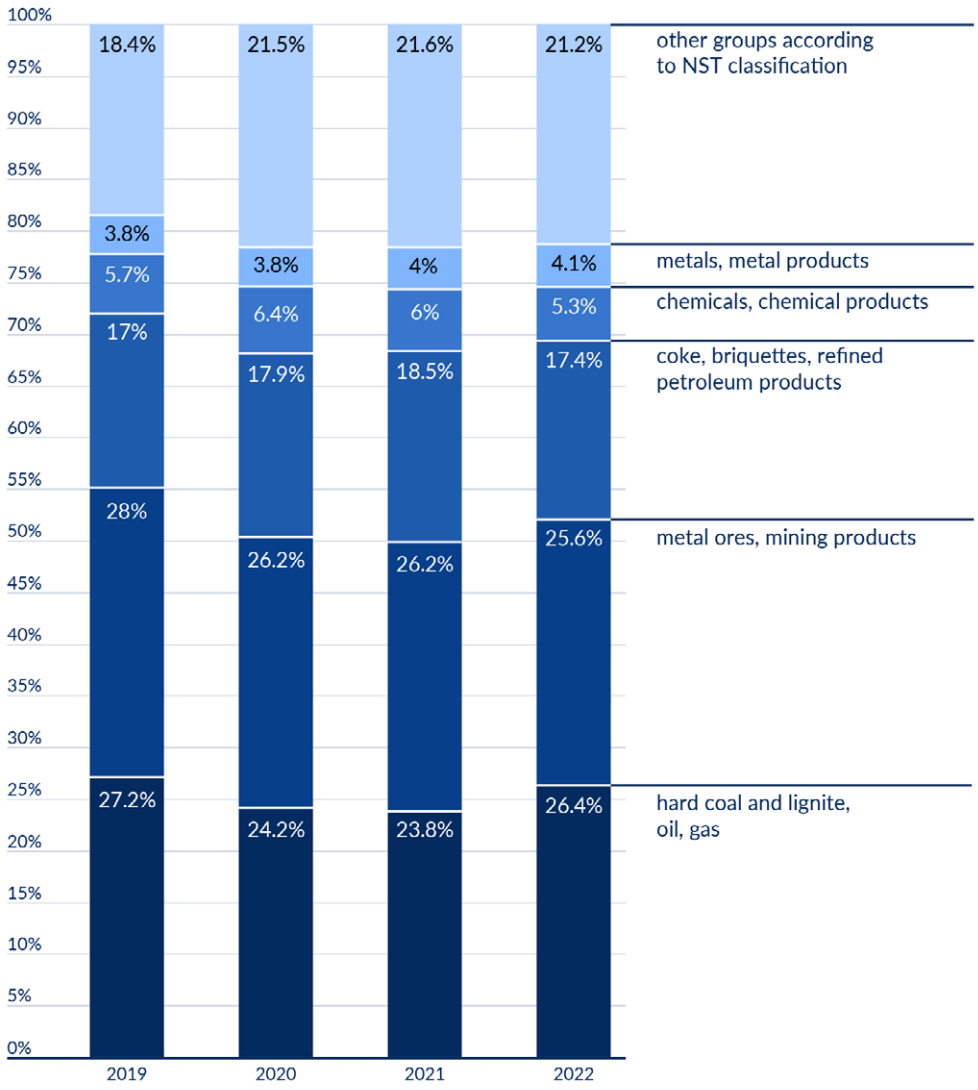
group of goods	2019	2020	2021	2022
hard coal and lignite, oil, gas	38.5%	37.0%	37.0%	35.3%
metal ores, mining products	27.4%	25.9%	25.0%	26.0%
coke, briquettes, refined petroleum products	11.8%	11.6%	12.1%	12.4%
chemicals, chemical products	4.2%	4.7%	4.5%	4.1%
metals, metal products	3.9%	4.1%	4.4%	4.4%
other groups according to NST classification	14.1%	16.7%	17.1%	17.8%



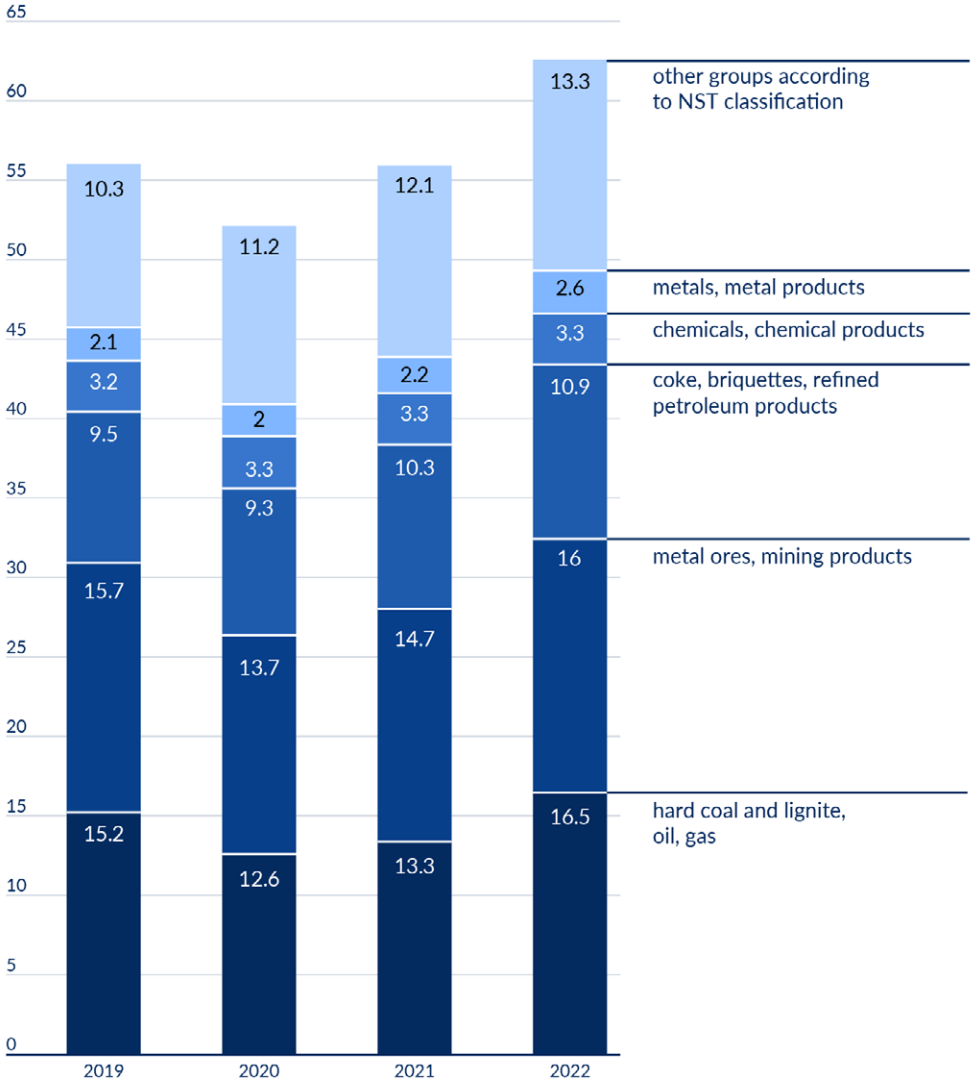
◀ Fig. 72 Weight of groups of goods transported in 2019–2022 (in million tonnes)

group of goods	2019	2020	2021	2022
total	236.4	223.2	243.6	248.5
hard coal and lignite, oil, gas	91.1	82.6	90.0	87.8
metal ores, mining products	64.8	57.8	60.8	64.6
coke, briquettes, refined petroleum products	27.8	25.8	29.4	30.7
chemicals, chemical products	10.0	10.6	11.0	10.1
metals, metal products	9.2	9.1	10.8	11.0
other groups according to NST classification	33.4	37.3	41.7	44.3

◀ Fig. 73 Share of selected cargo groups in transport performance in 2019–2022



group of goods	2019	2020	2021	2022
hard coal and lignite, oil, gas	27.2%	24.2%	23.8%	26.4%
metal ores, mining products	28.0%	26.2%	26.2%	25.6%
coke, briquettes, refined petroleum products	17.0%	17.9%	18.5%	17.4%
chemicals, chemical products	5.7%	6.4%	6.0%	5.3%
metals, metal products	3.8%	3.8%	4.0%	4.1%
other groups according to NST classification	18.4%	21.5%	21.6%	21.2%



◀ Fig. 74 Transport performance as part of the transport of selected groups of cargo in 2019–2022 (in billion tonne-km)

group of goods	2019	2020	2021	2022
total	55,9	52,2	56,0	62,5
hard coal and lignite, oil, gas	15,2	12,6	13,3	16,5
metal ores, mining products	15,7	13,7	14,7	16,0
coke, briquettes, refined petroleum products	9,5	9,3	10,3	10,9
chemicals, chemical products	3,2	3,3	3,3	3,3
metals, metal products	2,1	2,0	2,2	2,6
other groups according to NST classification	10,3	11,2	12,1	13,3

◀ Tab. 72 The weight of cargo transported within individual groups and market share in 2022

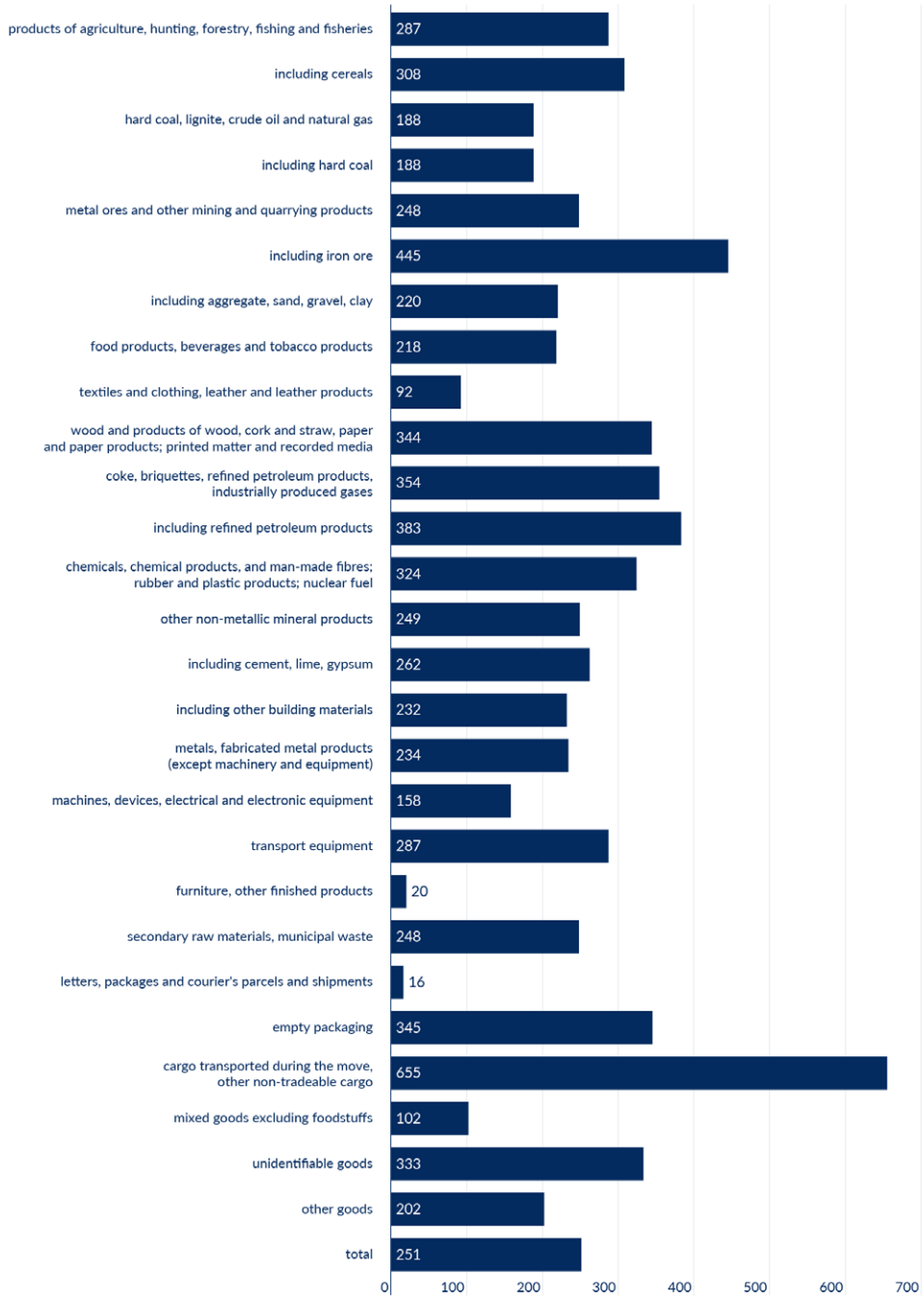
group	mass	
	total (thousand tonnes)	market share
total	248,542.055	100.00%
products of agriculture, hunting, forestry, fishing and fisheries	6,727.015	2.71%
including cereals	4,068.667	1.64%
hard coal, lignite, crude oil and natural gas	87,793.044	35.32%
including hard coal	86,336.751	34.74%
metal ores and other mining and quarrying products	64,560.935	25.98%
including iron ore	6,896.892	2.77%
aggregate, sand, gravel, clay	51,240.525	20.62%
food products, beverages and tobacco products	2,137.797	0.86%
textiles and clothing, leather and leather products	13.396	0.01%
wood and products of wood, cork and straw, paper and paper products; printed matter and recorded media	1,896.232	0.76%
coke, briquettes, refined petroleum products	30,736.623	12.37%
including refined petroleum products	20,799.388	8.37%
chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel	10,144.253	4.08%
non-metallic raw materials	3,287.162	1.32%
including cement, lime, gypsum	2,499.493	1.01%
other building materials	664.113	0.27%
metals, fabricated metal products (except machinery and equipment)	11,026.497	4.44%
machines, devices, electrical and electronic equipment	292.075	0.12%
transport equipment	1,242.702	0.50%
furniture, other finished products	90.721	0.04%
secondary raw materials, municipal waste	3,102.379	1.25%
letters, packages and courier's parcels and shipments	0.246	0.0001%
empty packaging	1,282.894	0.52%
non-tradeable cargo	0.027	0.00001%
Mixed goods excluding foodstuffs	476.093	0.19%
unidentifiable goods	22,272.735	8.96%
other goods	1,459.228	0.59%

◀ Tab. 73 Transport performance in the transport of individual groups of transported cargo and their market share in 2022

group	transport performance	
	total (thousand tonne-km)	market share
total	62,499,367	100.00%
products of agriculture, hunting, forestry, fishing and fisheries	1,931,514	3.09%
including cereals	1,251,411	2.00%
hard coal, lignite, crude oil and natural gas	16,509,850	26.42%
including hard coal	16,232,589	25.97%
metal ores and other mining and quarrying products	15,983,680	25.57%
including iron ore	3,066,659	4.91%
aggregate, sand, gravel, clay	11,281,377	18.05%
food products, beverages and tobacco products	465,717	0.75%
textiles and clothing, leather and leather products	1,232	0.002%
wood and products of wood, cork and straw, paper and paper products; printed matter and recorded media	653,025	1.04%
coke, briquettes, refined petroleum products	10,875,744	17.40%
including refined petroleum products	7,973,261	12.76%
chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel	3,289,715	5.26%
non-metallic raw materials	819,514	1.31%
including cement, lime, gypsum	654,364	1.05%
other building materials	153,886	0.25%
metals, fabricated metal products (except machinery and equipment)	2,581,853	4.13%
machines, devices, electrical and electronic equipment	46,169	0.07%
transport equipment	357,032	0.57%
furniture, other finished products	1,851	0.003%
secondary raw materials, municipal waste	768,584	1.23%
letters, packages and courier's parcels and shipments	4	0.00001%
empty packaging	442,955	0.71%
non-tradeable cargo	18	0.00003%
Mixed goods excluding foodstuffs	48,370	0.08%
unidentifiable goods	7,427,760	11.88%
other goods	294,781	0.47%

◀ Tab. 74 Dynamics of changes in weight and transport performance in the transport of individual groups of cargo – 2022/2021

grupa	weight	transport performance
total	2.01%	11.63%
products of agriculture, hunting, forestry, fishing and fisheries	135.94%	116.70%
including cereals	386.55%	335.05%
hard coal, lignite, crude oil and natural gas	-2.48%	23.87%
including hard coal	-2.70%	24.66%
metal ores and other mining and quarrying products	6.12%	8.97%
including iron ore	-6.97%	-6.46%
aggregate, sand, gravel, clay	9.82%	15.25%
food products, beverages and tobacco products	42.43%	31.94%
textiles and clothing products, leather	-43.72%	9.21%
Wood and products of wood, cork and straw, paper and paper products; printed matter and recorded media	-12.59%	-2.47%
coke, briquettes, refined petroleum products, industrially produced gases	4.66%	5.19%
including refined petroleum products	13.41%	13.84%
chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel	-7.47%	-1.76%
non-metallic raw materials	-7.05%	-5.41%
including cement, lime, gypsum	-17.30%	-13.05%
other building materials	84.26%	72.76%
metals, fabricated metal products (except machinery and equipment)	2.36%	16.73%
machines, devices, electrical and electronic equipment	-43.84%	-44.37%
transport equipment	-10.76%	-7.96%
furniture, other finished products	-64.73%	-91.72%
secondary raw materials, municipal waste	-9.72%	-9.19%
letters, packages and courier's parcels and shipments		
empty packaging	-7.25%	-0.45%
non-tradeable cargo		
mixed goods excluding foodstuffs	-15.51%	14.74%
unidentifiable goods	-1.49%	3.64%
other goods	2.72%	-6.65%



◀ Fig. 75 Average distance of transport of particular groups of cargo in 2022 (in km)

group of goods	average distance
products of agriculture, hunting, forestry, fishing and fisheries	287
including cereals	308
hard coal, lignite, crude oil and natural gas	188
including hard coal	188
metal ores and other mining and quarrying products	248
including iron ore	445
including aggregate, sand, gravel, clay	220
food products, beverages and tobacco products	218
textiles and clothing, leather and leather products	92
wood and products of wood, cork and straw, paper and paper products; printed matter and recorded media	344
coke, briquettes, refined petroleum products, industrially produced gases	354
including refined petroleum products	383
chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel	324

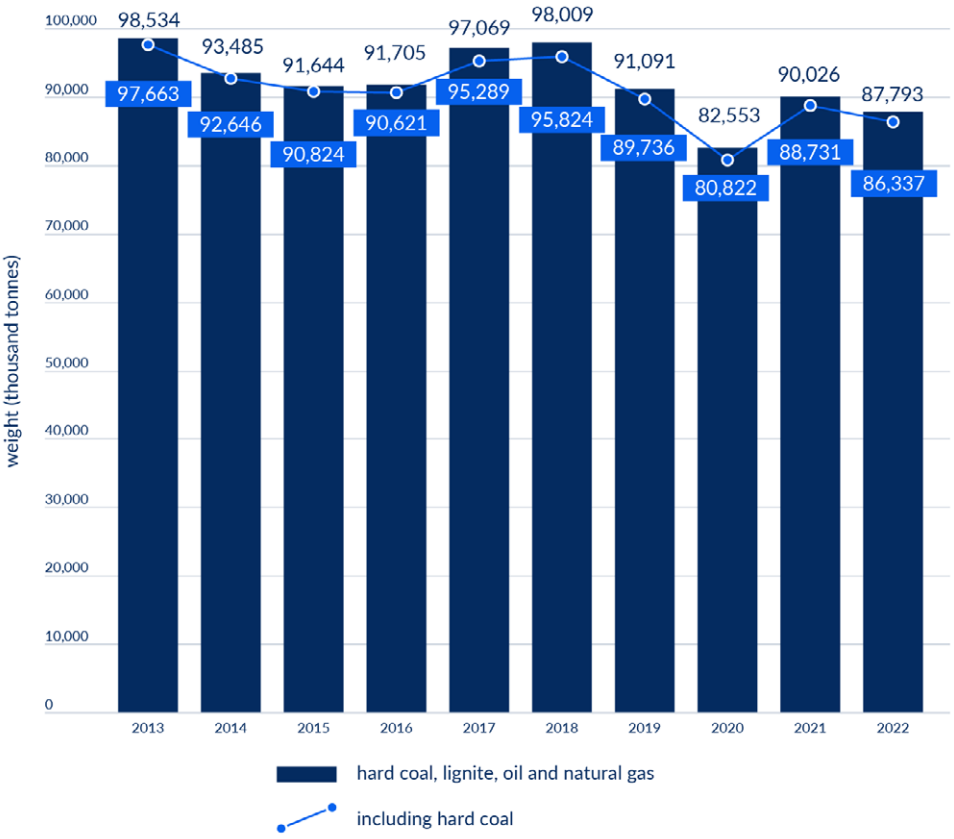
group of goods	average distance
other non-metallic mineral products	249
including cement, lime, gypsum	262
including other building materials	232
metals, fabricated metal products (except machinery and equipment)	234
machines, devices, electrical and electronic equipment	158
transport equipment	287
furniture, other finished products	20
secondary raw materials, municipal waste	248
letters, packages and courier's parcels and shipments	16
empty packaging	345
cargo transported during the move, other non-tradeable cargo	655
mixed goods excluding foodstuffs	102
unidentifiable goods	333
other goods	202
total	251

◀ Tab. 75 Weight of individual groups of transported goods in all quarters of 2022 (in thousands of tonnes)

group		1st quarter	2nd quarter	3rd quarter	4th quarter
total		62,290.95	62,833.98	62,263.05	61,154.08
products of agriculture, hunting, forestry, fishing and fisheries		996.91	1,681.70	1,949.78	2,098.62
cereals	zboża	451.59	1,052.87	1,196.82	1,367.39
hard coal, lignite, crude oil and natural gas		24,468.76	20,214.19	20,138.04	22,972.07
hard coal	węgiel kamienny	24,012.86	19,798.48	19,846.96	22,678.45
metal ores and other mining and quarrying products		14,623.81	17,309.08	17,649.58	14,978.47
iron ore	rudy żelaza	1,714.58	2,538.24	1,773.93	870.14
	aggregate, sand, gravel, clay	11,346.42	13,311.27	13,954.09	12,628.75
food products, beverages and tobacco products		398.15	460.75	596.14	682.76
textiles and clothing products, leather		4.47	2.27	4.15	2.50
Wood and products of wood, cork and straw, paper and paper products; printed matter and recorded media		518.28	689.35	397.37	291.22
coke, briquettes, refined petroleum products, industrially produced gases		7,661.87	7,636.86	7,714.80	7,723.10
including	refined petroleum products	4,852.07	5,087.13	5,309.78	5,550.41
chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel		2,592.85	2,711.91	2,467.66	2,371.83
non-metallic raw materials		756.05	952.71	897.96	680.44
including	cement, lime, gypsum	536.71	745.19	686.50	531.10
	other building materials	190.96	179.40	173.04	120.70
metals, fabricated metal products (except machinery and equipment)		2,722.63	3,254.23	2,752.87	2,296.77
machines, devices, electrical and electronic equipment		74.66	59.71	83.67	74.04
transport equipment		316.43	317.58	289.88	318.81
furniture, other finished products		23.86	41.68	17.71	7.47
secondary raw materials, municipal waste		756.06	999.57	673.72	673.03
letters, packages and courier's parcels and shipments		0.11	0.01	0.05	0.08
empty packaging		360.37	360.86	315.92	245.74
cargo transported during the move, other non-tradeable cargo		0.00	0.00	0.03	0.00
Mixed goods excluding foodstuffs		142.51	112.41	149.81	71.37
unidentifiable goods		5,647.08	5,716.11	5,653.23	5,256.31
other goods		226.11	312.99	510.69	409.44

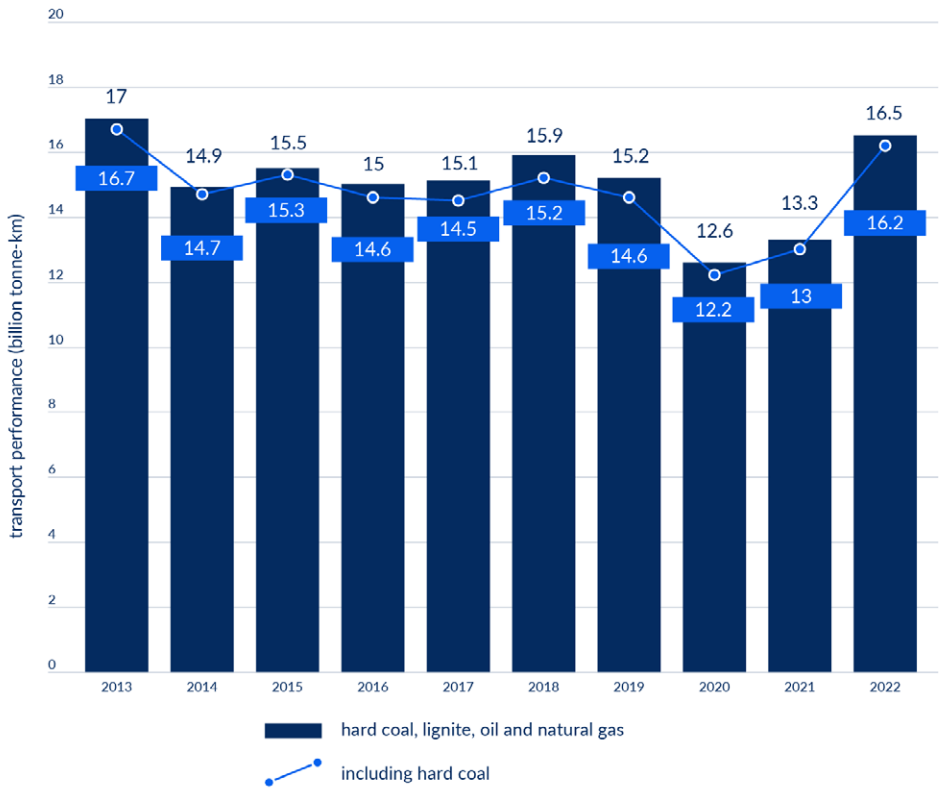
◀ Tab. 76 Transport performance in the transport of individual groups of goods in selected quarters of 2022 (in million tonnes-km)

group		1st quarter	2nd quarter	3rd quarter	4th quarter
total		14,634.37	15,998.91	15,992.53	15,873.56
products of agriculture, hunting, forestry, fishing and fisheries		291.60	437.11	555.38	647.42
including	cereals	124.30	280.74	381.22	465.15
hard coal, lignite, crude oil and natural gas		3,963.961	3,564.72	3,908.27	5,072.90
including	hard coal	3,890.65	3,488.42	3,844.01	5,009.52
metal ores and other mining and quarrying products		3,546.07	4,550.92	4,405.84	3,480.85
including	iron ore	806.87	1,137.68	731.25	390.86
	aggregate, sand, gravel, clay	2,360.45	3,024.59	3,151.61	2,744.73
food products, beverages and tobacco products		85.70	96.09	127.40	156.52
textiles and clothing products, leather		0.92	0.06	0.11	0.14
Wood and products of wood, cork and straw, paper and paper products; printed matter and recorded media		178.53	211.61	147.45	115.44
coke, briquettes, refined petroleum products, industrially produced gases		2,644.38	2,671.59	2,753.46	2,806.32
including	refined petroleum products	1,804.74	1,937.90	2,059.99	2,170.62
chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel		837.50	891.69	799.19	761.34
non-metallic raw materials		181.19	236.98	230.53	170.82
including	cement, lime, gypsum	131.56	192.27	188.27	142.28
	other building materials	47.65	43.00	38.37	24.86
metals, fabricated metal products (except machinery and equipment)		562.08	772.88	677.67	569.22
machines, devices, electrical and electronic equipment		14.00	11.71	9.54	10.92
transport equipment		95.56	91.81	82.19	87.47
furniture, other finished products		0.41	0.70	0.41	0.33
secondary raw materials, municipal waste		196.65	248.72	159.91	163.31
letters, packages and courier's parcels and shipments		0.00	0.00	0.00	0.00
empty packaging		120.30	130.73	108.43	83.50
cargo transported during the move, other non-tradeable cargo		0.00	0.00	0.02	0.00
Mixed goods excluding foodstuffs		14.21	13.29	11.83	9.03
unidentifiable goods		1,845.56	1,985.16	1,931.49	1,665.55
other goods		55.75	83.15	83.39	72.48



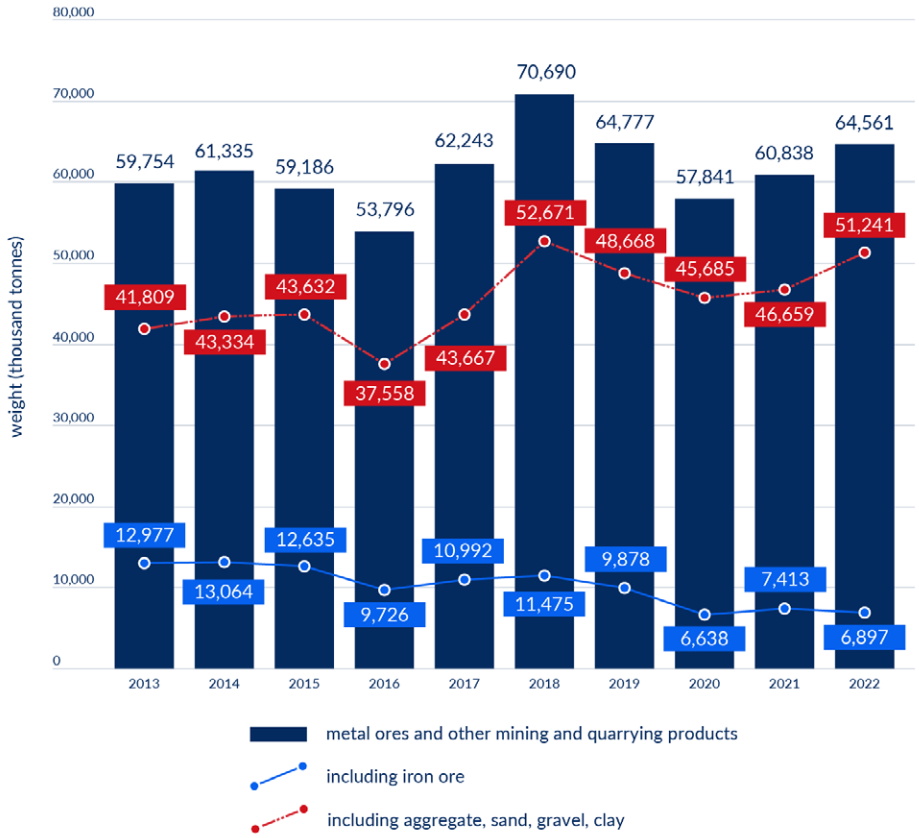
◀ Fig. 76 Weight of goods transported within the hard coal, lignite, crude oil and natural gas groups and the hard coal subgroup in 2013–2022 (in thousands of tonnes)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
hard coal, lignite, oil and natural gas	98,534	93,485	91,644	91,705	97,069	98,009	91,091	82,553	90,026	87,793
including hard coal	97,663	92,646	90,824	90,621	95,289	95,824	89,736	80,822	88,731	86,337



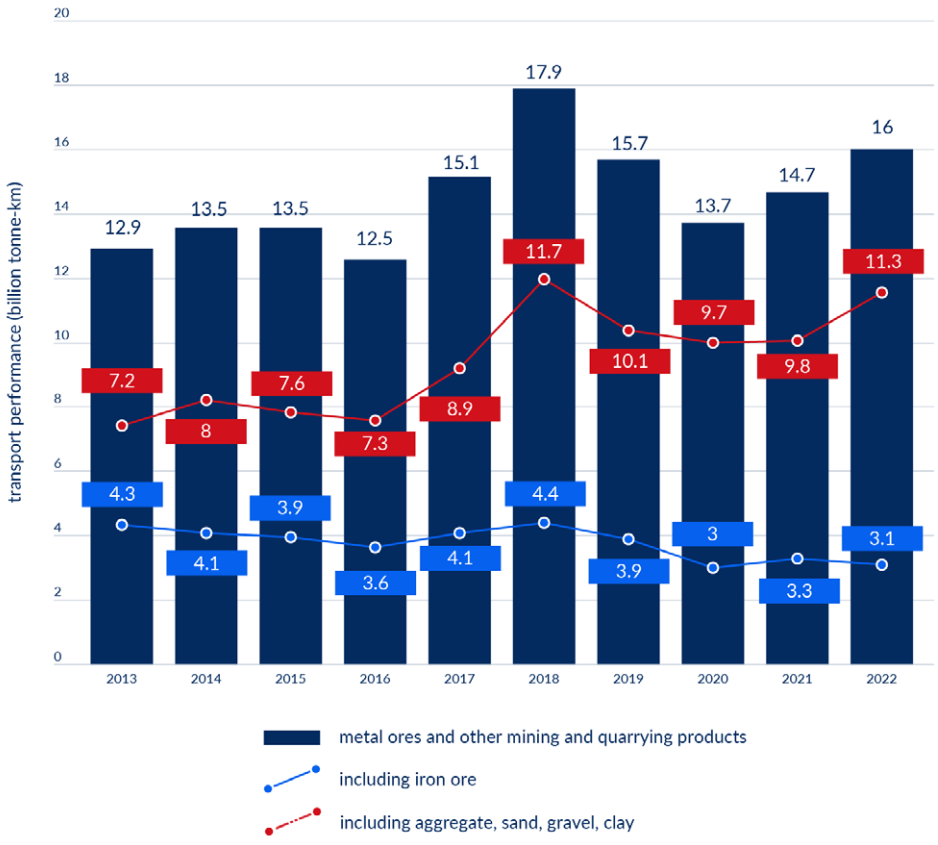
◀ Fig. 77 Transport performance performed as part of the transport of products within the hard coal, lignite, crude oil and natural gas groups and the hard coal subgroup in 2013–2022 (in thousands of tonnes)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
hard coal, lignite, oil and natural gas	17.0	14.9	15.5	15.0	15.1	15.9	15.2	12.6	13.3	16.5
including hard coal	16.7	14.7	15.3	14.6	14.5	15.2	14.6	12.2	13.0	16.2



◀ Fig. 78 Weight of goods transported within the group of metal ores, as well as other mining products and quarrying and its subgroups in the years 2013–2022 (in thousand tonnes)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
metal ores and other mining and quarrying products	59,754	61,335	59,186	53,796	62,243	70,690	64,777	57,841	60,838	64,561
including iron ore	12,977	13,064	12,635	9,726	10,992	11,475	9,878	6,638	7,413	6,897
including aggregate, sand, gravel, clay	41,809	43,334	43,632	37,558	43,667	52,671	48,668	45,685	46,659	51,241



◀ Fig. 79 Transport performance performed as part of the transport of products from the metal ore group and other mining and quarrying products and its subgroups in the years 2013–2022 (in billion tonne-km)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
metal ores and other mining and quarrying products	12.9	13.5	13.5	12.5	15.1	17.9	15.7	13.7	14.7	16.0
including iron ore	4.3	4.1	3.9	3.6	4.1	4.4	3.9	3.0	3.3	3.1
including aggregate, sand, gravel, clay	7.2	8.0	7.6	7.3	8.9	11.7	10.1	9.7	9.8	11.3

Fig. 80 Weight of goods transported under the group coke, briquettes, refined petroleum products, gases produced by industrial methods and subgroups refined petroleum productsin 2013–2022 (in thousand tonnes)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
coke, briquettes, refined petroleum products	25,219	24,646	25,628	27,089	27,576	28,084	27,823	25,807	29,369	30,737
including refined petroleum products	14,756	14,062	15,243	16,059	17,122	17,780	18,100	16,517	18,340	20,799

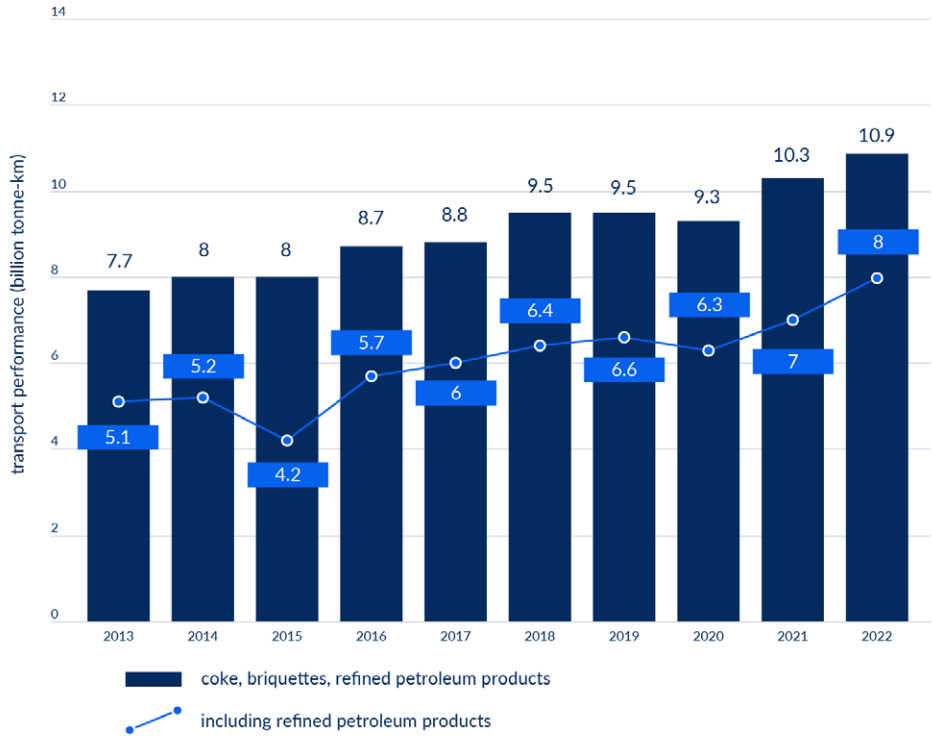
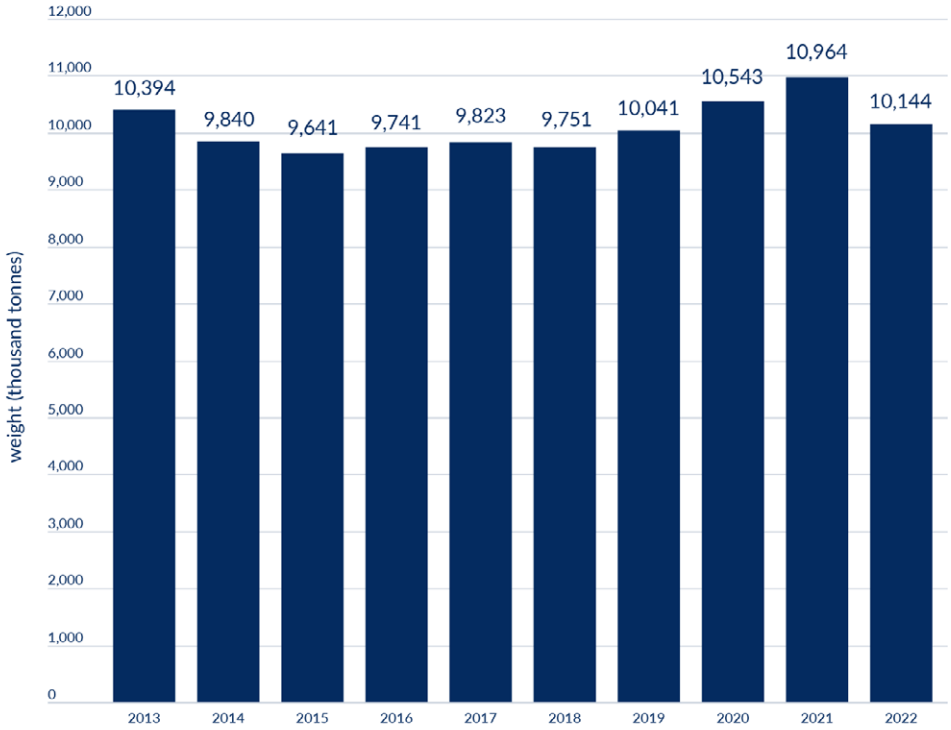


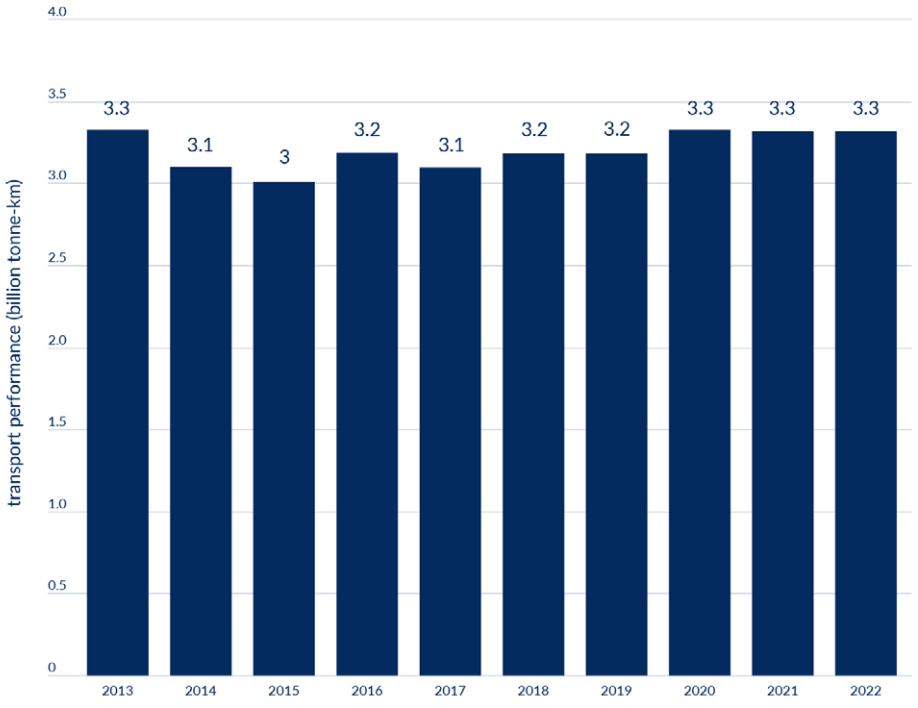
Fig. 81 Transport performance for the transport of products from the group of coke, briquettes, refined petroleum products and subgroups of refined petroleum products in 2013–2022 (in thousands of tonnes)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
coke, briquettes, refined petroleum products	7.7	8.0	8.0	8.7	8.8	9.5	9.5	9.3	10.3	10.9
including refined petroleum products	5.1	5.2	4.2	5.7	6.0	6.4	6.6	6.3	7.0	8.0



◀ Fig. 82 Weight of goods transported within the group chemicals, chemical products in 2013–2022 (in thousands of tonnes)

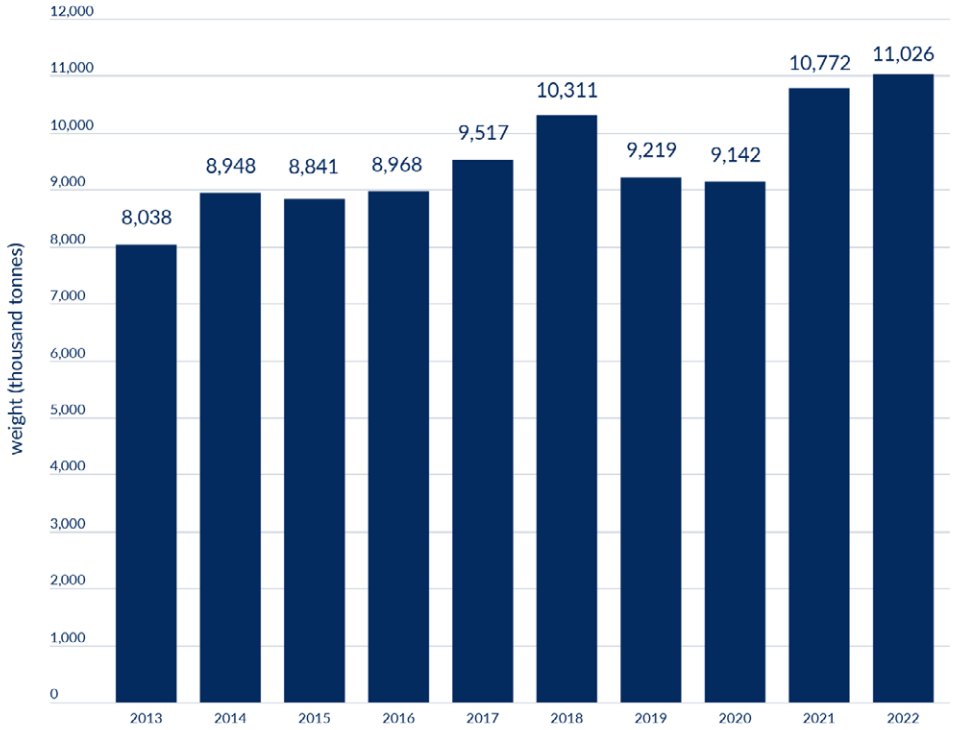
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
chemicals, chemical products	10,394	9,840	9,641	9,741	9,823	9,751	10,041	10,543	10,964	10,144



◀ Fig. 83 Transport performance performed as part of the transport of products from the group of chemicals, chemical products in 2013–2022 (in billion tonnes-km)

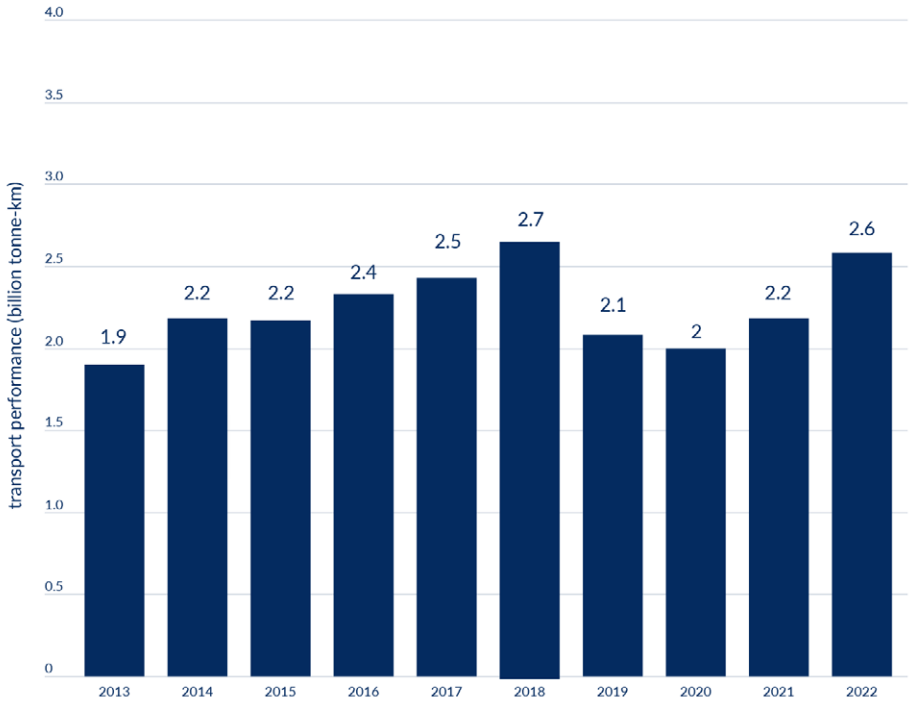
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
chemicals, chemical products	3.3	3.1	3.0	3.2	3.1	3.2	3.2	3.3	3.3	3.3

◀ Fig. 84 Weight of transport of the metals, metal products group in 2013–2022 (in thousands of tonnes)



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
metals, metal products	8,038	8,948	8,841	8,968	9,517	10,311	9,219	9,142	10,772	11,026

◀ Fig. 85 Transport performance in the group of metals, metal products in 2013–2022 (in billion tonne-km)



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
metals, metal products	1.9	2.2	2.2	2.4	2.5	2.7	2.1	2.0	2.2	2.6

◀ Tab. 77 Data on the share of a given transport type in freight transport by weight in 2022

group		domestic transport	exports	imports	transit
products of agriculture, hunting, forestry, fishing and fisheries		26.53%	19.51%	50.17%	3.79%
including	cereals	23.54%	26.37%	45.67%	4.43%
hard coal, lignite, crude oil and natural gas		74.45%	7.23%	16.14%	2.18%
including	hard coal	74.82%	7.02%	15.98%	2.17%
metal ores and other mining and quarrying products		83.49%	2.87%	11.42%	2.23%
including	iron ore	3.63%	5.07%	75.75%	15.55%
	aggregate, sand, gravel, clay	96.40%	1.21%	2.32%	0.07%
food products, beverages and tobacco products		21.16%	14.42%	64.26%	0.16%
textiles and clothing products, leather		0.11%	18.17%	67.51%	14.20%
Wood and products of wood, cork and straw, paper and paper products; printed matter and recorded media		15.45%	29.65%	41.23%	13.67%
coke, briquettes, refined petroleum products, industrially produced gases		61.96%	23.16%	13.68%	1.19%
including	refined petroleum products	77.54%	7.57%	13.96%	0.93%
chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel		43.80%	24.55%	26.64%	5.00%
non-metallic raw materials		66.26%	8.12%	25.22%	0.40%
including	cement, lime, gypsum	80.41%	3.61%	15.98%	0.00%
	other building materials	19.37%	21.15%	58.65%	0.83%
metals, fabricated metal products (except machinery and equipment)		44.22%	10.44%	39.61%	5.73%
machines, devices, electrical and electronic equipment		10.25%	50.81%	37.35%	1.59%
transport equipment		6.78%	48.95%	34.56%	9.70%
furniture, other finished products		0.06%	18.10%	81.38%	0.46%
secondary raw materials, municipal waste		63.71%	12.63%	23.01%	0.65%
letters, packages and courier's parcels and shipments		0.00%	0.00%	100.00%	0.00%
empty packaging		35.17%	36.86%	17.31%	10.66%
Mixed goods excluding foodstuffs		1.43%	27.25%	61.88%	9.44%
unidentifiable goods		17.77%	31.77%	39.38%	11.09%
other goods		80.98%	9.51%	8.29%	1.22%

◀ Tab. 78 Data on the share of a given transport type in freight transport by transport performance in 2022

group		domestic transport	exports	imports	transit
products of agriculture, hunting, forestry, fishing and fisheries		29,38%	28,77%	35,91%	5,93%
including	cereals	20,79%	37,72%	35,12%	6,37%
hard coal, lignite, crude oil and natural gas		59,97%	4,91%	27,64%	7,48%
including	hard coal	59,61%	4,86%	28,00%	7,53%
metal ores and other mining and quarrying products		74,41%	4,57%	16,62%	4,39%
including	iron ore	4,96%	5,95%	70,93%	18,16%
	aggregate, sand, gravel, clay	95,79%	2,03%	1,90%	0,27%
food products, beverages and tobacco products		37,04%	17,61%	44,98%	0,38%
textiles and clothing products, leather		0,09%	2,73%	26,22%	70,96%
Wood and products of wood, cork and straw, paper and paper products; printed matter and recorded media		22,48%	36,51%	18,92%	22,10%
coke, briquettes, refined petroleum products, industrially produced gases		65,96%	23,15%	8,92%	1,97%
including	refined petroleum products	82,93%	6,07%	9,59%	1,41%
chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel		46,58%	25,43%	19,20%	8,79%
non-metallic raw materials		77,30%	8,84%	13,43%	0,42%
including	cement, lime, gypsum	92,06%	4,07%	3,87%	0,00%
	other building materials	17,60%	27,39%	54,46%	0,55%
metals, fabricated metal products (except machinery and equipment)		23,37%	12,70%	50,58%	13,35%
machines, devices, electrical and electronic equipment		2,67%	76,42%	14,05%	6,86%
transport equipment		8,05%	43,29%	27,95%	20,70%
furniture, other finished products		0,05%	21,15%	63,79%	15,00%
secondary raw materials, municipal waste		64,07%	12,39%	22,14%	1,41%
letters, packages and courier's parcels and shipments		0,00%	0,00%	100,00%	0,00%
empty packaging		36,91%	29,89%	13,55%	19,66%
Mixed goods excluding foodstuffs		2,70%	18,43%	21,19%	57,68%
unidentifiable goods		20,62%	26,38%	32,27%	20,73%
other goods		82,92%	10,74%	4,99%	1,34%

▼ Tab. 79 List of undertakings and their involvement in the transport of individual groups of goods in 2022.

undertaking	hard coal, lignite, crude oil and natural gas	metal ores and other mining and quarrying products	metal ores and other mining and quarrying products	chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel	basic metals, fabricated metal products, (except for machinery and equipment)
Alusta	○	●	○	○	○
Alza Cargo	●	●	●	○	○
Barter	●	●	●	●	○
Bartex	●	●	○	○	○
B.R.S.	○	●	○	○	○
Budimex Kolejnictwo	○	○	○	○	○
Captrain Polska	●	●	●	●	●
Cargo PTT	○	●	○	○	○
Cargo Master	●	●	○	○	○
CD Cargo Poland	●	●	○	○	●
CEMET	○	●	○	○	○
Centrum Logistyczne w Łososnej	●	●	○	○	○
Ciech Cargo	●	●	○	●	○
Colas Rail Polska	●	●	○	○	○
CTL Logistics	●	●	●	●	●
CTL Północ	●	○	○	○	●
DB Cargo Polska	●	●	●	●	●
DB Cargo Spedkol	○	○	○	●	○
Depol	○	●	○	○	○
Ecco Rail	●	●	●	●	●
EP Cargo	●	●	●	●	○
Eurotrans	●	●	●	●	●
Damian Żur	●	●	●	●	●
Freightliner PL	●	●	○	○	●
GB Rail	●	●	○	○	○

undertaking	hard coal, lignite, crude oil and natural gas	metal ores and other mining and quarrying products	metal ores and other mining and quarrying products	chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel	basic metals, fabricated metal products, (except for machinery and equipment)
Grupa Azoty „Koltar”	●	●	○	●	○
GT-Rail	○	●	○	○	○
HSL Polska	●	●	●	●	●
IGL	●	●	○	○	○
Inter Cargo	●	●	●	○	●
IRT	●	●	●	●	●
JSW Logistics	●	○	●	○	○
Karpiel	●	●	○	○	●
Kolej Bałtycka	●	●	●	●	●
KP Kotlarnia	●	●	○	○	○
KUK	○	●	○	○	○
Lotos Kolej	●	●	●	●	●
LTE Polska	●	○	○	●	●
LTG Cargo Polska	●	○	●	●	●
LW „Bogdanka”	●	○	○	○	○
Metrans Polonia	○	○	○	○	○
Majkoltrans	○	●	○	○	○
Moris	○	○	○	○	●
Olavion	●	●	●	●	●
Omniloko	○	●	○	○	○
Orion Rail Logistics	●	●	●	○	●
Orlen Koltrans	●	○	●	●	○
PKP Cargo International	●	○	○	○	○
PKP Cargo	●	●	●	●	●
PKP Cargo Service	●	●	○	○	○
PKP LHS	●	●	●	●	●

undertaking	hard coal, lignite, crude oil and natural gas	metal ores and other mining and quarrying products	metal ores and other mining and quarrying products	chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel	basic metals, fabricated metal products, (except for machinery and equipment)
Pol-Miedź Trans	●	●	●	●	●
PPMT	○	●	○	○	○
PUK Kolprem	●	●	●	○	●
Rail Cargo	●	○	●	○	●
Rail Polska	●	●	●	●	●
Rail STM	●	●	●	○	●
Railpolonia	○	●	○	○	○
Silva L.S.	○	○	●	●	○
SKPL Cargo	○	●	○	○	○
STK	●	●	●	●	○
Swietelsky Rail Polska	○	●	○	○	○
Tabor Rail	●	●	○	○	○
T&C	○	●	●	○	○
TeKol	○	●	●	●	○
TKP Silesia	●	●	●	●	●
Torpol	○	●	○	○	○
Trakcja	○	●	○	○	○
Transchem	○	●	●	●	○
ZIK Sandomierz	●	●	○	●	○
ZUE	○	●	○	○	○
Żwirownia DOLATA	○	●	○	○	○

2.3. Speed of freight trains

The average speed of freight trains is calculated and presented in two ways:

- based on undertakings' reporting data

  As part of reporting to the President of UTK, freight railway undertakings submit information on their average commercial speed in a given year. This parameter is calculated as the quotient of the distance between the starting and ending points of the route (km) and the actual time of the scheduled route (time including stops). In order to present, on this basis, one common number for the entire market. The data received as part of the reporting is indexed to the market share of each entity in terms of operational performance[22]. The average speed of trains calculated in this way in 2022 was 23.2 km/h. This result is therefore very close to the average speed in 2021 – 23.4 km/h.

  In the chart showing the average commercial speed of freight and intermodal trains in Poland in 2013–2022 in km/h, the data was calculated using the same method.

- based on data from the SEPE2 system

  The SEPE2 system is an additional source of data on the speed of freight trains. The obtained values enable the calculation of the average speed for freight trains and intermodal trains.

  - Average speed for freight trains using data from the SEPE2 system is:
    - 27.1 km/h – calculated as the arithmetic average of the average speeds of all 446,900 freight trains routed in 2022.
    - 16.9 km/h – calculated from the speed formula, which is the quotient of distance and time. This result is obtained by dividing the total operational performance in 2022 (72,277,301 train-km) by the total journey time of freight trains (4,286,373 hours).
  - Average speed for intermodal trains using data from the SEPE2 system is:
    - 32.1 km/h – calculated as the arithmetic average of the average speeds of all 58,700 intermodal trains routed in 2022.
    - 21.1 km/h – calculated from the speed formula, which is the quotient of distance and time. This result is obtained by dividing the total operational performance in 2022 (13,973,219 train-km) by the total journey time of intermodal trains (663,686 hours).

The average commercial speed of intermodal trains in 2022, is 32.1 km/h – an increase of 1.5 km/h on this parameter compared to 2021. This result may be influenced to some extent by a reduction in the number of very low-speed intermodal train routes in the border territory. The level of average speed in intermodal transport is to some extent distorted by the relatively large number of trains running on short border routes and distances of up to a few tens of kilometres. This is because, for some undertakings, border operations are of a primary nature – e.g. for services to/from transhipment terminals. The same is true for other goods trains, if they are an important part of the undertaking's business.

One commercial freight transport relationship for a freight forwarder, for an infrastructure manager, may consist of several train paths on the manager's network and several railway undertakings carrying the same freight at different stages. The values shown refer to carriage by undertaking and by paths on the networks of the managers concerned. It is apparent that there are large differences between trains in terms of journey speeds by undertaking and on individual routes.

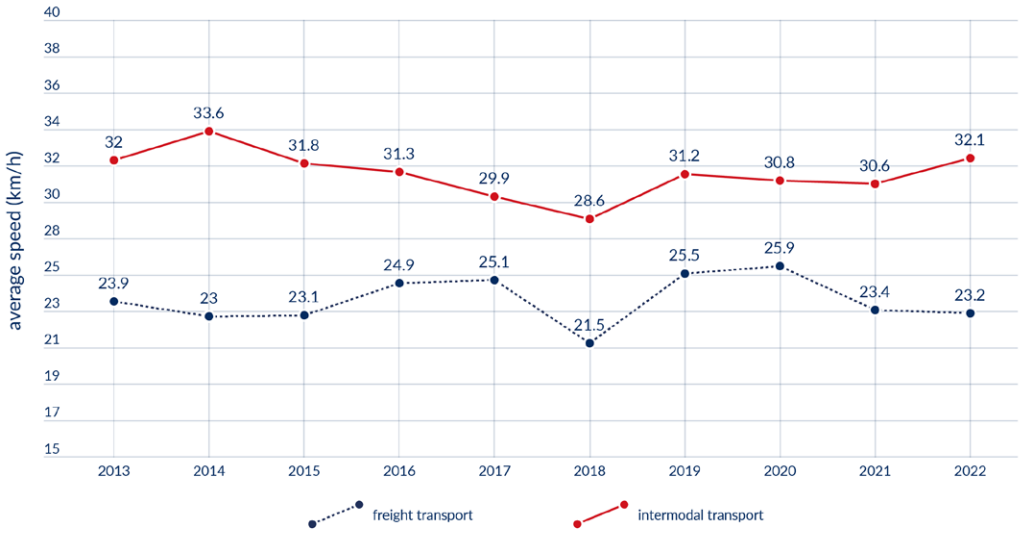
22 Where data is not provided by an undertaking, e.g. due to its suspension of operations, bankruptcy, lack of an adequate record-keeping system, etc. The average commercial speed of freight trains has also been calculated based on the average commercial speed of the SEPE system freight train paths for 2022.

Among routes over 150 km for all freight trains, 64.81% were those for which the average speed was below 30 km/h. Freight trains for which the average speed was higher than 60 km/h accounted for only 1.84%. For intermodal trains, those for which the average speed was below 30 km/h were 43.45% and trains with an average speed higher than 60 km/h accounted for 6.13%.

The most frequent direction of intermodal trains in 2022 from Gdańsk Port Północny station was Stara Wieś near Kutno. 418 trains with an average speed of 42.5 km/h (over a distance of 324 km) were routed towards the intermodal terminal located in this locality. In the opposite direction, 412 trains were checked with an average speed of 41.0 km/h.

However, the fastest train route from Port of Gdańsk is the connection to the container terminal located in Warsaw (station: Warszawa Praga WPG). In 2022, this route was covered by 324 trains with an average speed above 50 km/h (50.7 km/h). The length of this route is 317 km.

The tables show similar data in lists of intermodal trains routed from and to key stations in Poland: Gdynia Port, Rzepin and Małaszewicze Centralne. A summary of speeds for freight train routes was also presented, for routes in which over 1,000 trains were routed in 2022.



◀ Fig. 86 Average commercial speed of freight trains and intermodal trains in Poland in the period 2013–2022 (km/h)[23]

year	freight transport	intermodal transport
2013	23.9	32.0
2014	23.0	33.6
2015	23.1	31.8
2016	24.9	31.3
2017	25.1	29.9
2018	21.5	28.6
2019	25.5	31.2
2020	25.9	30.8
2021	23.4	30.6
2022	23.2	32.1

◀ Tab. 80 Data on freight trains on the network PKP PLK – number of trains, speed indicators, travel time and operational performance according to the SEPE2 system

parameters	value	unit
number of freight trains adopted for calculations	446,868	number
average of the speeds of individual routes	27.1	km/h
total journey time for freight trains	4,286,373	hours
total operational performance	72,277,301	km
average speed from the quotient of time and operational performance	16.9	km/h

23 The speed of intermodal trains between 2013 and 2018 is presented on the basis of undertakings' declarations, while the speed of intermodal trains between 2019 and 2022 is compiled on the basis of data from the SEPE/SEPE2 system (based on the average speed of all routes, assuming no account is taken of route combinations and the overall commercial relationship).

parameters	value	unit
number of freight trains adopted for calculations	58,695	number
average of the speeds of individual routes	32.1	km/h
total journey time for freight trains	663,686	hours
total operational performance	13,973,219	km
average speed from the quotient of time and operational performance	21.1	km/h

◀ Tab. 81 Data on trains intermodal on the network PKP PLK – number of trains, speed indicators, travel time and operational performance according to the SEPE2 system

	freight trains on routes longer than 150 km			
parameters	> 60 km/h	> 40 km/ ≤ 60 km/h	> 30 km/h ≤ 40 km/h	≤ 30 km/h
number of routes	3,028	23,761	31,277	106,935
share of routes	1.84%	14.40%	18.96%	64.81%

◀ Tab. 82 Number and share of routes in relation to given speed brackets on the PKP PLK network for freight trains on routes with a distance greater than 150 km in 2022

	freight trains (excluding intermodal) on routes longer than 150 km			
parameters	> 60 km/h	> 40 km/ ≤ 60 km/h	> 30 km/h ≤ 40 km/h	≤ 30 km/h
number of routes	975	13,715	24,450	92,392
share of routes	0.74%	10.43%	18.59%	70.24%

◀ Tab. 83 Number and share of routes in relation to given speed brackets on the PKP PLK network for freight trains (excluding intermodal trains) on routes with a distance greater than 150 km in 2022.

	intermodal trains on routes longer than 150 km			
parameters	> 60 km/h	> 40 km/ ≤ 60 km/h	> 30 km/h ≤ 40 km/h	≤ 30 km/h
number of routes	2,053	10,046	6,827	14,543
share of routes	6.13%	30.02%	20.40%	43.45%

◀ Tab. 84 Number and share of routes in relation to given speed brackets on the PKP PLK network for intermodal trains on routes with a distance greater 150 km in 2022

▼ Tab. 85 Data on intermodal trains on the PKP PLK network for routes from/to Gdańsk Port Północny for routes equal to or greater than 50 in 2022

connection	number of trains	average speed (km/h)	average distance (km)
Gdańsk Port Północny – Stara Wieś koło Kutna	418	42.5	324
Stara Wieś koło Kutna – Gdańsk Port Północny	412	41.0	324
Gdańsk Port Północny – Łódź Olechów Łoa	402	36.9	424
Zajączkowo Tcz. Ztb – Gdańsk Port Północny	396	37.8	31
Gdańsk Port Północny – Radomsko GT	385	40.3	512
Radomsko GT – Gdańsk Port Północny	357	36.9	512
Gdańsk Port Północny – Zajączkowo Tcz. Ztb	357	47.4	31
Gdańsk Port Północny – Warszawa Praga WPB	324	50.4	317
Warszawa Praga Wpa – Gdańsk Port Północny	252	41.1	320
Gdańsk Port Północny – Sławków Euroterminal	231	24.9	570
Kąty Wrocławskie – Gdańsk Port Północny	230	22.5	504
Sławków Euroterminal – Gdańsk Port Północny	214	22.2	568
Gdańsk Port Północny – Kąty Wrocławskie	205	34.3	502
Gdańsk Port Północny – Szamotuły	199	31.7	357
Łódź Olechów Łob – Gdańsk Port Północny	180	25.7	411
Szamotuły – Gdańsk Port Północny	167	20.8	359
Gdańsk Port Północny – Gądki	150	18.7	325
Gądki – Gdańsk Port Północny	142	19.8	324
Gdańsk Port Północny – Sławków	97	25.7	544
Sławków – Gdańsk Port Północny	95	26.5	544
Łódź Olechów Łoc – Gdańsk Port Północny	95	24.5	449
Poznań Franowo PFA – Gdańsk Port Północny	85	25.5	310
Łódź Olechów Łoa – Gdańsk Port Północny	85	24.7	409
Gdynia Port GT18 – 33 – Gdańsk Port Północny	79	23.8	35
Gdańsk Port Północny – Korsze Towarowa	66	31.9	260
Korsze Towarowa – Gdańsk Port Północny	63	22.4	260
Gdańsk Port Północny – Wrocław Swojczyce	62	38.3	498
Medyka Towarowa Ko – Gdańsk Port Północny	61	22.8	876
Gdańsk Port Północny – Zebrzydowice	58	29.3	629
Głogów Wróblin – Gdańsk Port Północny	57	18.5	576
Zebrzydowice – Gdańsk Port Północny	55	22.4	644
Wrocław Swojczyce – Gdańsk Port Północny	51	24.7	504
Gdańsk Port Północny – Brzesko Okocim GT	50	38.4	651

▼ Tab. 86 Data on intermodal trains on the PKP PLK network for relations from/to stations with the name of Gdynia Port for routes with a number greater than 25 in 2022.

connection	number of trains	average speed (km/h)	average distance (km)
Stara Wieś koło Kutna – Gdynia Port GT108-110	339	47.1	350
Gdynia Port GT108-110 – Stara Wieś koło Kutna	333	43.0	348
Zajączkowo Tcz. Ztb – Gdynia Port GT108-110	290	40.8	57
Gdynia Port GT108-110 – Zajączkowo Tcz. Ztb	281	47.0	55
Gdynia Port GT18-33 – Łódź Olechów Łoa	132	34.2	446
Poznań Franowo Pfd – Gdynia Port GT108-110	112	46.7	363
Gdynia Port GT108-110 – Poznań Franowo Pfd	106	52.9	366
Gdynia Port GT18-33 – Gądki	94	19.0	346
Terespol Pomorski – Gdynia Port GT18-33	87	22.9	144
Gdynia Port GT18-33 – Terespol Pomorski	86	27.5	144
Gdynia Port GT18-33 – Gdańsk Port Północny	79	23.8	35
Gdynia Port GT18-33 – Warszawa Praga WPB	75	43.6	339
Gądki – Gdynia Port GT18-33	74	19.8	346
Rypin – Gdynia Port GT18-33	68	25.1	229
Gdynia Port GT18-33 – Rypin	67	21.2	229
Łódź Olechów Łob – Gdynia Port GT18-33	60	21.2	434
Gliwice GlA – Gdynia Port GT108-110	49	23.4	670
Terespol Pomorski – Gdynia Port Gpa	47	30.1	142
Gdynia Port Gpa – Terespol Pomorski	44	29.6	142
Łódź Olechów Łoc – Gdynia Port GT18-33	41	12.9	469
Łódź Olechów Łoa – Gdynia Port GT18-33	36	31.2	432
Gdańsk Port Północny – Gdynia Port GT18-33	31	18.8	35
Warszawa Praga Wpa – Gdynia Port GT18-33	29	35.8	342
Gdynia Port GT18-33 – Ciechanów	29	38.7	255
Gdynia Port GT18-33 – Gliwice GlA	29	29.6	595
Gdynia Port Gpa – Gdańsk Port Północny	28	23.9	32
Ciechanów – Gdynia Port GT18-33	28	41.4	255
Stara Wieś koło Kutna – Gdynia Port Gpa	27	47.7	344
Gdynia Port Gpa – Łódź Olechów Łoa	27	40.5	448
Gądki – Gdynia Port Gpa	26	21.2	344

▼ Tab. 87 Data on intermodal trains on the PKP PLK network for relations from/to Rzepin station for relations equal to or greater than 10 trains in 2022 (not including the border area)

connection	number of trains	average speed (km/h)	average distance (km)
Rzepin – Małaszewicze Centralne	821	25.2	644
Rzepin – Swarzędz	120	41.9	186
Swarzędz – Rzepin	117	45.3	186
Zbąszynek ZkB – Rzepin	108	52.8	76
Rzepin – Poznań Franowo Pfd	101	38.3	160
Rzepin – Trakiszki	82	22.2	827
Trakiszki – Rzepin	79	21.6	830
Małaszewicze Centralne – Rzepin	67	24.7	653
Rzepin – Małaszewicze Południowe	36	33.3	641
Rzepin – Poznań Górczyn	35	35.9	152
Małaszewicze Południowe – Rzepin	32	20.2	637
Rzepin – Chotyłów	29	29.3	637
Małaszewicze Rozrządowa – Rzepin	26	32.9	647
Chotyłów – Rzepin	25	21.4	629
Poznań Franowo PFA – Rzepin	24	38.0	175
Rzepin – Zbąszynek ZkB	23	55.0	75
Rzepin – Stara Wieś koło Kutna	22	41.5	335
Rzepin – Poznań Franowo PFA	21	40.4	163
Stara Wieś koło Kutna – Rzepin	19	50.3	347
Poznań Franowo Pfd – Rzepin	18	47.8	165
Suwałki – Rzepin	16	22.6	807
Braniewo – Rzepin	14	21.2	545
Rzepin – Suwałki	14	19.9	792
Brzeg Dolny – Rzepin	10	31.6	193

▼ Tab. 88 Data on intermodal trains on the PKP PLK network for relations from/to Małaszewicze station for relations equal to or greater than 30 trains in 2022 (not including the border area)

connection	number of trains	average speed (km/h)	average distance (km)
Rzepin – Małaszewicze Centralne	821	25.2	644
Małaszewicze Centralne – Zbąszynek ZkB	452	23.5	571
Małaszewicze Centralne – Węgliniec	235	20.9	709
Węgliniec – Małaszewicze Centralne	228	20.5	712
Małaszewicze Centralne – Swarzędz	215	32.6	472
Swarzędz – Małaszewicze Centralne	214	35.2	472

connection	number of trains	average speed (km/h)	average distance (km)
Chałupki – Małaszewicze Centralne	209	41.8	553
Małaszewicze Centralne – Chałupki	203	40.3	554
Zebrzydowice – Małaszewicze Centralne	182	25.5	549
Oderbruecke – Małaszewicze Południowe	129	31.2	657
Łódź Olechów Łoc – Małaszewicze Południowe	114	31.1	299
Małaszewicze Rozrządowa – Łódź Olechów Łoa	113	29.2	300
Małaszewicze Centralne – Poznań Franowo PFA	111	26.1	479
Małaszewicze Południowe – Oderbruecke	109	22.7	657
Warszawa Praga Wpa – Małaszewicze Centralne	104	29.8	200
Czerwieńsk – Małaszewicze Centralne	99	23.1	676
Małaszewicze Centralne – Zebrzydowice	88	18.8	553
Miłkowice Towarowe – Małaszewicze Centralne	71	26.4	646
Poznań Franowo Pfd – Małaszewicze Centralne	70	26.7	484
Małaszewicze Rozrządowa – Zbąszynek ZkB	69	26.8	592
Małaszewicze Centralne – Rzepin	67	24.7	653
Małaszewicze Południowe – Poznań Franowo Pfd	65	22.2	481
Małaszewicze Centralne – Skierniewice GT 201-208	63	33.2	240
Oderbruecke – Małaszewicze Centralne	58	28.4	660
Sławków Euroterminal – Małaszewicze Centralne	50	22.1	468
Małaszewicze Centralne – Poznań Górczyn	45	21.8	499
Małaszewicze Rozrządowa – Warszawa Praga WPB	44	37.6	201
Poznań Górczyn – Małaszewicze Centralne	43	21.3	488
Poznań Franowo PFA – Małaszewicze Centralne	42	27.7	475
Rzepin – Małaszewicze Południowe	36	33.3	641
Małaszewicze Południowe – Horka Gbf	36	29.7	754
Stara Wieś koło Kutna – Małaszewicze Centralne	35	29.1	302
Horka Gbf – Małaszewicze Południowe	33	31.8	756
Małaszewicze Centralne – Łódź Olechów Łoa	32	28.6	301
Małaszewicze Południowe – Rzepin	32	20.2	637
Węgliniec – Małaszewicze Południowe	31	35.9	718
Guben – Małaszewicze Centralne	30	17.5	770
Małaszewicze Południowe – Zebrzydowice	30	36.3	521
Małaszewicze Centralne – Warszawa Praga WPB	30	40.4	203

▼ Tab. 89 Data on freight trains (without TC/TD category trains) on the PKP PLK network for more than 1,000 trains per year.

connection	number of trains	average speed (km/h)	average distance (km)
Bohumin Vrbice – Chałupki	5,986	39.7	6
Chałupki – Bohumin Vrbice	5,948	43.2	6
Zebrzydowice – Petrovice u Karvine	3,622	36.4	6
Petrovice u Karvine – Zebrzydowice	3,496	34.0	6
Park Bug – Kobylany	3,411	4.8	7
Kobylany – Park Bug	3,304	6.2	7
Węgliniec – Horka Gbf	2,484	52.7	21
Horka Gbf – Węgliniec	2,165	46.9	21
Jaszczów – Świerże Górne	2,123	21.4	130
Świerże Górne – Jaszczów	2,100	30.7	129
Kraków Nowa Huta NHEO – Dąbrowa Górnicza Towarowa	1,789	25.7	99
Oderbruecke – Rzepin	1,649	54.6	19
Mostiska 2 – Medyka	1,514	4.9	7
Medyka – Mostiska 2	1,505	7.1	7
Dąbrowa Górnicza Towarowa – Kraków Nowa Huta Nhc	1,492	30.7	100
Lubin Kghm Bsz – Głogów Wróblin	1,478	19.8	57
Jęzor Centralny JCA – Jaworzno Szczakowa JSB	1,448	13.4	10
Głogów Wróblin – Lubin Kghm Bsz	1,439	23.3	57
Wapienno – Inowrocław Chemia	1,351	32.6	21
Kuźnica Białostocka – Bruzgi	1,310	7.3	6
Bruzgi – Kuźnica Białostocka	1,296	7.0	6
Dąbrowa Górnicza Towarowa – Pawłowice Górnicze	1,251	23.5	106
Gdańsk Wiślany – Gdańsk Zaspa Towarowa	1,168	14.7	3
Jaworzno Szczakowa JSE – Jęzor Centralny JCA	1,165	15.4	11
Rzepin – Oderbruecke	1,158	59.7	19
Siemianówka – Świsłocz	1,134	21.6	22
Świsłocz – Siemianówka	1,123	21.0	22
Inowrocław Chemia – Wapienno	1,103	34.5	21
Cesky Tesin Towarowy – Zebrzydowice	1,030	24.8	17
Plavec – Muszyna	1,021	34.9	14
Dorohusk – Jagodin	1,008	23.0	7
Jagodin – Dorohusk	1,006	22.0	7

2.4. Freight transport licensing

The UTK President is competent to grant, refuse to grant, amend, suspend or revoke a railway undertakings licence. He also supervises railway undertakings in terms of compliance with the conditions specified in the licence and requirements arising from the Railway Transport Act. In exercising these powers, the President of UTK in 2022:

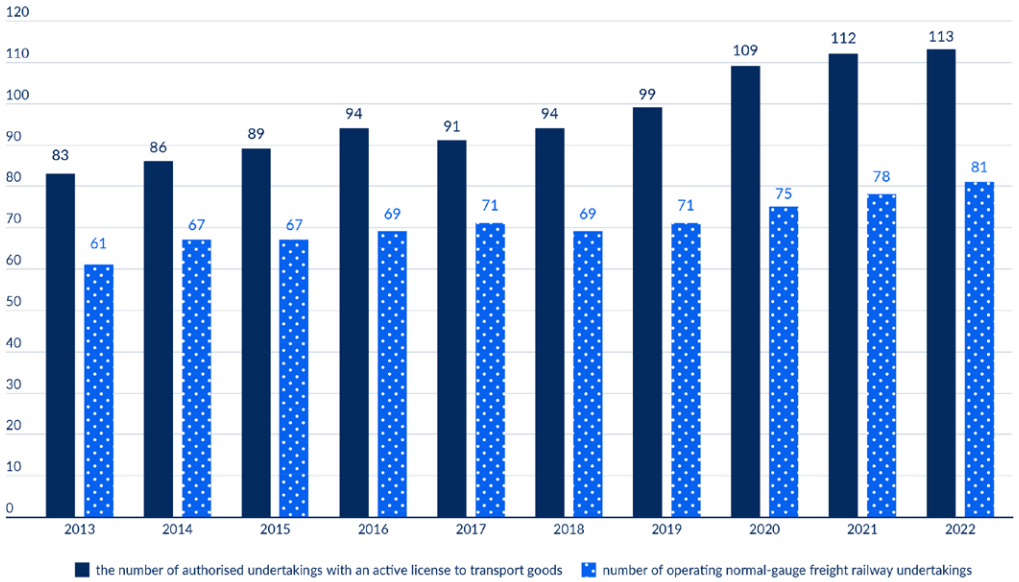
- granted one licence for the activity consisting in freight transport, passenger transport and traction services (G&K Rail Transport sp. z o.o.);
- granted six licences for the business of freight transport and traction services (Andrex Logistics sp. z o.o.; Dab Rail sp.z o.o.; Bałtycki Serwis Kolejowy sp. z o.o.; Cargoway sp. z o.o.; GP Rail sp. z o.o.; RC Trans Rail sp. z o.o.);
- granted three licenses for the provision of freight transport (Dolata sp. z o.o.; METRANS Rail sp. z o.o.; 'Pol-Carbon' Mechanical Coal Processing Plant sp. z o.o.);
- extended the scope of the licence to one undertaking to provide traction services (Rail STM sp. z o.o.);
- two undertakings had their licence for freight transport and traction services withdrawn (Logistic Centre in Łososna sp. z o.o. in bankruptcy; STK S.A. in restructuring);
- revoked the license for the provision of freight transport from two undertakings (Cognor S.A.; Rail Plus sp. z o.o.);
- suspended the license for the provision of freight transport, passenger transport and traction services for one undertaking (Cargo - Polska sp. z o.o.);
- suspended the license for the provision of freight transport and traction services for one undertaking (Rail Force One Poland sp. z o.o.);
- suspended the license for the provision of freight transport to one undertaking (Alfa Logistik sp. z o.o.);
- in the case of one entrepreneur confirmed the expiry of the licence for freight transport (Colas Rail Polska sp. z o.o.)
- gainst one entrepreneur, he stated the expiry of the licence for the activity consisting in freight transport and traction service (Wiskol 1 sp. z o.o.).

At the end of 2022, 113 undertakings held active licences (excluding suspended ones), authorising them to carry out their activities. Throughout 2022 102 railway undertakings demonstrated the performance of operational performance (i.e. at least one journey, including a journey in bulk or an empty train), of which 81 railway undertakings were operating and demonstrated bulk carriage.

Among the 91 undertakings with a railway undertakings licence for the carriage of goods, granted by the President of UTK, as the leading one, operating on the standard-gauge infrastructure of another manager, which showed operational performance in 2022, 88 undertakings had insurance for a guarantee sum not lower than the minimum required value, which is the Polish zloty equivalent of EUR 2,500,000 (i.e. PLN 11,472,250 according to the exchange rate as at 3 January 2022), and the average insurance guarantee sum was PLN 36,814,446. Three undertakings had valid civil liability insurance policies for an amount that needed to be increased to the equivalent of €2,500,000 in accordance with the applicable regulations.

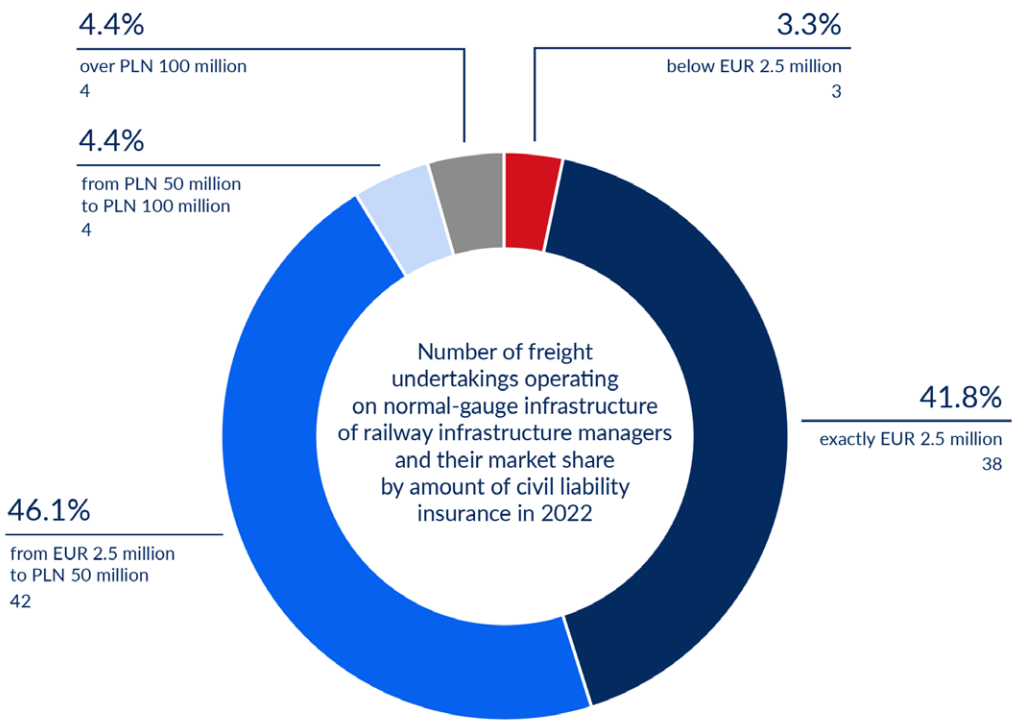
Of the 88 undertakings listed, 38 had insurance with an amount equal to the minimum sum assured required (€2,500,000), giving an average value of PLN 11,472,250. In the group of 42 undertakings having insurance with a guarantee sum between €2,500,000 (i.e. PLN 11,472,250) and PLN 50,000,000, the average value of the insurance was PLN 23,635,765 and in the group of four undertakings having insurance with a guarantee sum between PLN 50,000,000 and PLN 100,000,000, the value was PLN 94,089,550. Four undertakings holding a licence for the carriage of goods provided in their policy a sum assured of more than PLN 100,000,000 (average value PLN 361,133,625).

Undertakings carrying out carriage of goods by rail on their own normal gauge infrastructure are obliged by the Railway Undertaking Insurance Regulation to establish a minimum guarantee sum of civil liability insurance amounting to the Polish zloty equivalent of EUR 250,000 (i.e. PLN 1,147,225 according to the exchange rate as at 3 January 2022). There is one freight undertaking in this group. It had insurance for a guarantee sum higher than the minimum required.



◀ Fig. 87 Number of licensed freight railway undertakings in 2013–2022

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
the number of authorised undertakings with an active license to transport goods	83	86	89	94	91	94	99	109	112	113
number of operating normal-gauge freight railway undertakings	61	67	67	69	71	69	71	75	78	81



◀ Fig. 88 Number of freight undertakings operating on normal-gauge infrastructure of railway infrastructure managers and their market share by amount of civil liability insurance in 2022.

the amount of the guarantee sum of the civil liability insurance	number	share
below EUR 2.5 million	3	3.3%
exactly EUR 2.5 million	38	41.8%
from EUR 2.5 million to PLN 50 million	42	46.1%
from PLN 50 million to PLN 100 million	4	4.4%
over PLN 100 million	4	4.4%

2.5. The freight railway undertakings market

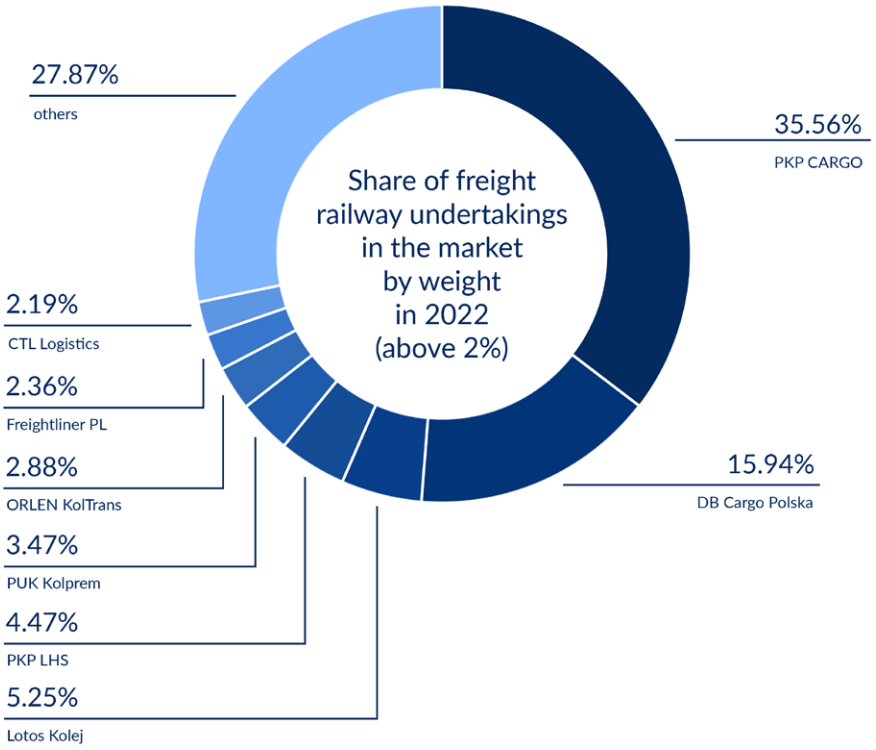
In 2022, a total of 102 railway undertakings provided rail transport. Of these, 81 companies performed them as freight transport and 20 only as operational performance. The number of operators that influenced the volume of freight transported increased by 3 entities relative to 2021.

Among the undertakings that carried freight, 43 increased the weight carried. In addition 5 new entities carried transport for the first time, and one undertaking that did not report transport in 2021 did so in 2022. There was a decrease in this for 32 companies, and a further 3 that reported transport in 2021 and did not do so in 2022.

In 2022, the number of companies that exceeded 1% market share by weight of freight transported increased to 20. A year earlier, their number amounted to 18. PKP Cargo, which is the leader, saw its market share in terms of weight of goods carried fall (from 36.66% in 2021 to 35.56% in 2022). PKP Cargo saw a decrease in the weight of goods carried from 89.3 to 88.4 million tonnes. The second largest undertaking in terms of market share, DB Cargo Polska, saw its market share fall from 16.79% to 15.94%. In 2022, this company carried a weight of 39.6 million tonnes compared to 40.9 million tonnes the year before. Lotos Kolej, the third largest company in terms of share, also saw a decline, despite an increase in transport from 12.9 million in 2021 to 13.0 million in 2022.

In 2022, as in 2021, 17 companies recorded a market share in terms of transport performance above 1%. In this respect, also the leader, i.e. PKP Cargo, saw its share fall from 40.72% to 39.36% despite an increase in transport performance (from 22.8 billion tonne-km 2021 to 24.6 billion tonne-km in 2022). The second-largest undertaking in terms of market share in terms of transport performance, Lotos Kolej, saw an increase in transport performance from 5.6 billion tonne-km to 5.7 billion tonne-km, but this also saw a decline in market share (from 10.0% to 9.08%). DB Cargo Poland, the third company in this respect, was in fourth place in 2021 and its transport performance increased from 2.9 tonne-km to 3.3 tonne-km.

When analysing the companies operating in the market in terms of operational performance, it should be noted that 19 of them exceeded the threshold of 1% market share (in 2021, there were 18 companies). The undertaking PKP Cargo had a market share of more than 40% in terms of operational performance, but this share has decreased by almost 8 percentage points over the last four years. In 2021, the undertaking's trains delivered operational performance of 35.16 million train-km, and in 2022. 35.24 million train-km. The market share in terms of operational performance also decreased for Lotos Kolej, the second company in the list. A slight increase in share (by 0.02 percentage points) was recorded by the undertaking DB Cargo Polska.

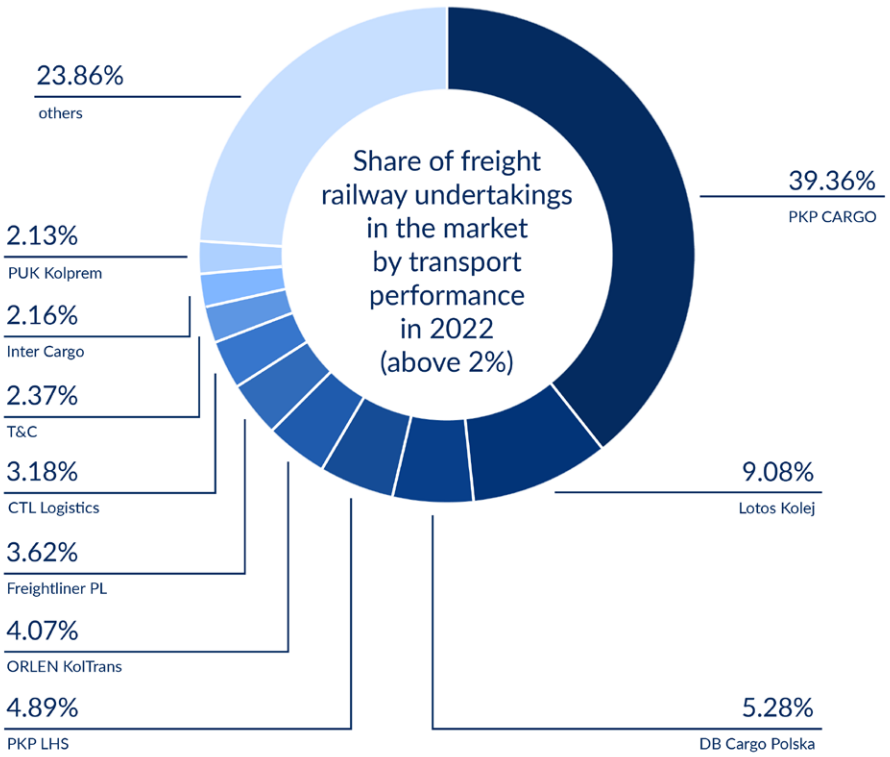


◀ Fig. 89 Share of freight railway undertakings in the market by weight in 2022 (above 2%)

undertaking	share
PKP Cargo	35.56%
DB Cargo Polska	15.94%
Lotos Kolej	5.25%
PKP LHS	4.47%
PUK Kolprem	3.47%
ORLEN KolTrans	2.88%
Freightliner PL	2.36%
CTL Logistics	2.19%
Pol-Miedź Trans	1.93%
PKP Cargo Service	1.73%
T&C	1.71%
Rail Polska	1.55%
CD Cargo Poland	1.42%
PCC Intermodal	1.34%
Captrain Polska	1.14%
Ecco Rail	1.13%
CIECH Cargo	1.11%
Inter Cargo	1.07%
pozostali	13.74%

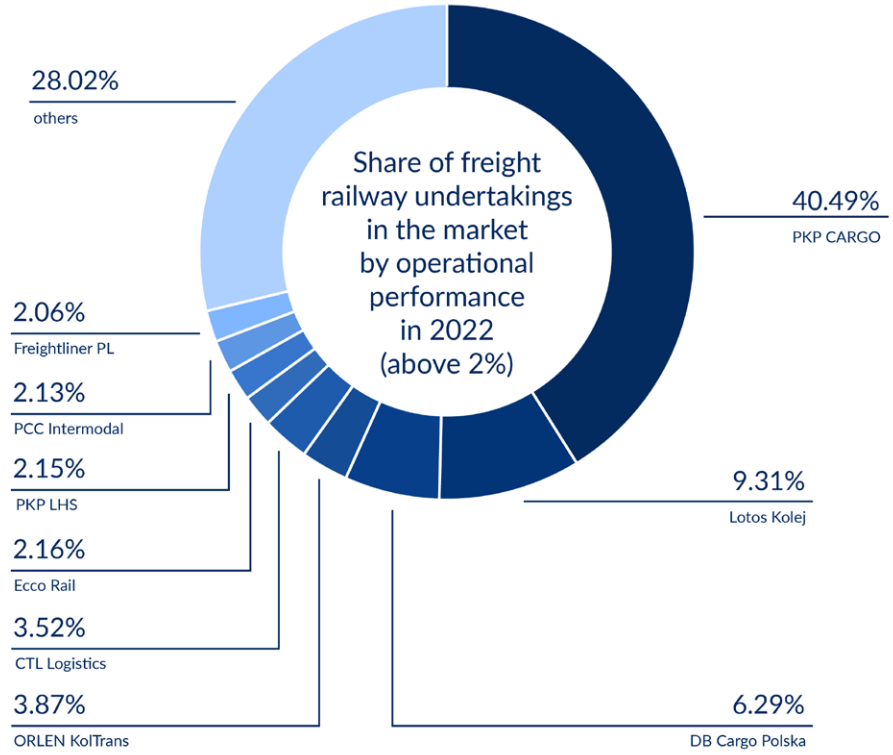
▼ Tab. 90 Share of undertakings in the freight transport market by weight of cargo in 2019–2022

undertaking	2019	2020	2021	2022
total (million tonnes)	236.4	223.2	243.6	248.5
PKP Cargo	40.35%	36.63%	36.66%	35.56%
DB Cargo Polska	16.91%	16.89%	16.79%	15.94%
Lotos Kolej	5.42%	5.62%	5.30%	5.25%
PKP LHS	4.13%	3.68%	3.96%	4.47%
PUK Kolprem	3.32%	3.81%	3.45%	3.47%
ORLEN KolTrans	2.55%	2.92%	2.89%	2.88%
Freightliner PL	2.46%	2.46%	2.34%	2.36%
CTL Logistics	3.55%	3.55%	3.04%	2.19%
Pol-Miedź Trans	1.87%	1.84%	1.90%	1.93%
PKP Cargo Service	1.29%	1.26%	1.44%	1.73%
T&C	–	0.00%	0.78%	1.71%
Rail Polska	1.61%	1.54%	1.69%	1.55%
CD Cargo Poland	1.33%	1.29%	1.36%	1.42%
PCC Intermodal	0.87%	1.23%	1.26%	1.34%
Captrain Polska	1.37%	1.15%	0.97%	1.14%
Ecco Rail	0.58%	0.91%	1.23%	1.13%
CIECH Cargo	1.19%	1.13%	1.10%	1.11%
Inter Cargo	0.98%	1.05%	1.05%	1.07%
others	11.60%	14.21%	14.53%	13.74%



◀ Fig. 90 Share of freight railway undertakings in the market by transport performance in 2022 (above 2%)

undertaking	share
PKP Cargo	39.36%
Lotos Kolej	9.08%
DB Cargo Polska	5.28%
PKP LHS	4.89%
ORLEN KolTrans	4.07%
Freightliner PL	3.62%
CTL Logistics	3.18%
T&C	2.37%
Inter Cargo	2.16%
PUK Kolprem	2.13%
PCC Intermodal	1.96%
Ecco Rail	1.93%
CD Cargo Poland	1.85%
Rail Polska	1.81%
Pol-Miedź Trans	1.65%
Captrain Polska	1.58%
LTE Polska	1.08%
others	12.00%



◀ Fig. 91 Share of freight railway undertakings in the market by operational performance in 2022 (above 2%)

undertaking	share
PKP Cargo	40.49%
Lotos Kolej	9.31%
DB Cargo Polska	6.29%
ORLEN KolTrans	3.87%
CTL Logistics	3.52%
Ecco Rail	2.16%
PKP LHS	2.15%
PCC Intermodal	2.13%
Freightliner PL	2.06%
Captrain Polska	1.86%
Alza Cargo	1.78%
T&C	1.75%
Pol-Miedź Trans	1.64%
CD Cargo Poland	1.60%
Rail Polska	1.59%
PUK Kolprem	1.57%
LTE Polska	1.40%
Inter Cargo	1.33%
Olavion	1.00%
others	12.51%

▼ Tab. 91 Share of railway undertakings in the freight transport market by transport performance in 2019–2022

undertaking	2019	2020	2021	2022
total (billion tonne-km)	55.9	52.2	56	62.5
PKP Cargo	43.92%	40.64%	40.72%	39.36%
Lotos Kolej	9.79%	10.36%	10.00%	9.08%
DB Cargo Polska	5.66%	5.09%	5.11%	5.28%
PKP LHS	5.44%	4.94%	5.17%	4.89%
Orlen KolTrans	3.71%	4.21%	4.30%	4.07%
Freightliner	3.17%	3.30%	3.26%	3.62%
CTL Logistics	3.95%	4.31%	3.40%	3.18%
T&C	0.00%	0.00%	1.21%	2.37%
Inter Cargo	2.33%	2.32%	2.05%	2.16%
PUK Kolprem	1.89%	2.52%	2.34%	2.13%
PCC Intermodal	1.19%	1.77%	1.93%	1.96%
Ecco Rail	0.82%	1.40%	1.90%	1.93%
CD Cargo Poland	1.75%	1.76%	1.59%	1.85%
Rail Polska	1.75%	1.47%	1.65%	1.81%
Pol-Miedź Trans	1.80%	1.45%	1.65%	1.65%
Captrain Polska	1.97%	1.62%	1.40%	1.58%
LTE Polska	1.02%	1.03%	1.26%	1.08%
others	9.84%	11.80%	11.08%	12.00%

▼ Tab. 92 Share of railway undertakings in the freight transport market by operational performance in 2019–2022

undertaking	2019	2020	2021	2022
total (million train-km)	82.3	77.5	81.8	87.0
PKP Cargo	48.44%	44.46%	43.00%	40.49%
Lotos Kolej	8.82%	9.66%	9.59%	9.31%
DB Cargo Polska	6.28%	6.09%	6.27%	6.29%
ORLEN KolTrans	3.37%	3.80%	3.97%	3.87%
CTL Logistics	3.89%	4.23%	3.57%	3.52%
Ecco Rail	1.38%	1.93%	2.36%	2.16%
PKP LHS	2.45%	2.31%	2.37%	2.15%
PCC Intermodal	1.07%	1.61%	1.87%	2.13%
Freightliner PL	1.91%	1.98%	2.12%	2.06%
Captrain Polska	2.03%	1.83%	1.66%	1.86%
Alza Cargo	0.29%	0.41%	0.73%	1.78%
T&C	–	0.0003%	0.51%	1.75%
Pol-Miedź Trans	1.80%	1.39%	1.54%	1.64%
CD Cargo Poland	1.47%	1.41%	1.41%	1.60%
Rail Polska	1.57%	1.36%	1.40%	1.59%
PUK Kolprem	1.48%	1.92%	1.64%	1.57%
LTE Polska	1.12%	1.16%	1.56%	1.40%
Inter Cargo	1.52%	1.55%	1.33%	1.33%
Olavion	0.68%	0.81%	0.97%	1.00%
Ciech Cargo	0.96%	0.99%	1.02%	0.97%
Metrans Polonia	0.65%	1.12%	1.09%	0.95%
others	8.84%	9.98%	10.02%	10.59%

2.6. Employment at freight railway undertakings

After the decreases in employment recorded between 2020 and 2021, the number of people working in the freight undertaking sector increased in 2022. At the end of the year, all companies employed a total of 27,475 employees, 2.3% more than in 2021.

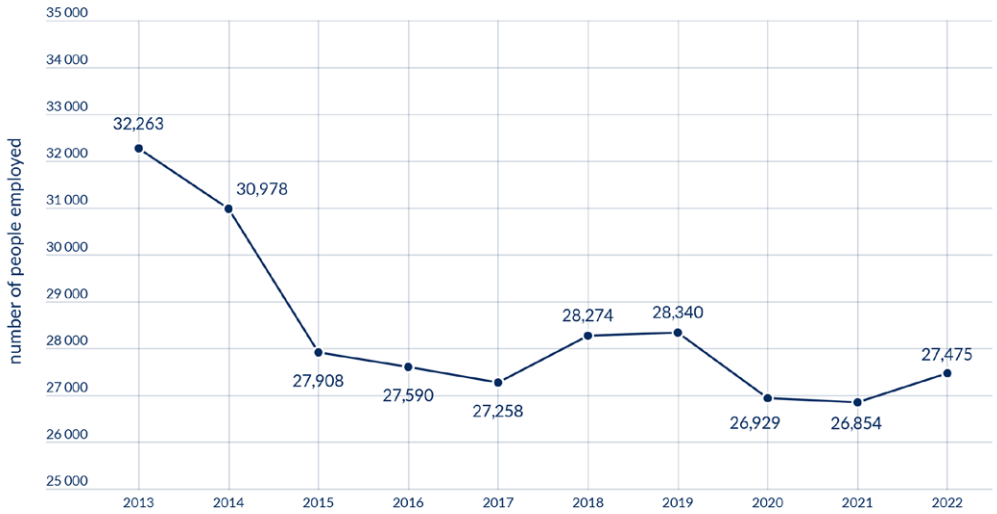
The largest employer in the sector, PKP Cargo, recorded another year in a row of employment reductions, this time by 3.1 per cent, which was also associated with a 2.2 percentage point drop in its share of the employment structure. Lower numbers of employees were also recorded at other large companies such as PUK Kolprem and CTL Group. The number of employees increased at the remaining undertakings, whose share of the employment structure was above 2% in 2022. The overall increase in employment across the sector was influenced by smaller undertakings and companies newly entering the market.

Despite the increase in overall employment levels in 2022, similar to passenger undertakings, freight undertakings saw a decrease in the number of employees working in regulated professions. This situation affected 11 types of position out of 12, as part of the undertakings' ongoing reporting. A higher number of employees in 2022 was only recorded in the position of railway vehicle operator. In addition to regulated professions, a decrease in the number of employees concerned rolling stock maintenance employees, while employment among dispatchers increased.

Employment in regulated professions in 2022 was 45.5% among the total number of employees of freight railway companies. In 2021, this share was 48.7%.

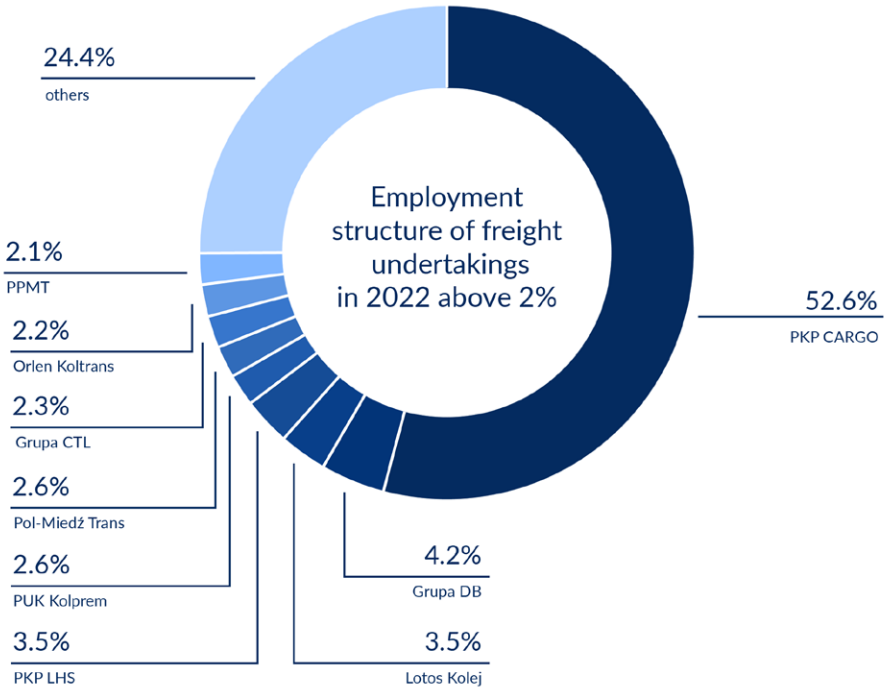
Disparities in the age structure of employees are also noticeable. There are far fewer people employed up to the age of 30 than in subsequent age groups. The largest number of employees is over 50.

Despite the higher number of employees, the number of working time equivalents earned in 2022 has decreased. Among employees under 30 years of age, there was a decrease of 0.3%. Considering all employees, the number of equivalents also decreased in the group of employees over 50. Only in the age group between 30 and 50 was there a significant increase of 8.6%. The same trend took place in the position of train driver. The large increase in the parameter recorded in the group of employees between 30 and 50 ultimately influenced the increase in the number of equivalents towards 2021.



◀ Fig. 92 Employment in the freight transport sector in 2013–2022

	number of employees
2013	32,263
2014	30,978
2015	27,908
2016	27,590
2017	27,258
2018	28,274
2019	28,340
2020	26,929
2021	26,854
2022	27,475

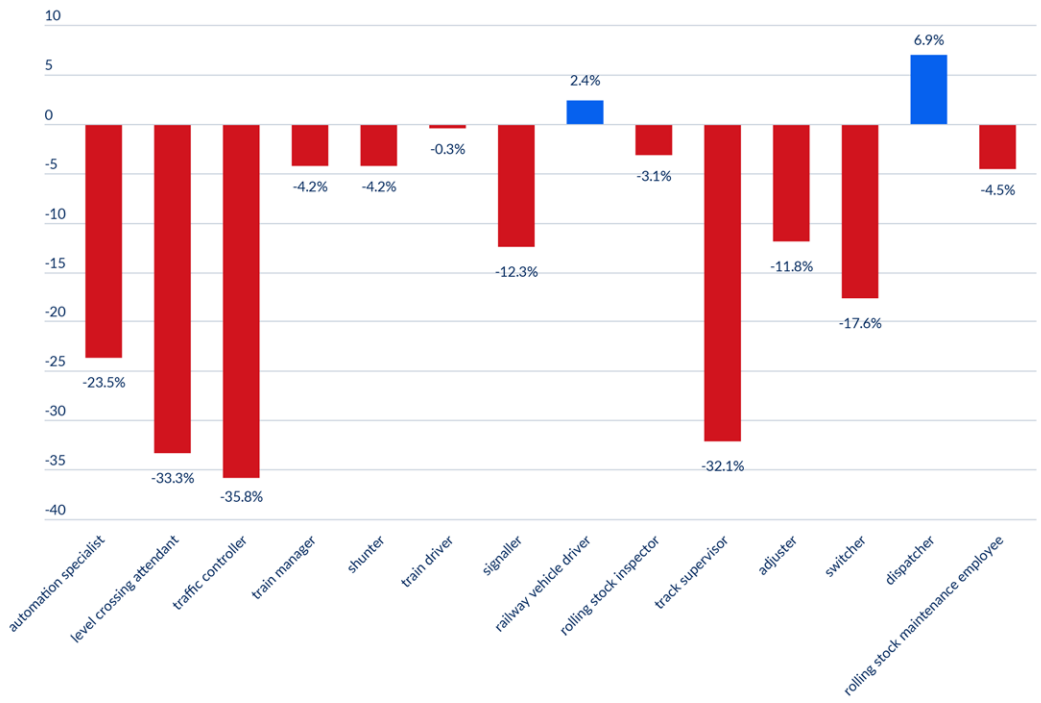


◀ Fig. 93 Employment structure of freight undertakings in 2022 above 2%

undertaking	share
PKP CARGO	52.6%
Grupa DB	4.2%
Lotos Kolej	3.5%
PKP LHS	3.5%
PUK Kolprem	2.6%
Pol-Miedź Trans	2.6%
Grupa CTL	2.3%
Orlen Koltrans	2.2%
PPMT	2.1%
others	24.4%

◀ Tab. 93 Employment structure by individual professions at freight undertakings in 2021–2022

job title	2021	2022
regulated professions	13,072	12,508
automation specialist	51	39
level crossing attendant	9	6
traffic controller	400	257
train manager	332	318
shunter	662	634
train driver	7,040	7,017
signaller	81	71
railway vehicle driver	591	605
rolling stock inspector	1,665	1,614
track supervisor	140	95
adjuster	2,084	1,838
switcher	17	14
non-regulated professions	4,447	4,368
dispatcher	1,079	1,153
rolling stock maintenance employee	3,368	3,215



◀ Fig. 94 Dynamics of changes in employment in railway profession in the freight undertakings sector in 2022/2021

undertaking	change
automation specialist	-23.5%
level crossing attendant	-33.3%
traffic controller	-35.8%
train manager	-4.2%
shunter	-4.2%
train driver	-0.3%
signaller	-12.3%
railway vehicle driver	2.4%
rolling stock inspector	-3.1%
track supervisor	-32.1%
adjuster	-11.8%
switcher	-17.6%
dispatcher	6.9%
rolling stock maintenance employee	-4.5%

◀ Tab. 94 Comparison of the number of employees and the number of qualifications in regulated professions in the freight railway undertakings sector in 2022

job title	number of employees	number of authorisations
regulated professions	12,508	16,642
automation specialist	39	52
level crossing attendant	6	53
traffic controller	257	426
train manager	318	704
shunter	634	1,056
train driver	7,017	7,295
signaller	71	107
railway vehicle driver	605	700
rolling stock inspector	1,614	2,864
track supervisor	95	202
adjuster	1,838	3,151
switcher	14	32

▼ Tab. 95 Number of employees by working time equivalents by gender and age structure in the freight transport sector in 2022

job title	women	men	employees up to 30 years of age	employees between 30 and 50 years of age	employees over 50 years of age
automation specialist	2	37	2	16	21
level crossing attendant	2	4	1	3	2
dispatcher	340	813	181	536	436
traffic controller	87	170	7	102	148
train manager	2	316	28	190	100
shunter	0	634	174	276	184
train driver	5	7,012	562	3,481	2,974
signaller	36	35	7	25	39
rolling stock maintenance employee	69	3 146	296	862	2,057
railway vehicle driver	0	605	60	347	198
rolling stock inspector	21	1,593	141	566	907
track supervisor	1	94	2	32	61
adjuster	0	1,838	193	893	752
switcher	4	10	0	3	11
others	5 067	5 532	880	4 254	5 465

▼ Tab. 96 Age structure of all employees working in freight railway undertakings by working time equivalents in 2021–2022[24]

year	age structure	employees up to 30 years of age	employees between 30 and 50 years of age	employees over 50 years of age
2021	in FTEs	2,631	11,171	15,309
	percentage share	9.4%	40.3%	50.3%
2022	in FTEs	2,622	12,134	14,351
		9.0%	41.7%	49.2%
change 2022/2021		-0.3%	8.6%	-6.5%

▼ Tab. 97 Age structure of train drivers working in freight railway undertakings by working time equivalents in 2021-2022[24]

year	age structure	employees up to 30 years of age	employees between 30 and 50 years of age	employees over 50 years of age
2021	in FTEs	612	3,170	3,386
	percentage share	8.5%	44.2%	47.2%
2022	in FTEs	581	3,798	3,333
		7.5%	49.3%	43.2%
change 2022/2021		-5.1%	19.8%	-1.6%

▼ Tab. 98 Gender structure of all employees working in freight railway undertakings by working time equivalents in 2021–2022[24]

year	gender structure	women	men
2021	in FTEs	6,175	22,936
	percentage share	21.2%	78.8%
2022	in FTEs	5,829	23,242
		20.1%	79.9%
change 2022/2021		-5.6%	1.3%

▼ Tab. 99 Gender structure of train drivers working in freight railway undertakings by working time equivalents in 2021-2022[24]

year	gender structure	women	men
2021	in FTEs	3	7,166
	percentage share	0.04%	99.96%
2022	in FTEs	5	7,706
		0.07%	99.93%
change 2022/2021		69.7%	7.5%

24 The age structure is calculated on the basis of full-time equivalents (FTEs) in rail transport operations from 1 January to 31 December 2021, and from 1 January to 31 December 2022. The FTE should be understood as the total number of hours (including overtime) worked in a given position, divided by the average number of hours worked annually in the full-time position.

2.7. Financial performance of freight railway undertakings

Data obtained from reports on activities of railway undertakings shows that in 2022, the total revenue on activities of railway undertakings amounted to almost PLN 11.0 billion and was higher by PLN 0.7 billion than the costs incurred for these activities. On both the revenue and cost side, these are the highest values achieved over the last decade. In 2022, EBITDA[25] in the rail freight sector amounted to PLN 1.81 billion – a significant increase in the year-on-year terms.

The weight of freight transported by rail in 2022, in list with the data for the period covering 2021, increased by 2%. Juxtaposing the revenue and cost figures generated by railway undertakings with the weight of freight transported by them yields an indicative revenue and cost per tonne of freight. In 2022, the revenue generated per tonne of cargo was PLN 44.16, 19.4% higher than the result in 2021 – PLN 36.97 per tonne. There was less dynamism with the increase in costs per tonne of cargo – in 2021 it was PLN 36.94 and in 2022 – PLN 41.17 (+11.4%).

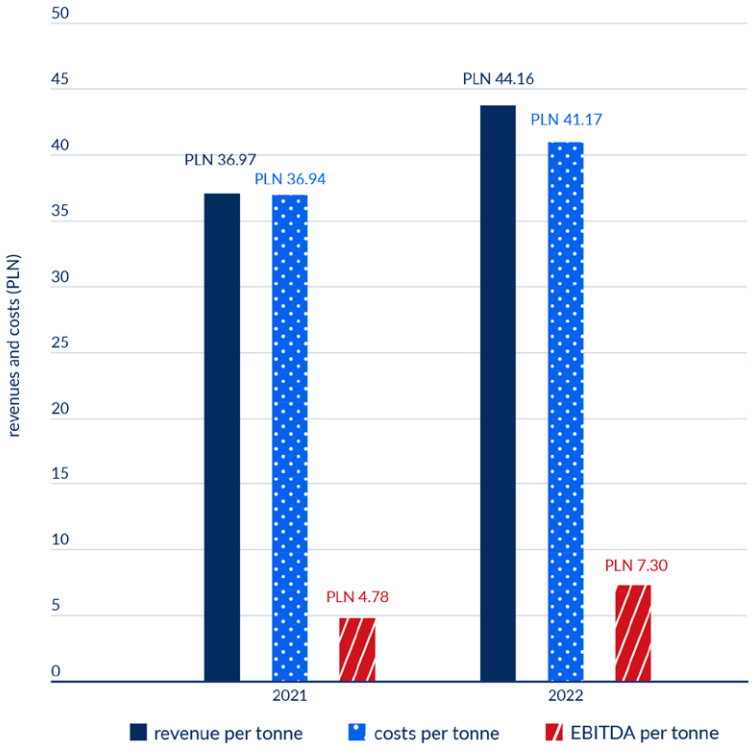
For the purpose of estimating how the share of individual generic costs in the total expenses incurred is shaped in the case of freight undertakings, the data of selected freight undertakings, which provided complete data on the costs incurred for individual cost items,were set out. This group accounts for 72.9% of the market share by weight of goods transported in 2022. Analysis of the data shows that in 2022, compared to 2021, expenses incurred on materials and energy increased to the greatest extent (+44.7%). The second cost item with a significant increase (39.5%) was expenditure on fuels and traction energy. Smaller growth rates were recorded for: employee benefits (8.4%) and infrastructure access costs (8.1%). In 2022, the share of ‚depreciation' in the structure of costs by type fell by 5.8% in the year-on-year terms.

An analysis of the selected railway undertakings' data shows that in 2022, the employee benefits item accounted for 25.76% of total undertaking costs, a decrease in share of 1.4 percentage points compared to a year earlier, even though in the year-on-year terms showed an increase in the overall value of expenditure incurred on this account. Compared to 2021, the largest increase in shares was for the item ‚fuels and traction energy', up 3.19 percentage points from 14.42% to 17.61% in 2022. For the item ‚materials and energy', the increase was less than 1 percentage point. Extraneous services and costs classified as ‚other' represent increases in shares of 0.34 and 0.13 percentage points respectively. The share of infrastructure access costs, despite a nominal year-on-year increase, also fell, from 12.96% to 12.26% (a decrease of 0.7 percentage points).

◀ Fig. 95 Operational resultsesults of the activity of freight railway undertakings in 2013–2022 (PLN billion)

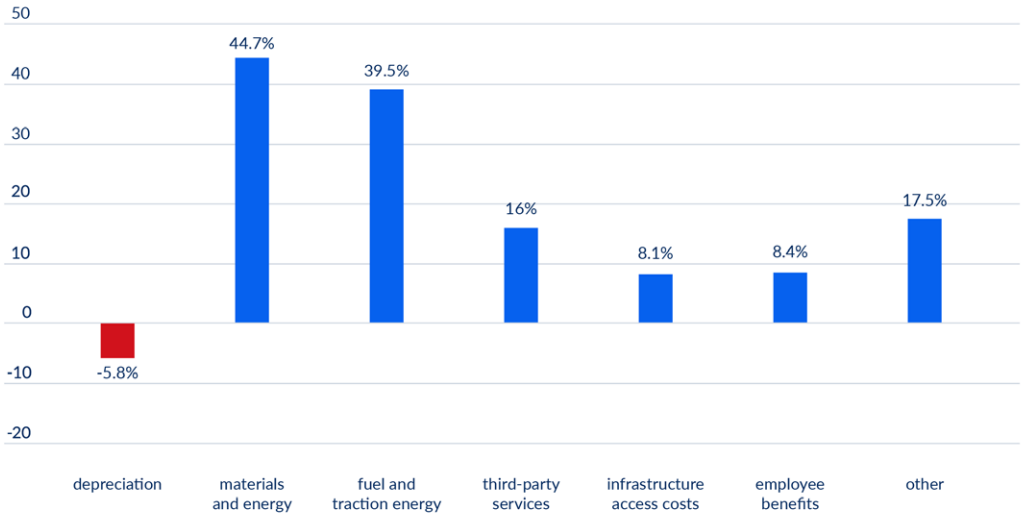
	operating revenues	operating costs
2013	8.2	8.1
2014	8.0	7.8
2015	7.8	7.7
2016	7.3	7.1
2017	7.5	7.1
2018	8.8	8.1
2019	8.8	8.3
2020	8.3	8.2
2021	9.0	9.0
2022	11.0	10.2

25 EBITDA (earnings before interest, taxes, depreciation and amortization) – the company's operating profit before interest on interest-bearing liabilities (loans, bonds), taxes, amortisation of intangible assets and depreciation of property, plant and equipment.



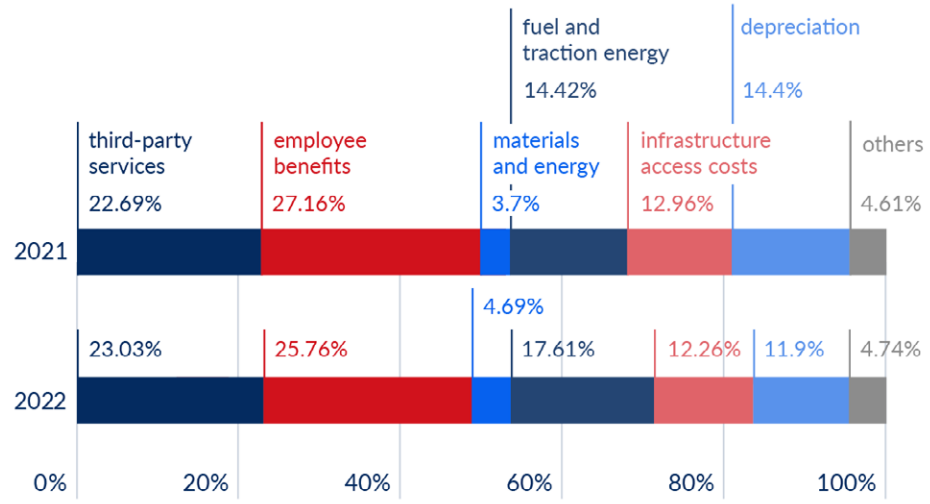
◀ Fig. 96 Revenues and costs generated by one tonne of cargo in 2021–2022

	revenue per tonne	costs per tonne	EBITDA per tonne
2021	PLN 36.97	PLN 36.94	PLN 4.78
2022	PLN 44.16	PLN 41.17	PLN 7.30



◀ Fig. 97 Growth dynamics of outlays for individual costs by type in 2022 compared to 2021

undertaking	zmiana
depreciation	-5.8%
materials and energy	44.7%
fuel and traction energy	39.5%
third-party services	16.0%
infrastructure access costs	8.1%
employee benefits	8.4%
other	17.5%



	2021	2022
depreciation	14.4%	11.9%
materials and energy	3.70%	4.69%
fuel and traction energy	14.42%	17.61%
third-party services	22.69%	23.03%
infrastructure access costs	12.96%	12.26%
employee benefits	27.16%	25.76%
other	4.61%	4.74%

◀ Fig. 98 Structure of costs by type in the rail freight sector in 2021–2022[26]

2.8. Freight transport in international transport

In 2022, 43 licensed freight undertakings transported more than 88.5 million tonnes and performed transport performance of 27.4 billion tonne-kilometres in international traffic. The weight transported increased by 2.7 per cent compared to the previous year, with a 10.5 per cent increase in transport performance.

Imports carried 49.9 million tonnes and transport performances of over 14 billion tonne-km. This is more than in exports and transit combined. In 2022, imports saw an increase of 4.1% in weight carried and transport performance of 17.7% year-on-year. In exports, 30.4 million tonnes were transported - the volume transported decreased slightly – by 0.9%. However, transport performance increased by 1.4% to 8.6 billion tonne-km. In transit, comparing to 2021, there was an increase of 8% in the mass transported with an increase in transport performance of 8.3%. In transit, 8.2 million tonnes were carried through Poland and transport performance was close to 4.8 billion tonne-km.

Due to the distances covered by international transport (in 2022, an average of around 309.7 km), their market share by transport performance is correspondingly higher. At the end of 2022, the market share of international transport by transport performance reached 43.9%, in 2021. 44.3%, and in 2020 it was 44.4%.

In 2022, the average distance for imports was 280.9 km, more than 32 km more than in 2021. For exports, it was 282.7 km (an increase of 5.6 km) and for transit 584.8 km (1.5 km more).

PKP Group companies (PKP Cargo and PKP LHS) continued to have the largest share in international transport. Their total share at the end of 2022 was: by weight transported – 51.3%, by transport performance – 50.3%.

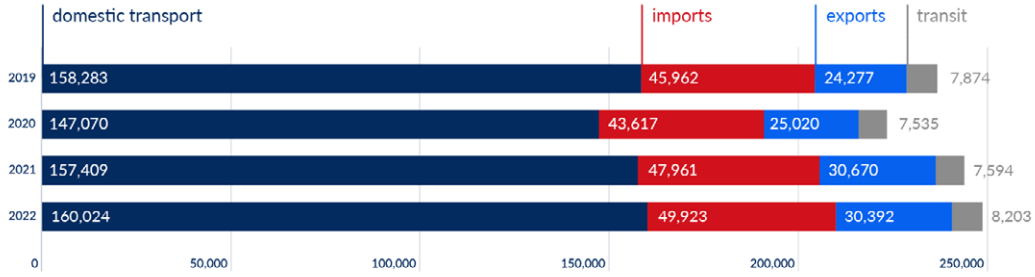
In the structure of goods transported in international transport, as in previous years, the significant share of hard coal is noteworthy. In 2022, more than 21.7 million tonnes of this raw material were transported by rail, compared to 20.2 million tonnes in 2021. A high volume in the market despite a decrease compared to 2021 was also achieved by transporting loads qualified as ‚unidentifiable goods', comprising such goods that cannot be assigned to any of the load groups, and goods transported mainly using containers. In 2022, more than 18.3 million tonnes of these were transported by rail, compared to more than 18.8 million tonnes in 2021.

26 Structure of costs by type estimated on the basis of full data of individual costs by type provided by freight undertakings representing a market share of 72.9% by weight of goods transported in 2022.

In 2022, the main partners of the international export exchange with Poland were: (from the largest by weight of cargo transported by rail): Germany, Czech Republic, Ukraine, Austria, China, Slovakia, Russia, India, Belarus and Italy. For this reason, the share of rail transport in these directions was also the highest – it accounted for a total of nearly 73% of the weight of goods transported. The share in terms of transport performance between Poland and the above-mentioned countries in 2022 reached nearly 62.9%.

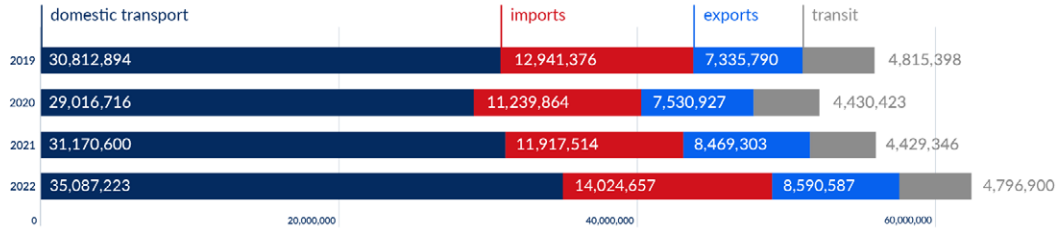
As regards imports, the main partners of international exchange with Poland were (from the largest by weight of cargo transported by rail): Ukraine, Germany, Belarus, Russia, Czech Republic, Australia and Kazakhstan. Imports from these countries accounted for 66.4% by cargo weight and 56.9% by transport performance.

According to the place of origin and destination of consignments (according to waybills), the largest share in terms of weight of freight transported was between Poland and Ukraine – 18.8% of the total volume of goods (15.1 million tonnes), Poland and Germany – 15.6% (12.5 million tonnes) and Poland and the Czech Republic – 9.7% (7.8 million tonnes) respectively.



	2019	2020	2021	2022
domestic,transport	158,282.8	147,069.8	157,408.7	160,024.0
imports	45,962.1	43,617.0	47,960.6	49,923.1
exports	24,277.1	25,019.7	30,669.9	30,392.4
transit	7,874.3	7,535.4	7,593.9	8,202.6

◀ Fig. 99 Weight of transported goods in domestic and international transport in 2019–2022 (thousand tonnes)

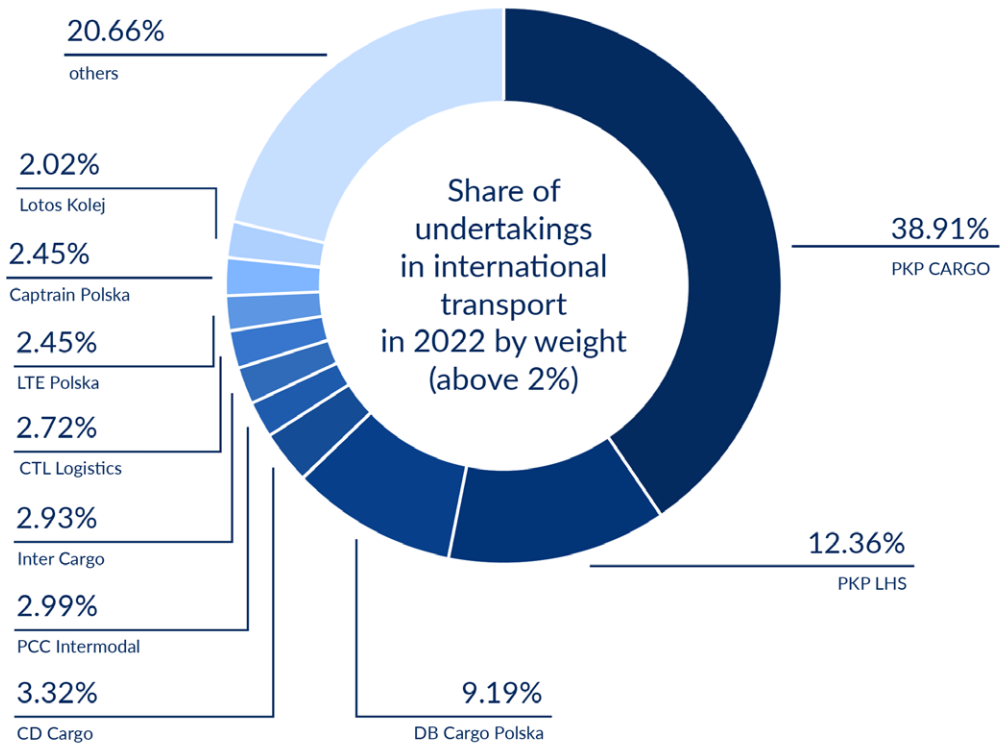


	2019	2020	2021	2022
domestic,transport	30,812,893.91	29,016,715.88	31,170,600.34	35,087,223.14
imports	12,941,375.7	11,239,863.6	11,917,513.9	14,024,656.7
exports	7,335,790.4	7,530,927.2	8,469,302.6	8,590,587.4
transit	4,815,398.1	4,430,422.8	4,429,346.5	4,796,900.2

◀ Fig. 100 Transport performance in domestic and international transport from 2019 to 2022 (thousand tonne-km)

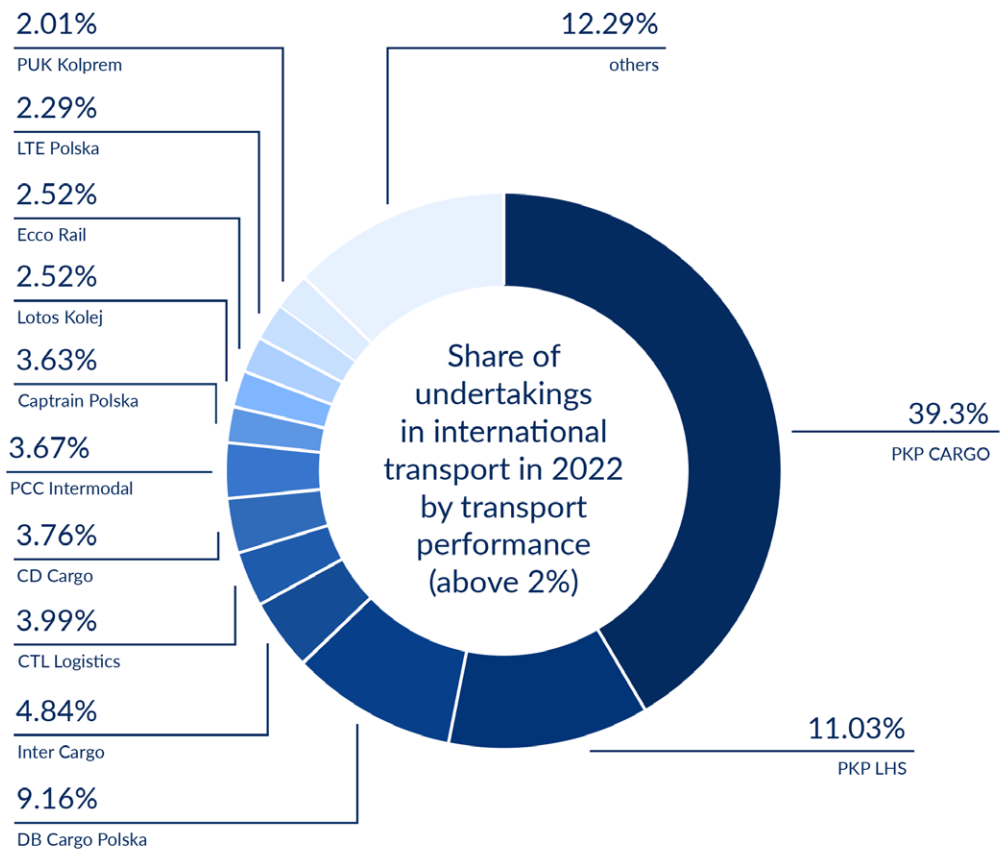
Specification	2018	2019	2020	2021	2022
imports	279.44	281.57	257.69	248.49	280.93
exports	316.58	302.17	301.00	276.14	282.66
transit	603.90	611.54	587.94	583.28	584.80

◀ Tab. 100 Average distance (km) of transporting 1 tonne of cargo in international transport in 2018–2022



◀ Fig. 101 Share of undertakings in international transport in 2022 by weight (above 2%)

undertaking	share
PKP Cargo	38,91%
PKP LHS	12,36%
DB Cargo Polska	9,19%
CD Cargo	3,32%
PCC Intermodal	2,99%
Inter Cargo	2,93%
CTL Logistics	2,72%
LTE Polska	2,45%
Captrain Polska	2,45%
Lotos Kolej	2,02%
Ecco Rail	1,92%
Euroasian Railway	1,66%
Eurotrans	1,55%
Freightliner PL	1,18%
PUK Kolprem	1,12%
Metrans Polonia	1,09%
Rail STM	1,02%
others	11,12%



◀ Fig. 102 Share of undertakings in international transport in 2022 by transport performance (above 2%)

przewoźnik	udział
PKP Cargo	39,30%
PKP LHS	11,03%
DB Cargo Polska	9,16%
Inter Cargo	4,84%
CTL Logistics	3,99%
CD Cargo	3,76%
PCC Intermodal	3,67%
Captrain Polska	2,63%
Lotos Kolej	2,52%
Ecco Rail	2,52%
LTE Polska	2,29%
PUK Kolprem	2,01%
Freightliner PL	1,25%
Alza Cargo	1,20%
Rail STM	1,14%
Rail Polska	1,00%
others	7,70%

▼ Tab. 101 Groups of goods transported in international transport in 2022

group	exports		imports		transit	
	mass (thousand tonnes)	transport performance (thousand tonnes-km)	mass (thousand tonnes)	transport performance (thousand tonnes-km)	mass (thousand tonnes)	transport performance (thousand tonnes-km)
total	30,392.4	8,590,587.4	49,923.1	14,024,656.7	8,202.6	4,796,900.2
products of agriculture, hunting, forestry, fishing and fisheries	1,312.1	555,728.7	3,374.7	693,672.3	255.2	114,621.1
including cereals	1,072.8	472,052.9	1,858.0	439,466.0	180.1	79,684.6
hard coal, lignite, crude oil and natural gas	6,344.6	811,215.1	14,172.8	4,563,225.6	1,912.5	1,234,508.8
including hard coal	6,060.1	788,903.3	13,800.3	4,544,694.8	1,876.9	1,221,948.0
metal ores and other mining and quarrying products	1,850.7	730,798.8	7,370.9	2,657,075.4	1,438.6	702,198.4
including iron ore	349.6	182,508.9	5,224.4	2,175,234.7	1,072.5	556,756.7
aggregate, sand, gravel, clay	618.4	229,312.6	1,189.7	214,787.9	36.6	30,841.8
food products, beverages and tobacco products	308.3	81,990.0	1,373.8	209,468.9	3.4	1,758.4
textiles and clothing, leather and leather products	2.4	33.7	9.0	323.1	1.9	874.5
wood and products of wood and cork ((except furniture), products of straw, paper and paper products; printed matter and recorded media	562.2	238,397.7	781.9	123,535.6	259.2	144,300.9
coke, briquettes, refined petroleum products, industrially produced gases	7,119.7	2,517,298.7	4,206.2	970,566.7	365.2	214,603.2
including refined petroleum products	1,574.3	484,032.6	2,904.4	764,769.7	192.8	112,057.4
chemicals, chemical products, and man-made fibres; rubber and plastic products; nuclear fuel	2,490.9	836,704.7	2,702.7	631,503.5	507.5	289,121.0
products of other non-metallic raw materials	267.0	72,445.3	829.0	110,096.8	13.0	3,469.8
including cement, lime, gypsum	90.1	26,618.0	399.5	25,347.8	0.0	0.0
other building materials	140.4	42,142.8	389.5	83,813.4	5.5	840.1
metals, fabricated metal products (except machinery and equipment)	1,151.7	328,003.1	4,367.8	1,305,802.6	631.6	344,574.9
machines, devices, electrical and electronic equipment	148.4	35,283.5	109.1	6,485.2	4.6	3,166.2
transport equipment	608.3	154,562.1	429.5	99,792.9	120.6	73,918.1
furniture, other finished products	16.4	391.6	73.8	1,181.0	0.4	277.7
secondary raw materials, municipal waste	391.8	95,214.4	713.7	170,141.8	20.2	10,799.5
letters, packages and courier's parcels and shipments	0.0	0.0	0.2	3.8	0.0	0.0
empty packaging	472.9	132,385.8	222.1	60,021.9	136.8	87,073.7
cargo transported during the move, other non-tradeable cargo	0.0	0.0	0.0	0.0	0.027	17.5
mixed goods excluding foodstuffs	129.7	8,915.9	294.6	10,247.9	44.9	27,901.7
unidentifiable goods	7,076.4	1,959,561.9	8,770.1	2,396,792.1	2,468.9	1,539,757.3
other goods	138.8	31,656.4	121.0	14,719.6	17.8	3,957.9

2.9. The transport of dangerous goods

The carriage of dangerous goods in 2022 was carried out by 36 freight undertakings, an increase of one undertaking compared to 2021. Cargo weight amounted to 30.9 million tonnes (against 29.5 million tonnes in 2021), while transport performance was 10.7 billion tonne-km (against 9.7 billion tonne-km in 2021).

The share of dangerous goods transport in the rail market reached, by weight of goods transported, 12.4% (12.1% in 2021) and, by transport performance, 17.2% (17.4% in 2021). In 2022, the average transport distance was 347 km (330 km in 2021).

The transport of dangerous goods is carried out mainly in domestic transport. In 2022, domestic transport accounted for 67.8% (68.1% in 2021) by weight of goods transported and 72.2% (73.6% in 2021) by transport performance.

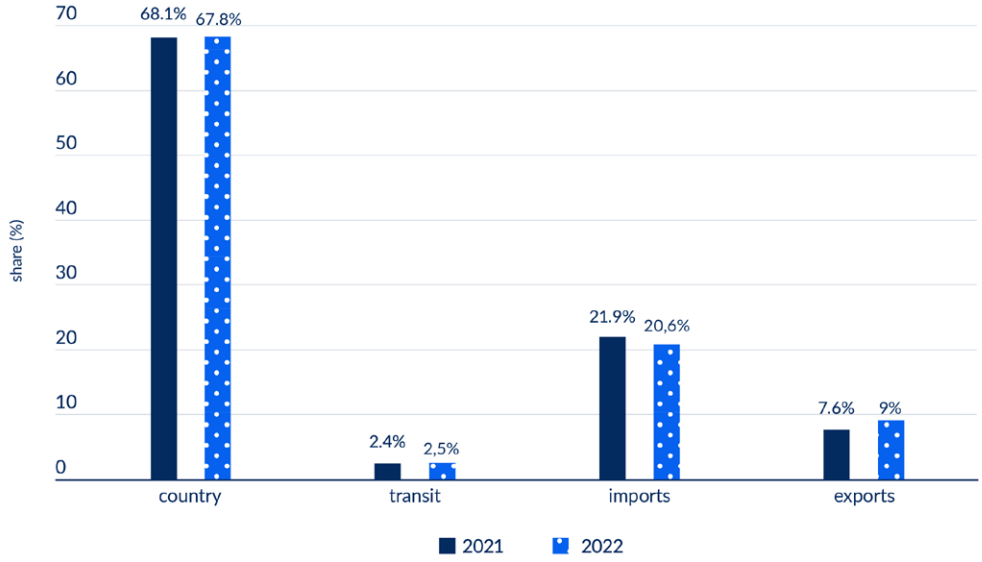
In 2022, imports of dangerous goods transported by rail by weight stood at 20.6%, exports at 9.0% and transit at 2.5%. In transport performance it accounted for 14.9%, 8.5% and 4.3% respectively.

The key cargo class in 2022 is liquid ignitable materials (class 3). Their market share by weight carried was 65.9% (63.7% in 2021) and by transport performance 72.8% (69.0% in 2021).

According to the classification of hazardous cargo, apart from liquid ignitable materials, the largest share of transport was held by miscellaneous hazardous materials and objects (class 9.) – 13.2% by weight and 10.7% by transport performance (13.1% and 10.8% in 2021) and gases (class 2.) – 9.8% by weight and 7.6% by transport performance (10.1% and 8.7% in 2021).

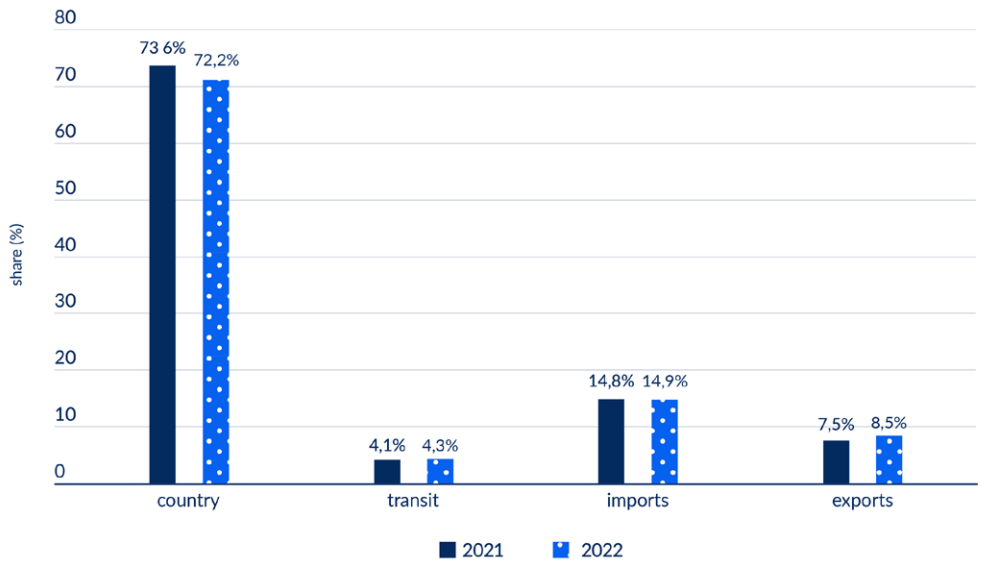
◀ Tab. 102 Classes of goods according to the RID classification

RID class	name
1.	explosives and items with explosives
2.	gases
3.	flammable liquids
4.1.	flammable solids, self-reactive substances, polymerizing substances and solid desensitized explosives
4.2.	substances liable to spontaneous combustion
4.3.	substances which, in contact with water, emit flammable gases
5.1.	oxidising substances
5.2.	organic peroxides
6.1.	toxic substances
6.2.	infectious substances
7.	radioactive material
8.	corrosive substances
9.	miscellaneous dangerous substances and articles



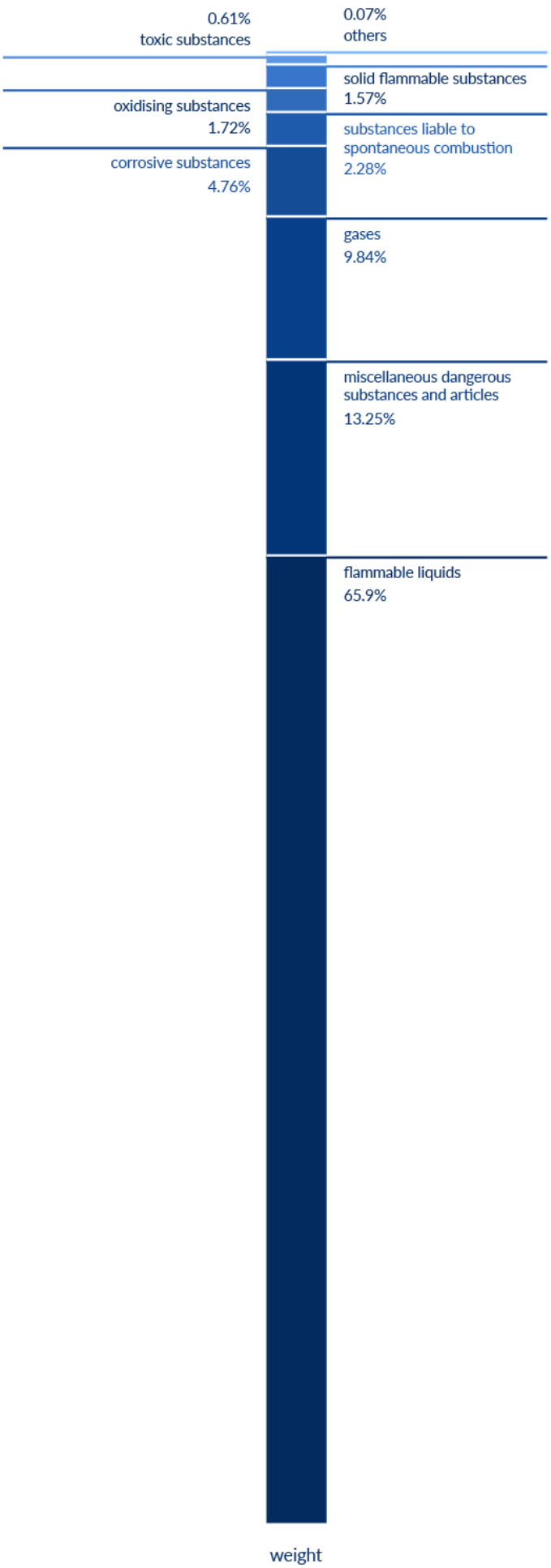
◀ Fig. 103 Share of weight of dangerous goods in domestic and international transport in 2021–2022.

	exports	imports	transit	country
2022	9.0%	20.6%	2.5%	67.8%
2021	7.6%	21.9%	2.4%	68.1%



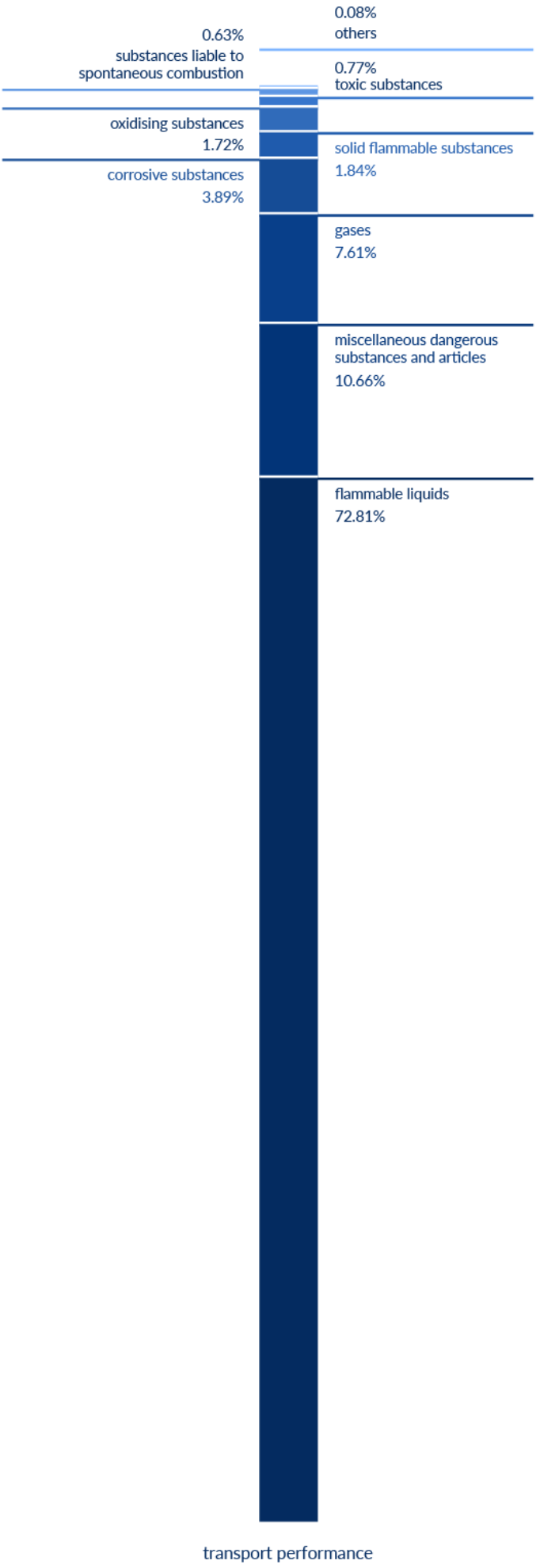
◀ Fig. 104 Share of transport performance of dangerous goods in domestic and international transport in 2021–2022

	exports	imports	transit	country
2022	8.5%	14.9%	4.3%	72.2%
2021	7.5%	14.8%	4.1%	73.6%



◀ Fig. 105 Share of transport of particular classes of dangerous goods in 2022 by weight

undertaking	share
flammable liquids	65,90%
miscellaneous dangerous substances and articles	13,25%
gases	9,84%
corrosive substances	4,76%
substances liable to spontaneous combustion	2,28%
oxidising substances	1,72%
solid flammable substances	1,57%
toxic substances	0,61%
others	0,07%



◀ Fig. 106 Share of transport of particular classes of dangerous goods in 2022 by transport performance

undertaking	udział
flammable liquids	72,81%
miscellaneous dangerous substances and articles	10,66%
gases	7,61%
corrosive substances	3,89%
solid flammable substances	1,84%
oxidising substances	1,72%
toxic substances	0,77%
substances liable to spontaneous combustion	0,63%
other	0,08%

2.10. Transport performance in 2022 and forecasts for freight transport

The highest freight performance in the last 10 years was recorded in 2018. The following two years saw a decline, which was most pronounced during the 2020 pandemic. Between 2021 and 2022, the freight market started to recover and achieved results similar to those of 2018.

Recent years have seen a number of changes in freight transport ranging from a reduction in coal transport in 2020 due to reduced energy demand, the launch of new destinations and the transport of e.g. medical supplies, to changes related to the conflict across the eastern border and the need to import some raw materials by sea or a reduction in the use of the New Silk Road.

The Sustainable Transport Development Strategy to 2030 document indicates the projected volumes of freight mass in rail transport in 2025 and in 2030 in the minimum and maximum variants. The minimum option for 2025 is set at 247 million tonnes. Juxtaposing this with the actual performance in 2022 of 248.5 million tonnes, it can be concluded that the minimum volume forecast for 2025 had already been achieved at 100.6% 3 years earlier. On the other hand, the volume projected for 2030 (254 million tonnes) was achieved at just under 97.9% in 2022.

When analysing the chances of these forecasts being realised in the coming years, it is important to bear in mind the reduction in demand for the transport of raw materials for energy and aggregates, with the lack of substitutability with other cargo groups due to the implementation of EU guidelines related to decarbonisation and a possible reduction in the level of investment.

Realising the maximum option would have to mean very large increases in weight and transport performance in the coming years relative to 2022. A realistic forecast is to achieve freight performance similar to the minimum variant, assuming that intermodal transport does not stagnate or decline (as was the case in 2022) and continues to grow as in previous years, while maintaining the plan to implement key infrastructure investments, including the construction of CPK.

Forecasts for the development of intermodal transport are additionally presented in a separate document entitled 'Intermodal transport development directions to 2030 with an outlook to 2040'. The document predicts that intermodal transport will reach 3.5 million TEUs in 2030. Bearing in mind that 2.8 million TEUs were transported in 2022, the average annual growth rate would have to be between 2.8–2.9% year-on-year to reach the projected volume in 2030. According to the document, the maximum transit volume would be around 730,000 TEUs in 2030, and of this, around 630,000 TEUs on the east-west-east and south-east-south routes. Recent events, which have resulted in a reduction in New Silk Road traffic through Russia and Belarus, put a question mark on the feasibility of these assumptions.

▼ Tab. 103 The weight of transported goods in 2022 and the forecast in the Sustainable Transport Development Strategy until 2030 in 2025 and 2030

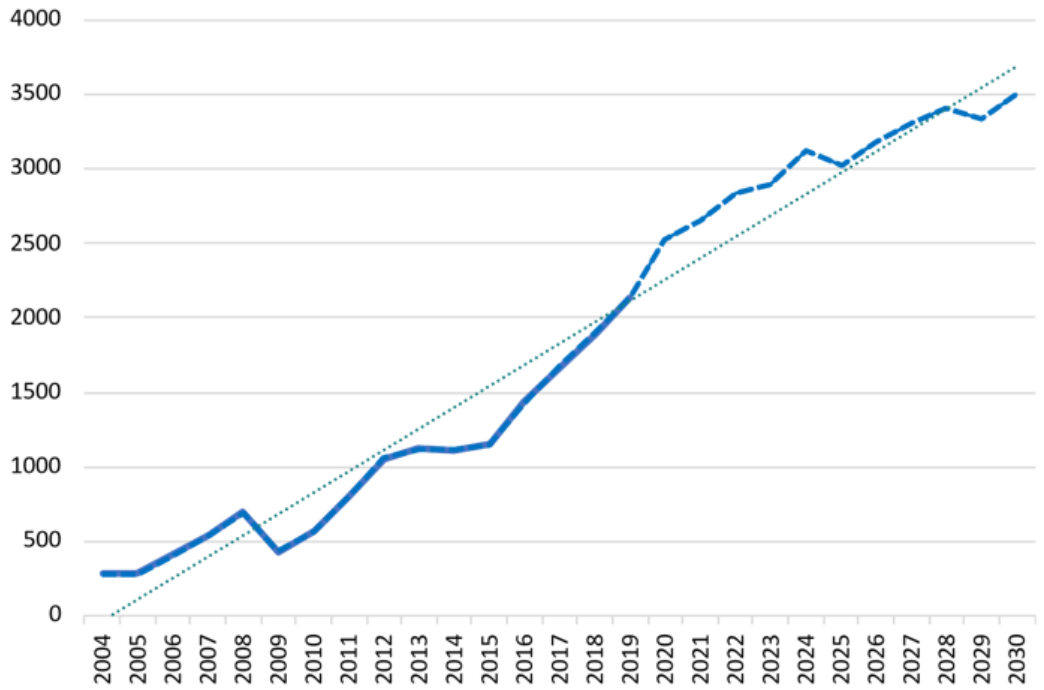
	2022 volume achieved	2025 minimum forecast	2030 minimum forecast
weight in freight transport (million tonnes)	248.5	247.0	254.0
share of volume in 2022 compared to 2025 and 2030		100.62%	97.85%

	2022 volume achieved	2025 maximum forecast	2030 maximum forecast
weight in freight transport (million tonnes)	248.5	260.0	280.0
share of volume in 2022 compared to 2025 and 2030		95.59%	88.77%

▼ Tab. 104 Transport performance in the transport of goods in 2022 and the forecast in the Strategy for Sustainable Development of Transport until 2030 in 2025 and 2030

	2022 volume achieved	2025 minimum forecast	2030 minimum forecast
transport performance in railway transport (billion tonne-km)	62.5	58	60
share of volume in 2022 compared to 2025 and 2030		107.76%	104.17%

	2022 volume achieved	2025 maximum forecast	2030 maximum forecast
transport performance in railway transport (billion tonne-km)	62.5	61	67
share of volume in 2022 compared to 2025 and 2030		102.46%	93.28%



◀ Fig. 107 Forecast of intermodal rail transport in Poland for the years 2021–2030 (thousand TEU) according to Sustainable Transport Development Strategy until 2030
Source: *Development directions of intermodal transport until 2030 with a perspective until 2040* p. 53

2.11. Freight railway transport in Poland compared to other European countries

The year 2022 has proved to be more difficult for railway undertakings in Europe than the previous two years. Through the conflict in Ukraine, supply chains that had been in place for years were broken or weakened. Significant increases in fuel and traction energy prices were further challenges faced by freight operators.

Available Eurostat data for 28 countries shows that 2022 for 17 countries was weaker in terms of the weight of goods transported by rail than 2021. Overall, the examined countries carried 2.4% less freight by weight compared to 2021. Lithuania (-39.4%), North Macedonia (-27.8%), Estonia (-24%) and Finland (-22 per cent) showed the highest rate of decline.

Three countries account for 46.8% of the weight of goods transported by rail in Europe. The leading position is maintained by Germany, where 358.8 million tonnes of goods were transported by train in 2022 – a 23.57% share of the total weight of freight transported in the 28 countries analysed. The weight of cargo handled in Poland (248.5 million tonnes) allowed our country to take second place in this statement and a 16.32% market share. The third largest share (6.91%) is held by Italy, where the railways transported 105.2 million tonnes of freight in 2022. This countryrecorded the highest increase in volume transported (+8 million tonnes) in the year-on-year terms. The second largest increase in mass was recorded in Poland (+4.9 million

tonnes compared to 2021). In the Netherlands, which is third in this respect, the weight increased by more than 1.3 million tonnes year-on-year.

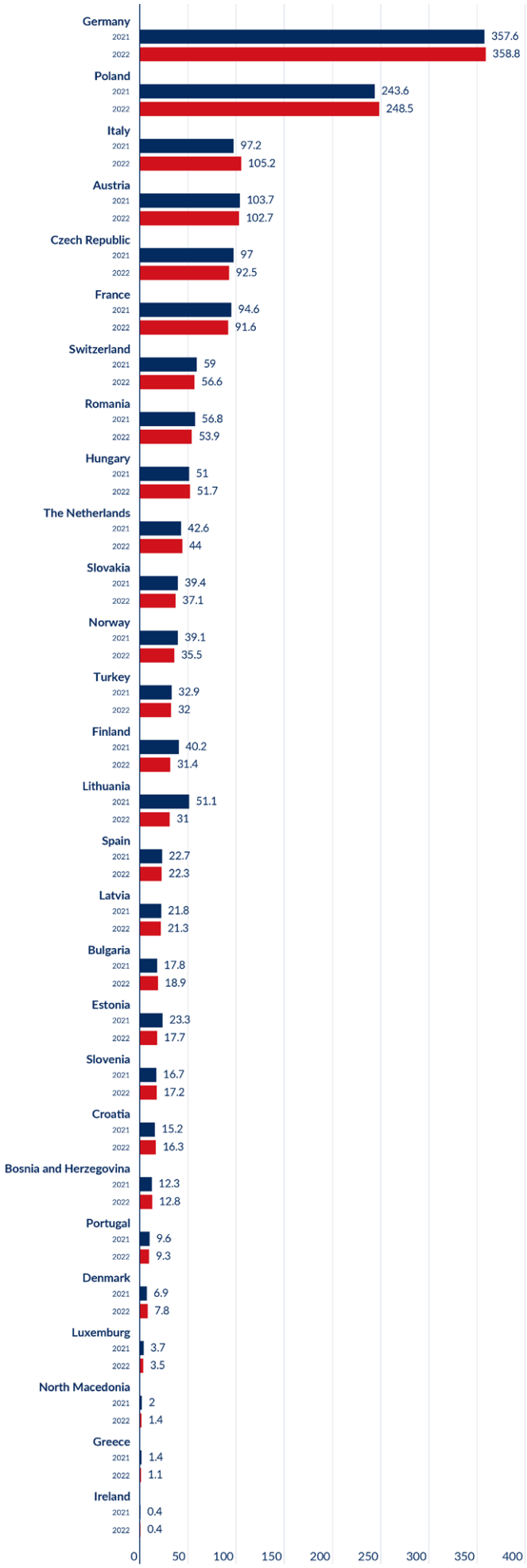
Analysing the year-on-year growth dynamics of the weight carried, the largest increase took place for Denmark (+12.5%, up from 6.9 million tonnes in 2021 to 7.8 million in 2022), followed by Italy (+8.3%, up from 97.2 million tonnes in 2021 to 105.2 million tonnes in 2022) and Croatia (+7.1%, up from 15.2 million tonnes in 2021 to 16.3 million in 2022). Poland, with a growth rate of 2% year-on-year, ranked eighth in this statement.

Compared to the 28 countries analysed, Poland saw the largest increase in its share of total goods carried – by 0.71 percentage points (from 15.32% to 16.32%) in the year-on-year statement. In the case of Italy, this was an increase of 0.68 percentage points (from 6.23% to 6.91%) and of 0.65 percentage points for Germany (from 22.92% to 23.57%).

In addition to having the largest market share in terms of weight, Germany also remains the European leader in terms of transport performance by rail freight. In 2022, it amounted to 124.6 billion tonne-kilometres – a market share of 30.46% among the 28 countries in Eurostat's statement. Compared to 2021, this means a level of transport performance higher by more than 1.5 billion tonne-kilometres (+1.2%) and an increase in market share by by more than 0.29 percentage points. The level of transport performance in Poland (62.5 billion tonne-kilometres) is the second highest in Europe, with a 15.28% market share, and the highest year-on-year increase in transport performance (+6.5 billion tonne-kilometres) and market share (+1.56 percentage points) among the 28 countries analysed. The volume of transport performance shown in freight in France (35.3 billion tonne-kilometres) is more than 0.4 billion tonne-kilometres (-1.3%) lower year-on-year and a decrease in shares of 0.13 percentage points (from 8.76% in 2021 to 8.63% in 2022) in the year-on-year terms.

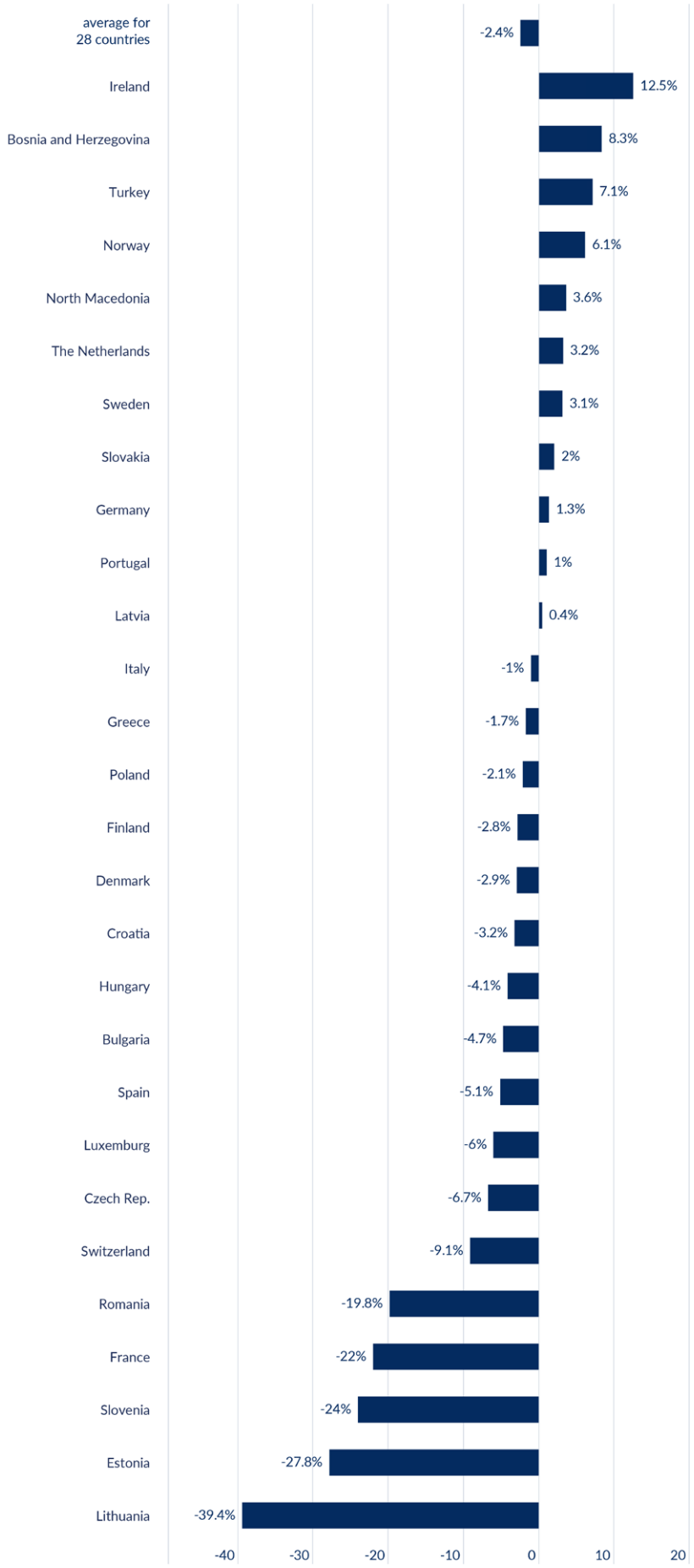
Of the 28 countries analysed, Lithuania recorded the largest year-on-year decrease in freight train transport performance. At 7.4 billion tonne-kilometres, transport performance in 2022 is down by 7.2 billion (-49.4%) compared to 2021, and the recorded decrease in market share is 1.77 percentage points (from 3.57% in 2021 to 1.80 in 2022).

Juxtaposing the data reported by Eurostat on the value of transport performance in rail freight with the weight of freight, an average transport distance of 1 tonne of freight was obtained. In 2022, the longest average distance was covered by a freight train in Spain (438 km), followed by Turkey (412 km) and Greece (401 km). For France, the distance was 385 km. The average distance of transporting 1 tonne of freight in Poland (251 km) is slightly lower than the European average, which was almost 270 km in 2022.



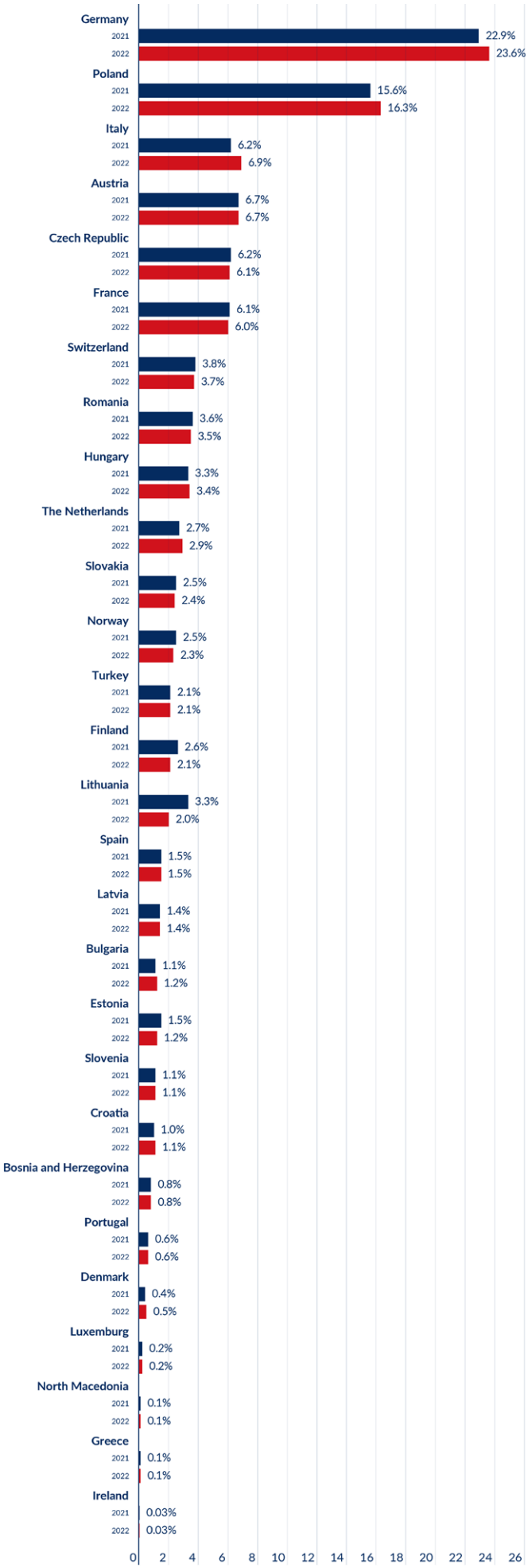
◀ Fig. 108 Weight of cargo handled by rail in individual countries in 2021–2022 (in m tonnes)
Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
Germany	357.6	358.8
Poland	243.6	248.5
Italy	97.2	105.2
Austria	103.7	102.7
Czech Republic	97.0	92.5
France	94.6	91.6
Switzerland	59.0	56.6
Romania	56.8	53.9
Hungary	51.0	51.7
The Netherlands	42.6	44.0
Slovakia	39.4	37.1
Norway	39.1	35.5
Turkey	32.9	32.0
Finland	40.2	31.4
Lithuania	51.1	31.0
Spain	22.7	22.3
Latvia	21.8	21.3
Bulgaria	17.8	18.9
Estonia	23.3	17.7
Slovenia	16.7	17.2
Croatia	15.2	16.3
Bosnia and Herzegovina	12.3	12.8
Portugal	9.6	9.3
Denmark	6.9	7.8
Luxemburg	3.7	3.5
North Macedonia	2.0	1.4
Greece	1.4	1.1
Ireland	0.4	0.4



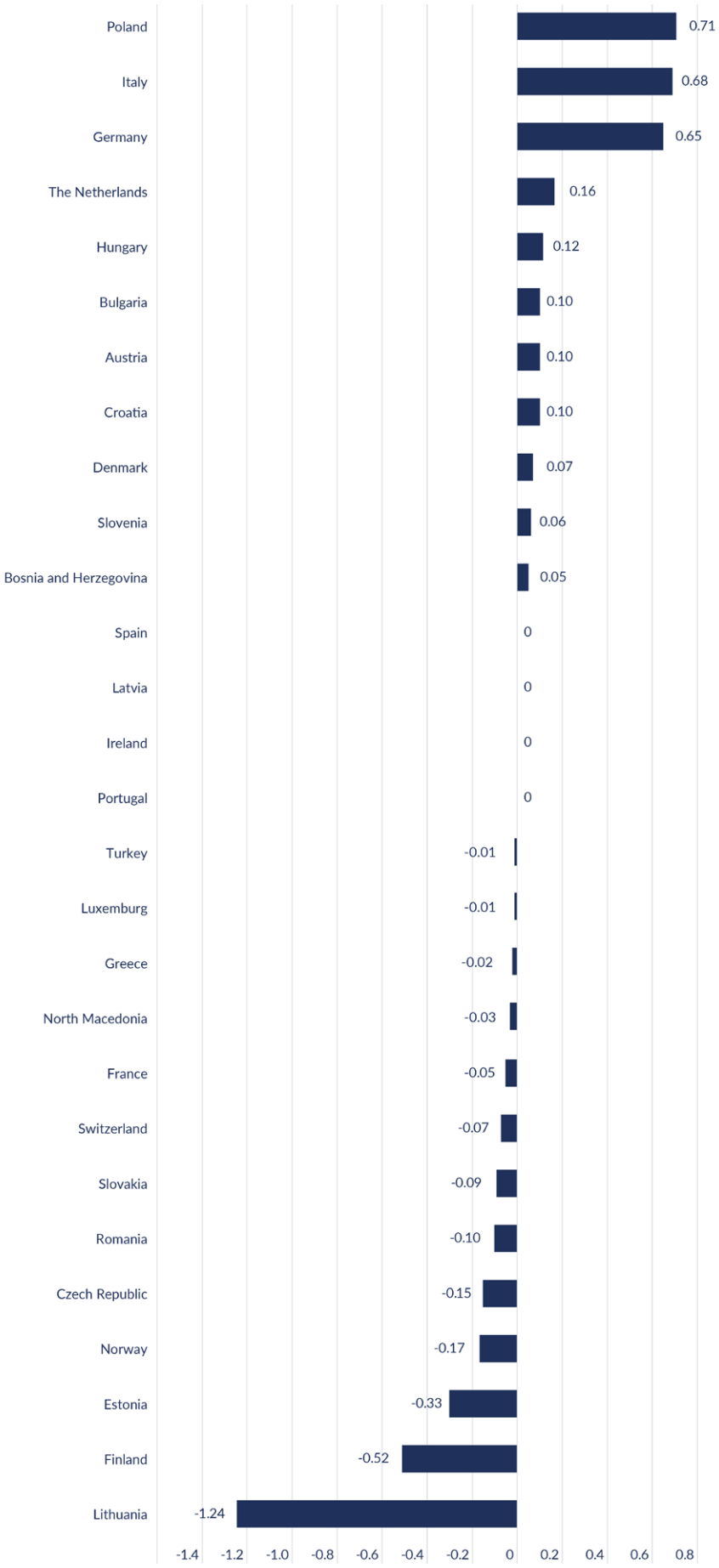
◀ Fig. 109 Dynamics of change in 2022 compared to 2021 in the weight of goods transported by rail in individual countries
Source: compiled by the company on the basis of UTK and Eurostat data.

	Dynamics 2022/2021
average for 28 countries	-2.4%
Denmark	12.5%
Italy	8.3%
Croatia	7.1%
Bulgaria	6.1%
Bosnia and Herzegovina	3.6%
Slovenia	3.2%
The Netherlands	3.1%
Poland	2%
Hungary	1.3%
Ireland	1%
Germany	0.4%
Austria	-1%
Spain	-1.7%
Latvia	-2.1%
Turkey	-2.8%
Portugal	-2.9%
France	-3.2%
Switzerland	-4.1%
Czech Republic	-4.7%
Romania	-5.1%
Slovakia	-6%
Luxemburg	-6.7%
Norway	-9.1%
Greece	-19.8%
Finland	-22%
Estonia	-24%
North Macedonia	-27.8%
Lithuania	-39.4%



◀ Fig. 110 Share of individual European countries in the total market by weight of goods transported by rail in 2021 and 2022
Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
Germany	22.9%	23.6%
Poland	15.6%	16.3%
Italy	6.2%	6.9%
Austria	6.7%	6.7%
Czech Republic	6.2%	6.1%
France	6.1%	6.0%
Switzerland	3.8%	3.7%
Romania	3.6%	3.5%
Hungary	3.3%	3.4%
The Netherlands	2.7%	2.9%
Slovakia	2.5%	2.4%
Norway	2.5%	2.3%
Turkey	2.1%	2.1%
Finland	2.6%	2.1%
Lithuania	3.3%	2.0%
Spain	1.5%	1.5%
Latvia	1.4%	1.4%
Bulgaria	1.1%	1.2%
Estonia	1.5%	1.2%
Slovenia	1.1%	1.1%
Croatia	1.0%	1.1%
Bosnia and Herzegovina	0.8%	0.8%
Portugal	0.6%	0.6%
Denmark	0.4%	0.5%
Luxemburg	0.2%	0.2%
North Macedonia	0.1%	0.1%
Greece	0.1%	0.1%
Ireland	0.03%	0.03%

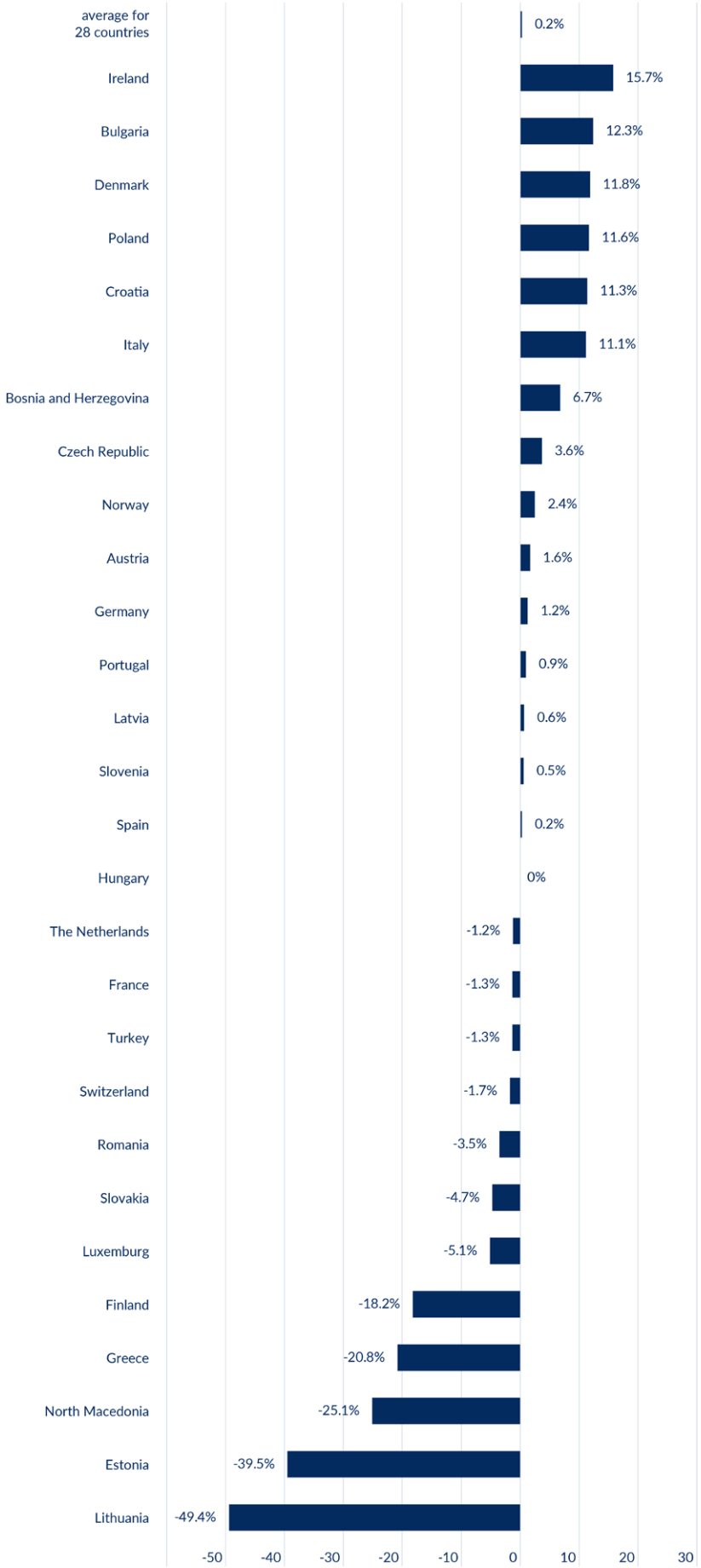


◀ Fig. 111 Change in shares in 2022 compared to 2021 in individual European countries by weight of goods transported by rail (percentage points)
Source: compiled by the company on the basis of UTK and Eurostat data.

	Dynamics 2022/2021
Poland	0.71
Italy	0.68
Germany	0.65
The Netherlands	0.16
Hungary	0.12
Bulgaria	0.10
Austria	0.10
Croatia	0.10
Denmark	0.07
Slovenia	0.06
Bosnia and Herzegovina	0.05
Spain	0.01
Latvia	0.00
Ireland	0.00
Portugal	0.00
Turkey	-0.01
Luxemburg	-0.01
Greece	-0.02
North Macedonia	-0.03
France	-0.05
Switzerland	-0.07
Slovakia	-0.09
Romania	-0.10
Czech Republic	-0.15
Norway	-0.17
Estonia	-0.33
Finland	-0.52
Lithuania	-1.24

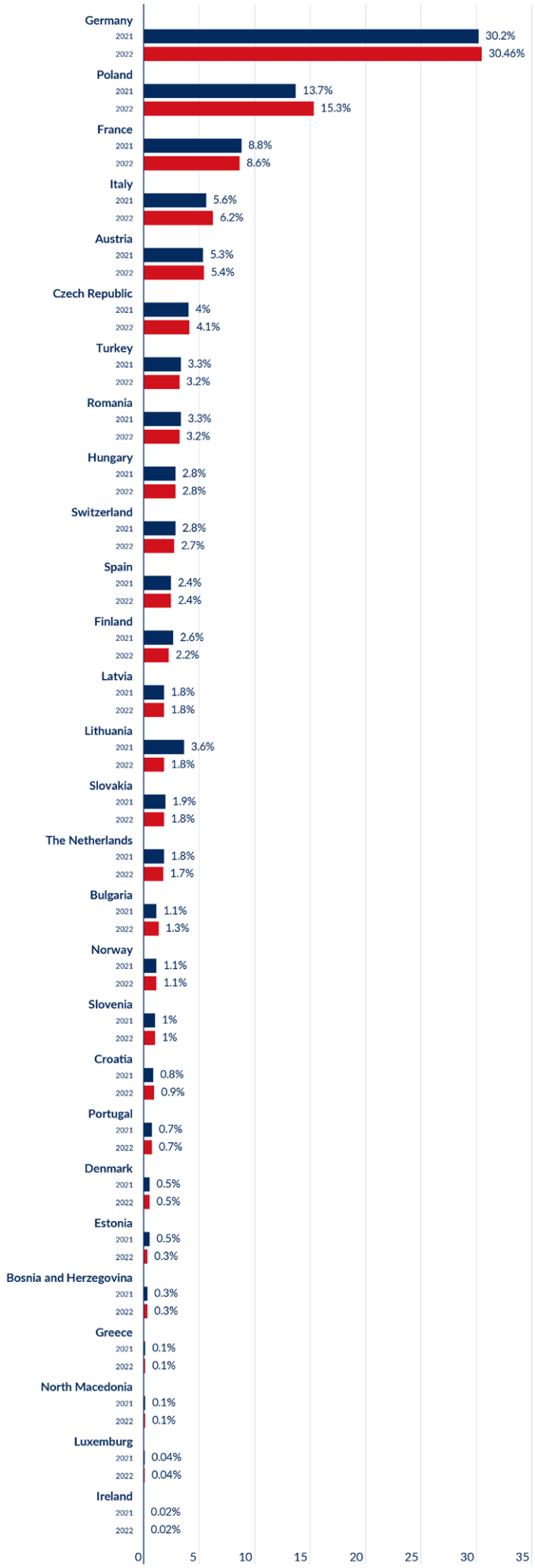
◀ Fig. 112 Transport performance in rail freight transport in individual countries in 2021–2022 (billion tonne-km)
Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
Germany	123.1	124.6
Poland	56.0	62.5
France	35.8	35.3
Italy	22.8	25.3
Austria	21.8	22.1
Czech Republic	16.1	16.7
Turkey	13.4	13.2
Romania	13.6	13.1
Hungary	11.3	11.4
Switzerland	11.3	11.1
Spain	9.7	9.8
Finland	10.8	8.8
Latvia	7.4	7.4
Lithuania	14.6	7.4
Slovakia	7.6	7.3
The Netherlands	7.2	7.1
Bulgaria	4.7	5.2
Norway	4.5	4.6
Slovenia	4.1	4.1
Croatia	3.2	3.5
Portugal	2.7	2.8
Denmark	2	2.2
Estonia	2.1	1.3
Bosnia and Herzegovina	1.2	1.3
Greece	0.6	0.5
North Macedonia	0.4	0.3
Luxemburg	0.2	0.2
Ireland	0.1	0.1



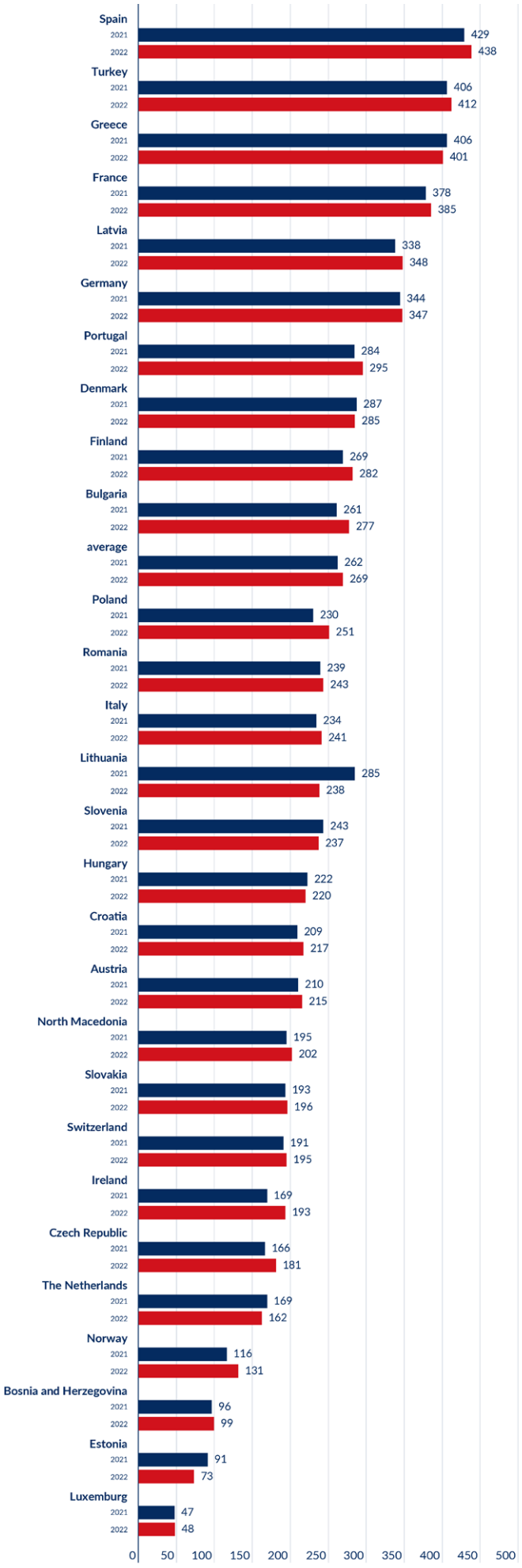
◀ Fig. 113 Dynamics of change in 2022 compared to 2021 in transport performance in the transport of goods by rail in the individual 28 countries
Source: compiled by the company on the basis of UTK and Eurostat data.

	Dynamics 2022/2021
average for 28 countries	0.2%
Ireland	15.7%
Bulgaria	12.3%
Denmark	11.8%
Poland	11.6%
Croatia	11.3%
Italy	11.1%
Bosnia and Herzegovina	6.7%
Czech Republic	3.6%
Norway	2.4%
Austria	1.6%
Germany	1.2%
Portugal	0.9%
Latvia	0.6%
Slovenia	0.5%
Spain	0.2%
Hungary	0.0%
The Netherlands	-1.2%
France	-1.3%
Turkey	-1.3%
Switzerland	-1.7%
Romania	-3.5%
Slovakia	-4.7%
Luxemburg	-5.1%
Finland	-18.2%
Greece	-20.8%
North Macedonia	-25.1%
Estonia	-39.5%
Lithuania	-49.4%



◀ Fig. 114 Share of individual European countries in the total market by transport performance in 2021 and 2022
Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
Germany	30.2%	30.46%
Poland	13.7%	15.3%
France	8.8%	8.6%
Italy	5.6%	6.2%
Austria	5.3%	5.4%
Czech Republic	4%	4.1%
Turkey	3.3%	3.2%
Romania	3.3%	3.2%
Hungary	2.8%	2.8%
Switzerland	2.8%	2.7%
Spain	2.4%	2.4%
Finland	2.6%	2.2%
Latvia	1.8%	1.8%
Lithuania	3.6%	1.8%
Slovakia	1.9%	1.8%
The Netherlands	1.8%	1.7%
Bulgaria	1.1%	1.3%
Norway	1.1%	1.1%
Slovenia	1%	1%
Croatia	0.8%	0.9%
Portugal	0.7%	0.7%
Denmark	0.5%	0.5%
Estonia	0.5%	0.3%
Bosnia and Herzegovina	0.3%	0.3%
Greece	0.1%	0.1%
North Macedonia	0.1%	0.1%
Luxemburg	0.04%	0.04%
Ireland	0.02%	0.02%



◀ Fig. 115 Average transport distance of 1 tonne of goods in rail transport by country in 2021 and 2022 (in km)
Source: compiled by the company on the basis of UTK and Eurostat data.

	2021	2022
Spain	429	438
Turkey	406	412
Greece	406	401
France	378	385
Latvia	338	348
Germany	344	347
Portugal	284	295
Denmark	287	285
Finland	269	282
Bulgaria	261	277
average	262	269
Poland	230	251
Romania	239	243
Italy	234	241
Lithuania	285	238
Slovenia	243	237
Hungary	222	220
Croatia	209	217
Austria	210	215
North Macedonia	195	202
Slovakia	193	196
Switzerland	191	195
Ireland	169	193
Czech Republic	166	181
The Netherlands	169	162
Norway	116	131
Bosnia and Herzegovina	96	99
Estonia	91	73
Luxemburg	47	48

3. Intermodal transport

3.1. Intermodal transport

The Polish transport market has seen a systematic increase in intermodal transport in recent years. However, the data for 2022 shows that this type of transport has proved sensitive to geopolitical factors, primarily in relation to the war in Ukraine.

In 2022, the uncertain situation related to the war in Ukraine and the increase in the cost of doing business in transport were two key factors that slowed down the growth of intermodal transport. Recipients, shippers and freight forwarders began to look for alternative modes of transport and new distribution channels for cargo from China. Some logistics companies and freight forwarders hauling goods between China and Europe – in fear of possible sanctions imposed on Russia and Belarus, as well as other restrictions, e.g. in terms of insuring cargo along the New Silk Road route (part of which runs through Russia and Belarus) – have opted to use the traditional sea route or an alternative transit route via the Caspian Sea. Despite the observed changes, transit transport from China to Western Europe via Russia and Belarus, as well as Poland, is advantageous for many shippers, e.g. in terms of time or price. Intermodal transport carried 26.2 million tonnes of freight in 2022, 1.4% less than in 2021. The transport performance of intermodal cargo stood at 8.6 billion tonne-km. Compared to 2021, it increased by more than 0.4 billion tonne-km (approx. 5.3%).

In 2022, railway undertakings transported 1,750,000 units of cargo, of which 1,680,000 units were containers. Their share of the total number of entities at the end of 2022 was 96%. As in previous years, 20-foot and 40-foot entities were transported the most, accounting for 37.7% and 52.5% of the total number of units, respectively. The share of other containers was respectively: 25-foot containers – 0.3%, 30-foot containers – 2%, 35-foot containers – 0.02% and 45-foot containers – 3.5%. Semi-trailers and car trailers accounted for 2.8% of the entities used, and swap bodies 0.6%. Compared to 2021, the number of entities transported decreased by approximately 1.6%. In the period under review, 2,836,000 TEUs were transported by rail. Compared to 2021, this is a decrease of 2.9%.

Of the 23 railway undertakings carrying out intermodal transport in 2022, the best result was achieved by PKP Cargo, both in terms of the weight of cargo carried and transport performance. This undertaking's market share was 25.2% by weight and 30.1% by transport performance. Compared to 2021 PKP Cargo's share fell by 5.5 percentage points in weight and 7.2 percentage points in transport performance.

The share of domestic transport in intermodal transport has remained at a low level for years. Measured by transport performance, domestic transport amounted to only 22.9 per cent and the remaining 77.1 per cent was international transport performance. The weight transported in domestic communication accounted for 2022 19.1%, and international transport was responsible for the remaining 80.9%. By number of entities transported, imports accounted for 31.7%, exports for 33.3% and transit for 12.8% (the total is close to 77.8%). The share of domestic communication was approximately 22.2%.

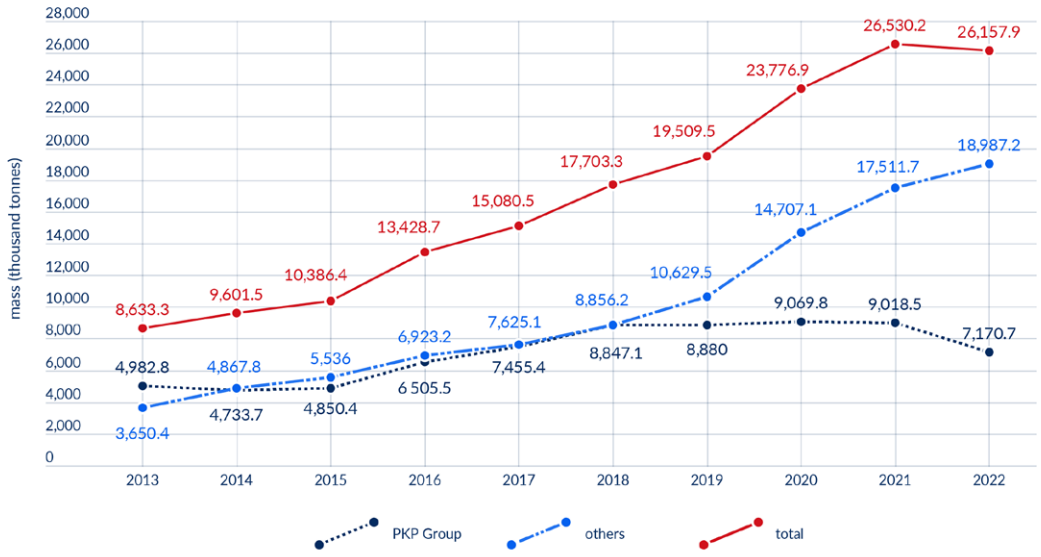
In 2022, the share of the mass transported by rail through intermodal transport in the total mass of cargo transported by rail represented 10.5% (in 2021, this share was 10.9%). The share of transport performance by rail in intermodal transport in 2022 was 13.8% (in 2021 it was 14.6%). The share of intermodal transport in rail transport therefore fell by 0.4 percentage points in freight weight carried and 0.8 percentage points in transport performance.

In 2022, the average distance for intermodal transport was 329 km.

▼ Tab. 105 List of railway undertakings providing intermodal rail transport in 2013–2022

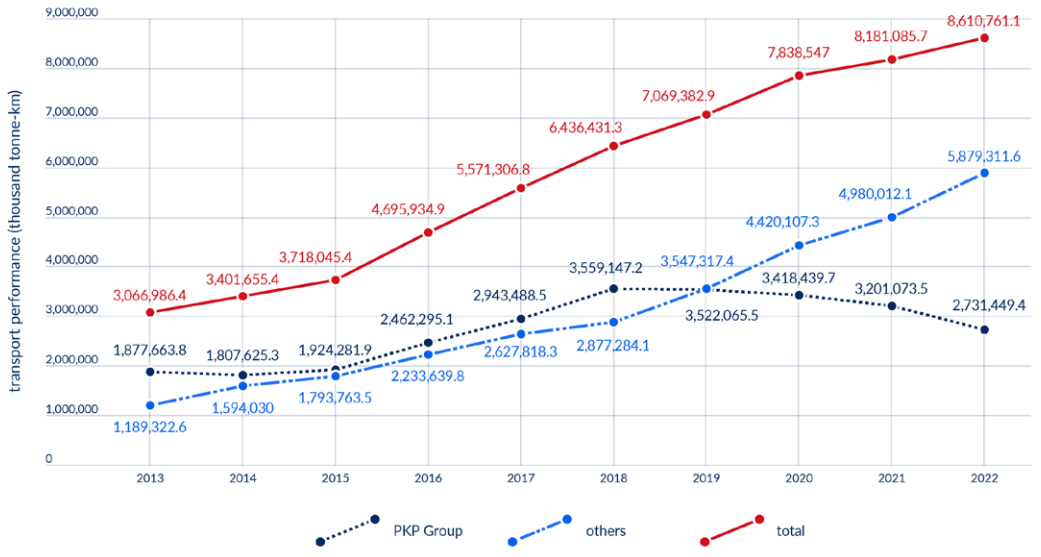
undertaking	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
PKP Cargo	●	●	●	●	●	●	●	●	●	●
PKP LHS	●	●	●	●	●	●	●	●	●	●
DB Cargo Polska	●	●	●	●	●	●	●	●	●	●
CTL Rail	●	●	●	○	○	○	○	○	○	○
CTL Logistics	●	●	●	●	●	●	●	●	●	●
CTL Express	○	○	○	○	○	○	○	○	○	○
Alza Cargo	○	○	○	○	○	○	●	●	●	●
Captrain Polska	●	○	●	●	●	●	●	●	●	●
Cargo Master	○	○	○	○	○	○	○	●	○	○
CD Cargo Poland	○	○	○	●	●	●	●	●	●	●
Cedrob	○	○	○	○	○	○	○	○	●	○
Ecco Rail	●	●	●	●	●	●	●	●	●	●
EP Cargo	○	○	○	○	○	○	○	●	●	○
Eurasian Railway Carrier	○	○	○	○	○	●	●	●	●	●
Eurotrans	○	●	●	●	●	●	●	●	●	●
Freightliner PL	○	●	●	●	●	○	○	●	●	●
Inter Cargo	○	○	○	○	○	●	○	○	●	○
IRT	○	○	○	○	○	○	○	○	○	●
Karpiel	○	●	○	○	●	●	●	●	○	○
Kolej Bałtycka	○	○	○	○	●	○	○	○	○	○
Lotos Kolej	●	●	●	●	●	●	●	●	●	●
LTE Polska	○	○	○	○	●	●	●	●	●	●
LTG Cargo	○	○	○	○	○	○	○	○	○	●
Majkoltrans	○	○	○	○	●	●	○	○	○	○
Metrans	○	●	●	●	●	●	●	●	●	●
Orion Rail Logistics	○	○	○	○	○	○	○	●	●	○
PCC Intermodal	○	○	○	○	●	●	●	●	●	●
Pol-Miedź Trans	○	○	○	○	●	●	○	○	●	●
Rail Cargo Carrier	○	○	○	○	○	○	●	●	●	●

undertaking	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Rail Polska	●	●	●	●	●	●	●	●	●	●
Silva LS	○	○	○	○	○	○	○	○	●	●
STK	●	○	○	●	○	●	●	○	○	○
TKP Silesia	○	○	○	○	○	○	○	○	○	●
Transchem	○	○	○	○	○	●	●	○	○	○
ZIK Sandomierz	○	○	○	○	○	●	●	●	○	●



◀ Fig. 116 Rail intermodal transport in Poland (in thousands of tonnes)

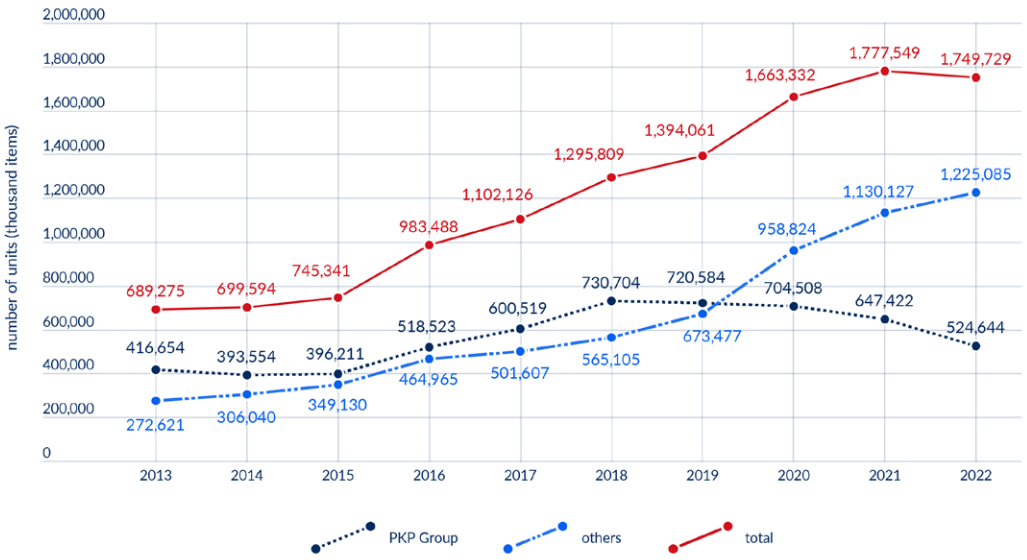
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
PKP Group	4,982.8	4,733.7	4,850.4	6,505.5	7,455.4	8,847.1	8,880.0	9,069.8	9,018.5	7,170.7
others	3,650.4	4,867.8	5,536.0	6,923.2	7,625.1	8,856.2	10,629.5	14,707.1	17,511.7	18,987.2
total	8,633.3	9,601.5	10,386.4	13,428.7	15,080.5	17,703.3	19,509.5	23,776.9	26,530.2	26,157.9



◀ Fig. 117 Rail intermodal transport in Poland (in thousand tonne-km)

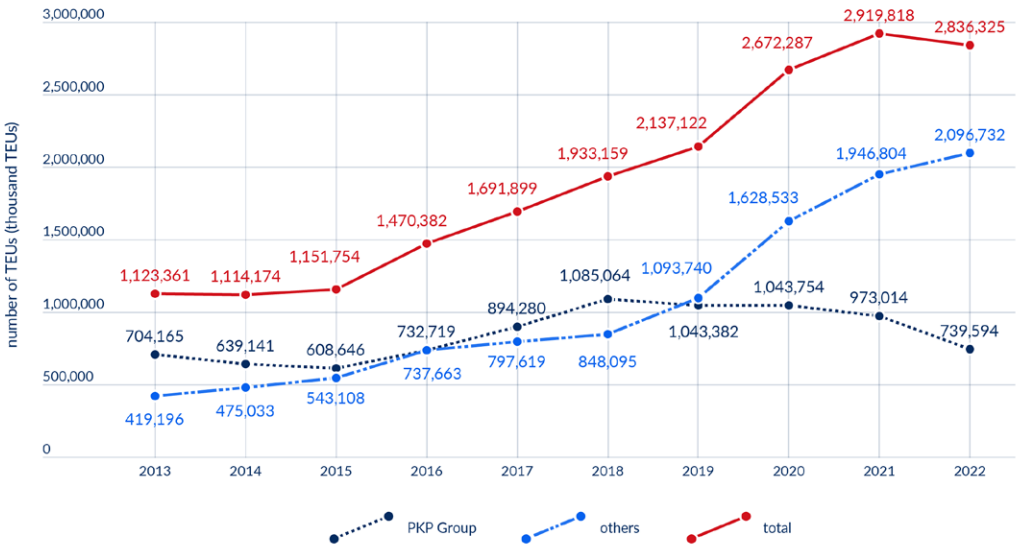
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
PKP Group	1,877,663.8	1,807,625.3	1,924,281.9	2,462,295.1	2,943,488.5	3,559,147.2	3,522,065.5	3,418,439.7	3,201,073.5	2,731,449.4
others	1,189,322.6	1,594,030	1,793,763.5	2,233,639.8	2,627,818.3	2,877,284.1	3,547,317.4	4,420,107.3	4,980,012.1	5,879,311.6
total	3,066,986.4	3,401,655.4	3,718,045.4	4,695,934.9	5,571,306.8	6,436,431.3	7,069,382.9	7,838,547	8,181,085.7	8,610,761.1

◀ Fig. 118 Rail intermodal transport in Poland (in thousands of items)

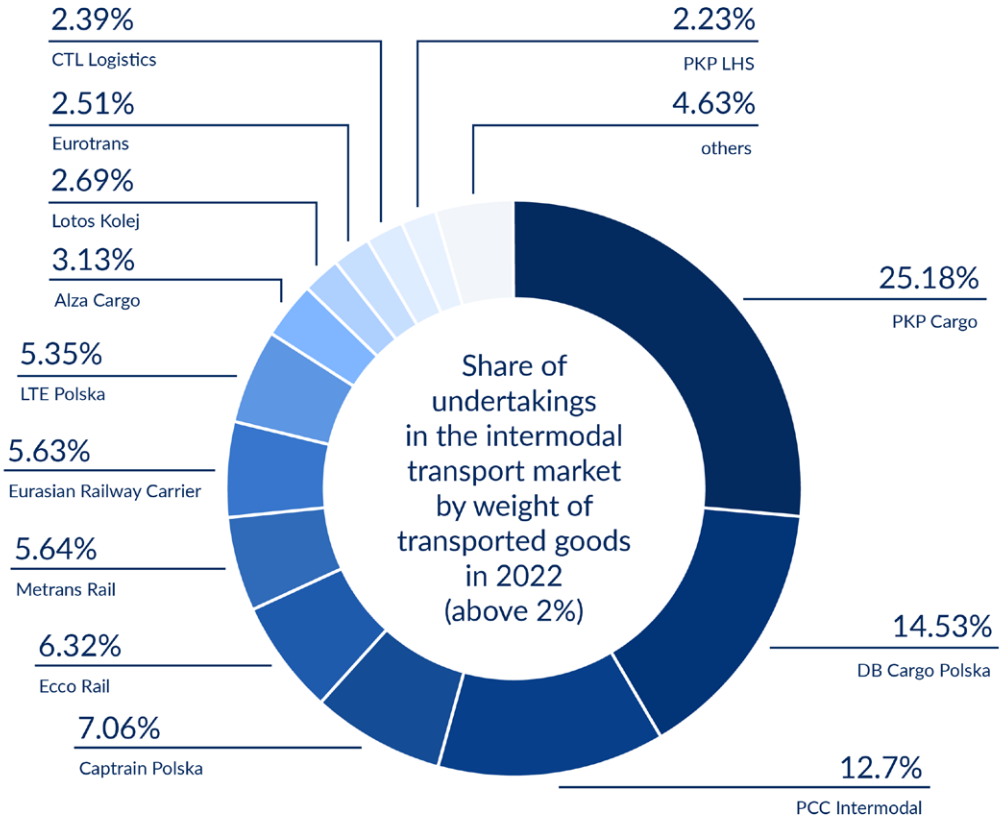


	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
PKP Group	416,654	393,554	396,211	518,523	600,519	730,704	720,584	704,508	647,422	524,644
others	272,621	306,040	349,130	464,965	501,607	565,105	673,477	958,824	1,130,127	1,225,085
total	689,275	699,594	745,341	983,488	1,102,126	1,295,809	1,394,061	1,663,332	1,777,549	1,749,729

◀ Fig. 119 Rail intermodal transport in Poland (in TEU)

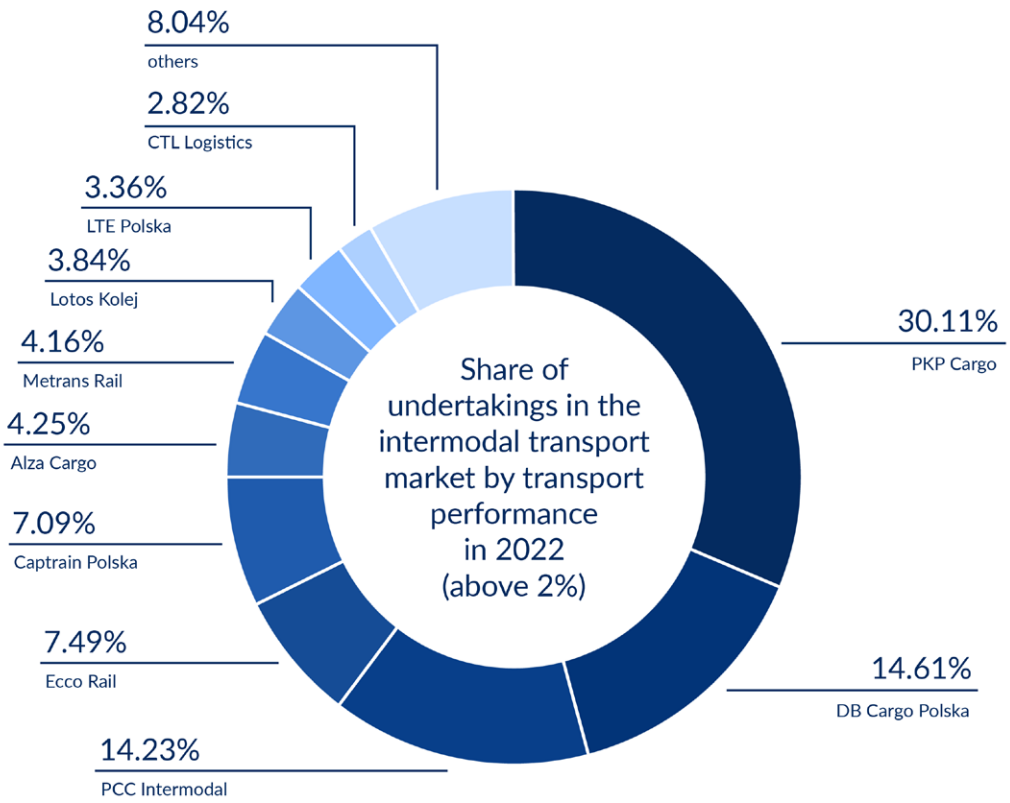


	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
PKP Group	704,165	639,141	608,646	737,663	894,280	1,085,064	1,043,382	1,043,754	973,014	739,594
others	419,196	475,033	543,108	732,719	797,619	848,095	1,093,740	1,628,533	1,946,804	2,096,732
total	1,123,361	1,114,174	1,151,754	1,470,382	1,691,899	1,933,159	2,137,122	2,672,287	2,919,818	2,836,325



◀ Fig. 120 Share of undertakings in the intermodal transport market by weight of transported goods in 2022 (above 2%)

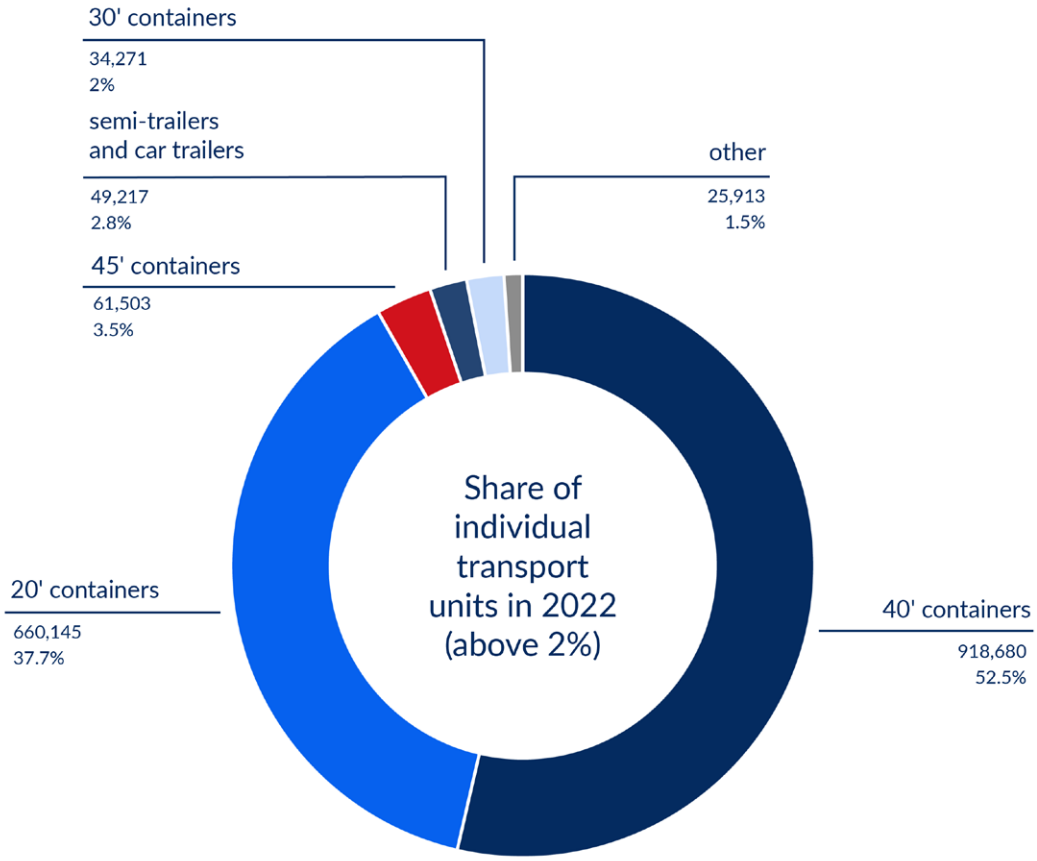
undertaking	share
PKP Cargo	25.18%
DB Cargo Polska	14.53%
PCC Intermodal	12.70%
Captrain Polska	7.06%
Ecco Rail	6.32%
Metrans Rail	5.64%
Eurasian Railway Carrier	5.63%
LTE Polska	5.35%
Alza Cargo	3.13%
Lotos Kolej	2.69%
Eurotrans	2.51%
CTL Logistics	2.39%
PKP LHS	2.23%
LTG Cargo	1.22%
Silva LS	0.76%
Pol-Miedź Trans	0.66%
Rail Polska	0.59%
Freightliner PL	0.51%
Rail Cargo Carrier	0.38%
CD Cargo Poland	0.23%
ZIK Sandomierz	0.15%
TKP Silesia	0.07%
IRT	0.06%



◀ Fig. 121 Share of undertakings in the intermodal transport market by transport performance in 2022 (above 2%)

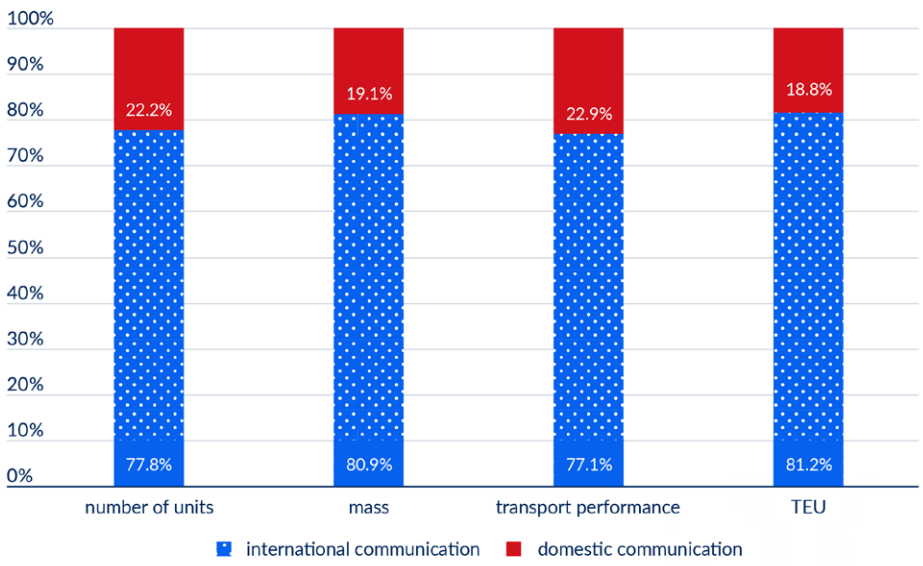
undertaking	share
PKP Cargo	30.11%
DB Cargo Polska	14.61%
PCC Intermodal	14.23%
Ecco Rail	7.49%
Captrain Polska	7.09%
Alza Cargo	4.25%
Metrans Rail	4.16%
Lotos Kolej	3.84%
LTE Polska	3.36%
CTL Logistics	2.82%
PKP LHS	1.61%
LTG Cargo	1.51%
Silva LS	1.40%
Freightliner PL	1.01%
Pol-Miedź Trans	0.90%
CD Cargo Poland	0.40%
Rail Polska	0.39%
ZIK Sandomierz	0.36%
Rail Cargo Carrier	0.18%
Eurasian Railway Carrier	0.14%
Eurotrans	0.12%
TKP Silesia	0.01%
IRT	0.002%

Fig. 122 Share of individual transport units in 2022 (above 2%)



unit	the number of items	share
40' containers	918,680	52.5%
20' containers	660,145	37.7%
45' containers	61,503	3.5%
semi-trailers and car trailers	49,217	2.8%
30' containers	34,271	2.0%
swap bodies	10,808	0.6%
other	9,797	0.6%
25' containers	5,006	0.3%
35' containers	302	0.02%

Fig. 123 The share of domestic and international transport in intermodal transport in 2022



	domestic communication	international communication
number of units	22.2%	77.8%
mass	19.1%	80.9%
transport performance	22.9%	77.1%
TEU	18.8%	81.2%

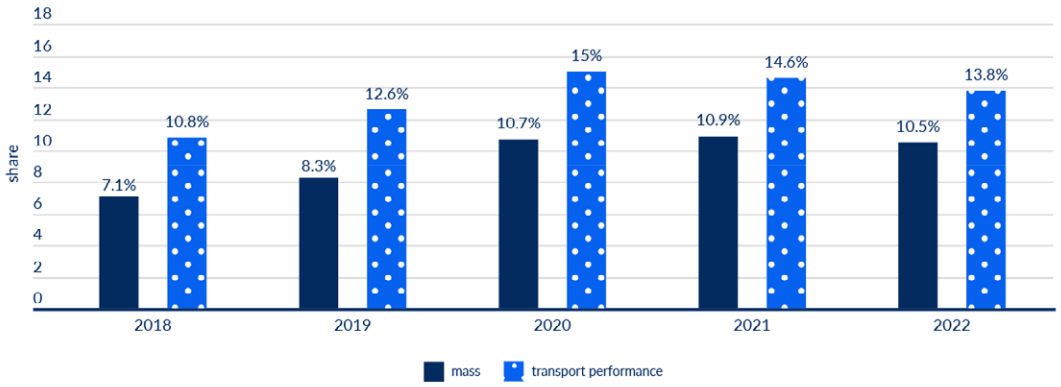


Fig. 124 The share of intermodal transport in the freight transport market in Poland by the weight of goods transported and by transport performance in 2018–2022

	2018	2019	2020	2021	2022
mass	7.07%	8.25%	10.65%	10.90%	10.5%
transport performance	10.79%	12.65%	15.01%	14.60%	13.80%

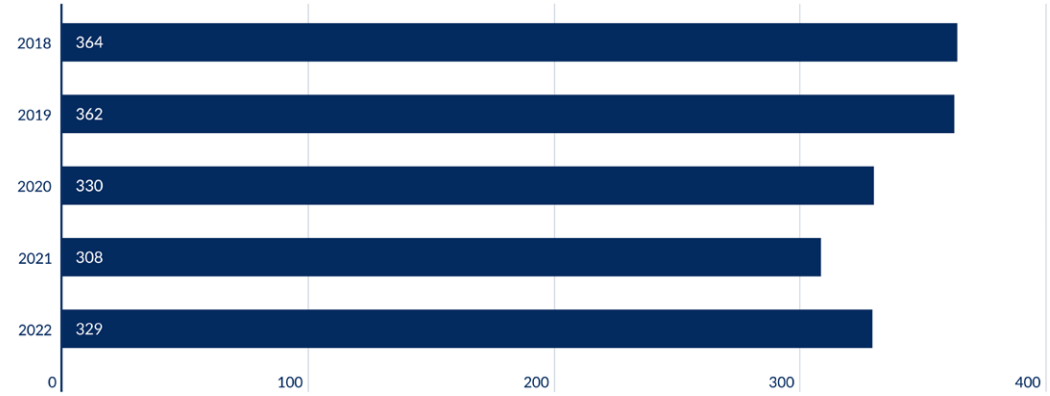


Fig. 125 Average transport distance of 1 tonne of cargo in intermodal transport 2018–2022 (in km)

	distance
2018	363.6
2019	362.4
2020	329.7
2021	308.4
2022	329.2

3.2. Terminals and intermodal relations in Poland

In 2022, there were 42 intermodal terminals on the market in Poland. They had a total storage area of 240,562 TEU and a declared annual throughput of more than 9.6 million TEU. The largest terminal in Poland was the Baltic Hub Container Terminal (formerly: DCT) in Gdańsk. In second place was the BCT terminal in Gdynia. The combined annual throughput of these two marine terminals accounted for more than 41% of the total potential of all such facilities. They are part of global supply chains serving the largest container ships.

Generating large containerised cargo streams, seaports play an important role in intermodal transport. In 2022, Polish seaports handled nearly 3.1 million TEUs. This represents a slight decrease compared to the record-breaking result so far in 2021, when nearly 3.2 million TEUs were transhipped. The Port of Gdańsk and Gdynia handled the highest TEU volumes in 2022, with nearly2.1 million TEUs and over 0.9 million TEUs respectively. The share of ports in Szczecin and Świnoujście in container transhipment was much lower. Together, these ports handled almost 0.1 million TEU in 2022.

Containers from the Port of Gdańsk by intermodal trains most often went to central Poland (Warsaw, Łódź and terminals located in the Łódzkie province), to the Wielkopolskie and Dolnośląskie provinces, to Silesia and the Czech border, to the Małopolskie province, as well as to Lublin and the Lubelskie province.

The main direction taken by intermodal trains in 2022 departing from the Gdańsk Port Północny station was Stara Wieś near Kutno. A total of 418 trains were routed to the PCC Intermodal terminal. In second place were connections from Gdańsk Port Północny station to Łódź Olechów station – 402 trains were tracked.

In the case of the Port of Gdynia, the range of transports carried out was similar – covering the provinces of central and southern Poland. As in the case of Gdańsk, the most frequent intermodal connection from Gdynia in 2022 was transport to Stara Wieś near Kutno, where 333 trains were routed.

The geopolitical situation related to the war in Ukraine has changed the directions of freight transport, especially in international communication. Despite the reduction of transport from Russia or Belarus, transport using the terminals in Małaszewicze was one of the key directions, however, the number of trains routed as intermodal according to SEPE2 reports decreased from 5,066 in 2021 to 3,903 in 2022 (a decrease of 23%). As a result of the Russian aggression against Ukraine, the importance of Małaszewicze for intermodal traffic has decreased. The uncertain situation related to the war is forcing, for example, the creation of new alternative options for transporting cargo, as well as a return to maritime transport, which was curtailed during the pandemic due to, for example, record freight prices.

In 2022, transport with the Kaliningrad Oblast was very much reduced, which resulted in a decrease in the number of trains in cross-border exchange from 603 in 2021 in the area of the Żeleznodorożnyj – Korsze Towarowa crossing to 354 in 2022. The decrease also affected the Braniewo-Mamonowo crossing, which handled in 2021 181 trains and only 19 in 2022.

There was an increase in intermodal traffic using the border crossings with Ukraine in 2022. While there were 56 intermodal trains between Medyka and Gliwice in 2021, there were already 97 in 2022, with the addition of relations linked to the Port of Gdańsk. Among the intermodal relations there were also connections from the Dorohusk/Jagodin area.

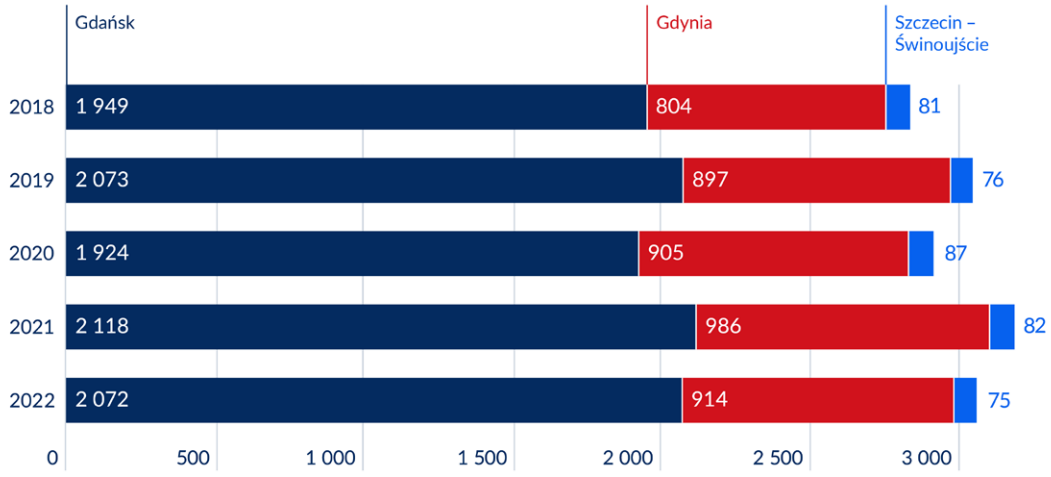
In 2022, there was an increase in exchanges at the Polish-Lithuanian border crossing Trakiszki/Mockava, these were both transit relations towards Western Europe and also related to imports and exports. In 2021, there were 18 trains in operation in the border area, while in 2022, 404 trains were in operation.

▼ Tab. 106 Intermodal terminals in Poland in 2022

name and location	total area of the terminal [ha]	storage area [TEU]	annual capacity (TEU)
Adampol – Małaszewicze	7	20,000	160,000
Agrostop Małaszewicze	16	20,000	200,000
Andrex Logistics – Siemianówka	6	3,000	200,000
Baltic Hub Container Terminal	97	64,000	2,950,000
BCT – Baltic Container Terminal – Gdynia	66.2	20,000	1,000,000
Brzesko Container Terminal	10.5	5,000	108,000
Cargosped Terminal Braniewo	13.6	0	40,000
Kontrast Intermodal Logistics Centre – Łapy	6.6	1020	54,750
CLIP Logistics – Swarzędz	8	10,000	267,000
DB Port Szczecin	9.0	5,000	150,000
Erontrans Container Terminal in Radomsko	1.2	1,400	18,000
Erontrans Container Terminal in Stryków	1.6	2,000	32,000
Europort – Małaszewicze Duże	19	6,000	150,000
Euroterminal Sławków	9.3	3,500	284,810
Gdynia Container Terminal	21.0	10,732	636,000
Laude Container Terminal in Sosnowiec	1.8	260	8,000
Laude Smart Intermodal in Zamość	1.6	450	15,000
Loconi Intermodal Container Terminal in Radomsko	6.4	2,500	100,000
Loconi Intermodal Container Terminal in Warsaw	8	4,300	140,000
Lublin Container Terminal – Drzewce	1	300	10,000
Metrans Terminal Dąbrowa Górnicza	17	2,550	233,600
Metrans Container Terminal Pruszków	4.5	1,500	96,000
Ostsped Intermodal – Szamotuły Container Terminal	3.5	1,800	70,000

name and location	total area of the terminal [ha]	storage area [TEU]	annual capacity (TEU)
OT Port Świnoujście	20	2,000	70,000
PCC Intermodal – PCC Brzeg Dolny	9	2,700	110,000
PCC Intermodal – Terminal in Kolbuszowa (depot)	1	600	80,000
PCC Intermodal – PCC Gliwice Terminal	4.8	2,900	150,000
PCC Intermodal – PCC Kutno Terminal	11	4,000	250,000
PKP CARGO Logistics Centre Medyka – Żurawica	5.7	600	43,800
PKP Cargo Connect – Container Terminal – Gliwice	6.5	1,800	128,000
PKP Cargo Connect – Container Terminal – Poznań Franowo	2.8	1,800	117,000
PKP Cargo Connect – Container Terminal – Warsaw	3	1,500	77,000
PKP Logistics Centre in Małaszewicze	14.1	3,650	292,380
Port Gdański Eksploatacja – Gdańsk	8.4	4,000	20,000
Rail Hub Terminal Gądki – Metrans Polonia	17.5	8,800	385,400
Rail Terminal Rzepin	1.6	500	40,000
Schavemaker Kąty Wrocławskie	7	3,800	300,000
Spedcont – Container Terminal Łódź Olechów	12.8	8,000	450,000
Terminal Centrostal Łódź	6.2	6,000	72,000
Container Terminal in Oleśnica – Baltic Rail	4.5	820	60,000
Container Terminal in Włosienica – Baltic Rail	10	780	50,000
Terminal in Ełk – Nelport	0.6	1,000	6,800
total	482.2	240,562	9,625,540,

*data based on declarations of intermodal terminals



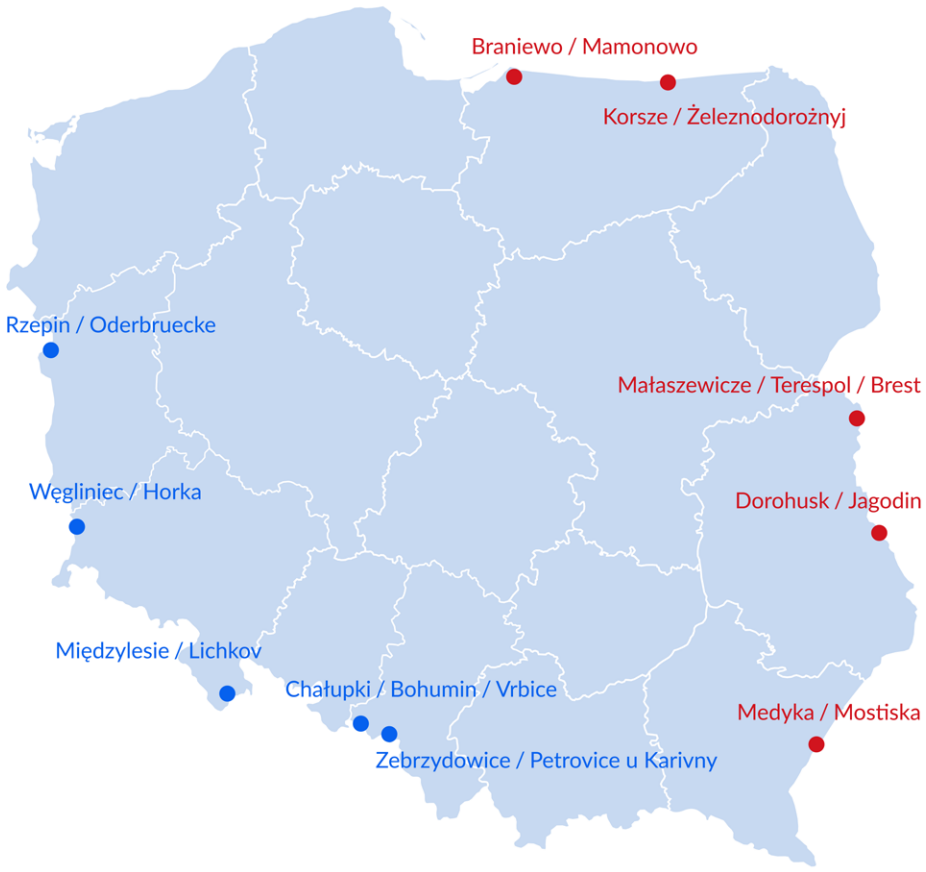
◀ Fig. 126 Transhipments in Polish seaports in 2018–2022 (thousand TEU)[27]

	2018	2019	2020	2021	2022
Gdańsk	1,949	2,073	1,924	2,118	2,072
Gdynia	804	897	905	986	914
Szczecin-Świnoujście	81	76	87	82	75

27 Source: Data based on official results published on the websites of the ports in Gdańsk, Gdynia, Szczecin and Świnoujście. As of 13 April 2023

◀ Fig. 127 Main intermodal connections launched from the Port of Gdansk in 2022

◀ Fig. 128 Main intermodal connections launched from the Port of Gdynia in 2022



◀ Fig. 129 The most important border stations for intermodal transport

3.3. The structure of the rolling stock for intermodal transport

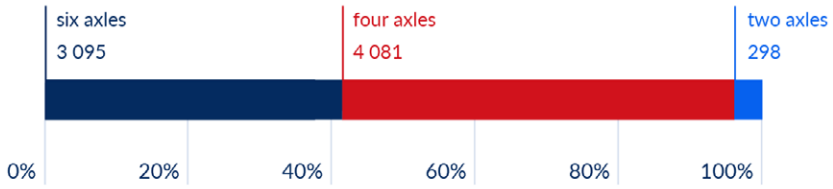
Rail freight undertakings have already largely reached the delivery stage of modern flat wagons suitable for containers. By the end of 2022, there were almost 7,500 wagons at the disposal of licensed railway undertakings with fittings for containers of various dimensions. Over the past six years, the number of these wagons has increased by almost 65%.

Compared to 2021, last year saw an increase in the number of four-axle wagons and a decrease in the number of six-axle wagons. The latter largely belonged to rolling stock leasing entities and, with the delivery of their own vehicles to the railway undertakings, they were returned to their owners. The smallest share of the number is accounted for by the Kgns series of two-axle flat wagons, the stock of which has remained constant for the past six years at 298 units (4% of all containerised flat wagons).

All container-capable flat wagons allow carriage at speeds of at least 100 km/h, 30% of which allow even higher speeds of up to 120 km/h. The current technical possibilities do not allow flat wagons to operate at higher maximum speeds, but with the popularisation of this solution and improvements in the quality of the rail infrastructure, changes in this respect can be expected and the emergence of flat wagons capable of reaching higher speeds.

▼ Tab. 107 Structure of towed vehicles at the disposal of freight railway undertakings performing intermodal transport in 2017–2022

towed vehicles		2017	2018	2019	2020	2021	2022
all flat wagons		12,551	12,973	13,453	13,239	14,797	14,492
including container transport		4,532	4,648	4,710	5,803	7,236	7,474
on the axles	K	298	298	298	298	298	298
	L	58	100	20	20	0	0
on bogies	R	366	369	424	421	398	418
	S	3,810	3,881	3,968	5,064	6,540	6,758



◀ Fig. 130 Number of flat wagons adapted to transport containers by the number of axles in wagons in 2022

	number
six axles	3,095
four axles	4,081
two axles	298

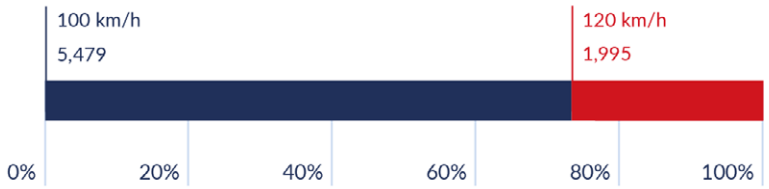


Fig. 131 Number of flat wagons adapted to transport containers according to their maximum speed in 2022

	number
100 km/h	5,479
120 km/h	1,995

4. Railway infrastructure

4.1. The operations of infrastructure managers

According to the Railway Transport Act, a railway infrastructure manager is an entity responsible for the management, operation, maintenance, renewal or participation in the development of railway infrastructure and, in the case of the construction of new infrastructure, the entity that embarked on its construction as an investor.

Managers who combine the function of manager and railway undertaking manage railway infrastructure and carry out railway undertakings on lines intended only for the operation of urban or suburban railway services or on wide-gauge lines. PKP SKM – a manager, which at the same time is obliged to make infrastructure available to licensed railway undertakings. In turn, the managers of WKD and PKP LHS do not make infrastructure available to railway undertakings. PKP PLK is the largest manager and has 20,541 km of infrastructure under its management board, of which 18,634 km are operating lines.

Applications for capacity allocation are submitted to infrastructure managers by so-called applicants. An applicant within the meaning of the Railway Transport Act is a railway undertaking, an international economic interest grouping comprising railway undertakings or another entity interested in obtaining capacity, in particular a public rail transport organiser, freight forwarder, shipper or combined transport operator.

The manager allocates capacity on the basis of received applications. If the manager refuses to consider an application for capacity allocation or refuses to allocate capacity, the applicant may submit a complaint to the President of UTK. The President of UTK shall then state, by decision, that the refusal does not require any modification, requires modification or revocation. The manager shall modify the refusal or revoke the refusal in accordance with the guidelines specified by the President of UTK in that decision. The applicant acquires the right to make applications for capacity allocation after concluding a contract with the manager on capacity allocation.

The President of UTK is also competent to supervise the termination of the contract for capacity usage. Indeed, the Railway Transport Act provides that the termination of a contractfor the use of capacity requires the consent of the President of UTK, granted by way of a decision. In the area of railway infrastructure provision in 2022, the railway infrastructure manager – PKP PLK in two cases applied to the President of UTK for consent to terminate a contract on use of capacity. In the first case, due to the withdrawal of the licence of one of the undertakings, the President of UTK was obliged to discontinue the administrative proceedings in the case, and in the second case, the President of UTK gave his consent to the termination of the contract on the use of capacity. The issue of financial arrears for the use of railway infrastructure thus remains a current phenomenon in the railway market.

In addition, on 9 December 2022, the terms of capacity usage between PKP PLK and PKP Intercity and between PKP PLK and POLREGIO were settled by administrative decisions issued by the President of UTK. The decision addressed to PKP PLK and POLREGIO resolved discrepancies related to substitute communication, while in the case of PKP Intercity and PKP PLK, the President of UTK, in addition to the issue of substitute communication, resolved more than a dozen other issues concerning provisions on which the parties had not reached an agreement. In the matter of reimbursement of costs connected with substitute communication, the President of UTK, for example, extended, in relation to the manager's proposal, the catalogue of other costs connected with restrictions in access to infrastructure, the reimbursement of which may be claimed by the undertaking, and also settled, for example, the dispute concerning settlement of costs for pulling the undertaking's rolling stock in order to clear the railway route and set a deadline for the railway undertaking to submit complaints against the administrator's entries recording train journeys in the SEPE System. The regulatory authority also agreed to the undertaking's application to introduce a provision providing for the possibility of applying a financial penalty in the event of the manager's failure to remedy identified deficiencies in the condition of the route infrastructure.

In 2022, there were changes to the rules for PKP PLK's financing of substitute transport – problems in this respect were raised both in the applicants' submissions and in consultations to the network regulations conducted by PKP PLK. As a result, PKP PLK updated Appendix 16 to the Network Regulation, which simplified and clarified the doubts arising in the railway market.

In the past year, there was an increased interest of the railway market in the issues related to providing access to railway infrastructure in the case of unregulated legal status of access tracks to industrial plants and service infrastructure facilities. The regulator has been taking action to prevent the

unauthorised removal of rail infrastructure, which is the only access to other facilities. Given the risk of restricted access, the question of regulating the legal status of access tracks should be of particular interest to facilities using rail transport.

Another important issue in the area of rail transport development in 2022 was the analysis of the conditions for connecting sidings to the existing infrastructure. The President of UTK addressed selected infrastructure managers in order to verify procedures for connecting new sidings to the existing railway network. As a result of the actions taken, PKP PLK compiled and published in 2023 a procedure of how to proceed in case of connecting a railway siding to the existing railway infrastructure.

▼ Tab. 108 List of infrastructure managers operating in Poland along with the length (km) of normal-gauge and wide-gauge lines in operation

infrastructure managers	normal-gauge lines (km)	wide-gauge lines (km)
PKP PLK	18,491.89	141.78
KP Kotlarnia Linie Kolejowe	50.27	
JSK	42.28	
PMT Linie Kolejowe	40.03	
DSDiK	45.68	
Infra SILESIA	28.05	
CTL Maczki-Bór	18.68	
PKM	18.33	
CARGOTOR	11.35	28.52
Euroterminal Sławków	5.49	2.81
UBB Polska	1.44	
Infrastructure managers combining the functions of a manager and a railway undertaking	**normal-gauge lines (km)**	**wide-gauge lines (km)**
PKP LHS		394.65
WKD	38.63	
PKP SKM	32.65	

4.2. Employment by infrastructure managers

Over the last three years, the number of people employed in the infrastructure manager sector has decreased. In 2022, it stood at 38,885, a decrease of 1.5% compared to 2021. This is mainly due to reduced employment at the largest manager, PKP PLK.

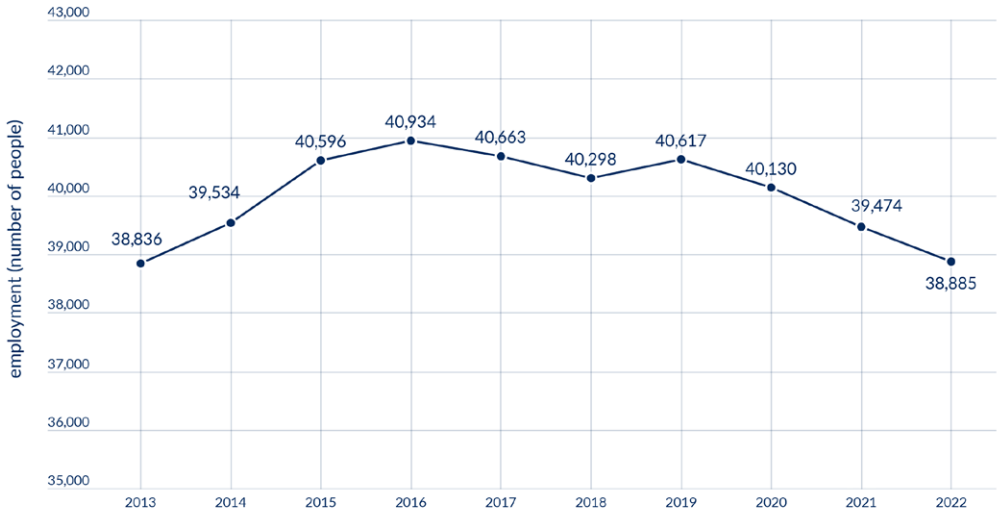
At the end of 2022, PKP PLK employed -1.4% fewer employees than in 2021, and the company's share in the structure of total employment in the sector decreased by 0.1 percentage points. However, this company was not the only one characterised by a reduction in employees. It affected the majority of managers, while an increase in employment took place for only three of them: PKP LHS, PKP SKM in Tricity and Euroterminal Sławków.

The decrease in the number of employees was associated with a 2.7% decrease in the number of professions among regulated professions. There was an increase in the number of staff among automatics, train drivers, adjusters and switchmen. Among the professions for which fewer employees were recorded was that of the traffic controller, which has a key role in the infrastructure manager sector. The number of employees in this occupation has been gradually decreasing for years. The share of regulated professions in 2022 in relation to the total number of people employed by infrastructure managers was 51.4%. In 2021, this share was 52.1% (a decrease of 0.7 percentage points).

The number of people employed in non-regulated railway professions decreased by 68, which resulted from a decrease in the number of people employed as dispatchers and rolling stock maintenance employee.

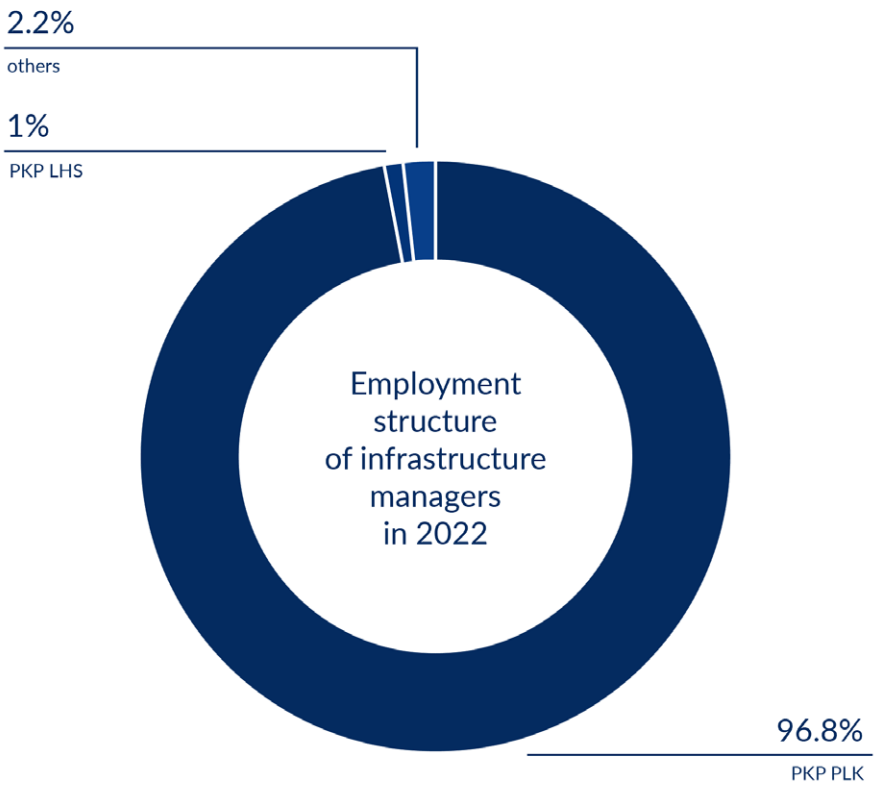
Each age group saw a decrease in the number of employees calculated by working time equivalents. The largest decrease, of 1.1%, took place among employees aged 50 and over. Among traffic controllers, the decrease took place for employees between the ages of 30 and 50, but the youngest group of employees saw an increase in employment of 5.7%.

There was an increase in the number of women employed by infrastructure managers, with a decrease in the number of men employed.



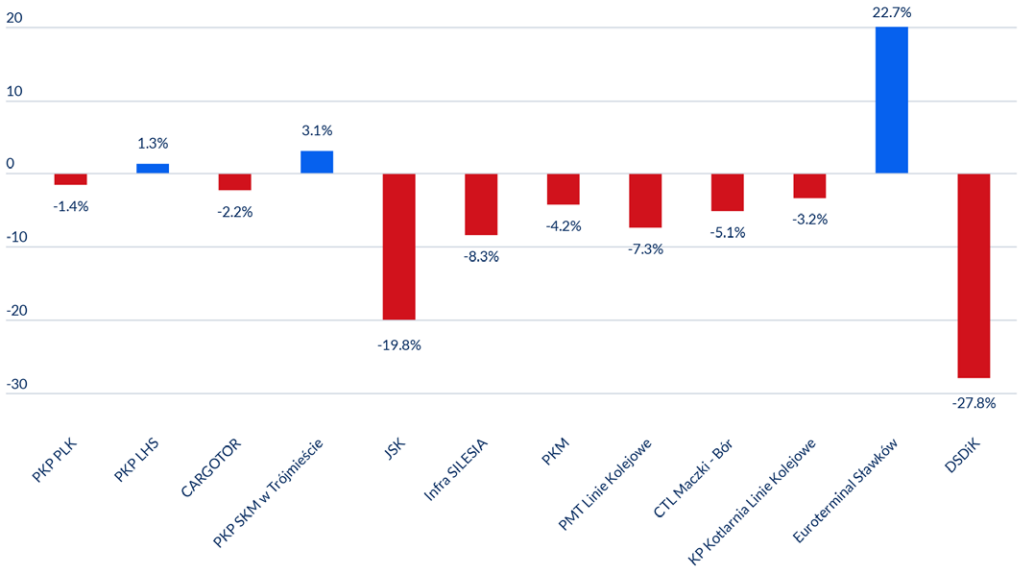
◀ Fig. 132 Employment in the sector of infrastructure managers in 2013–2022

	number of people
2013	38,836
2014	39,534
2015	40,596
2016	40,934
2017	40,663
2018	40,298
2019	40,617
2020	40,130
2021	39,474
2022	38,885



◀ Fig. 133 Employment structure of infrastructure managers in 2022

manager	share
PKP PLK	96.82%
PKP LHS	1.02%
CARGOTOR	0.45%
PKP SKM w Trójmieście	0.43%
JSK	0.41%
Infra SILESIA	0.31%
PKM	0.18%
PMT Linie Kolejowe	0.10%
CTL Maczki - Bór	0.10%
KP Kotlarnia Linie Kolejowe	0.08%
Euroterminal Sławków	0.07%
DSDiK	0.03%

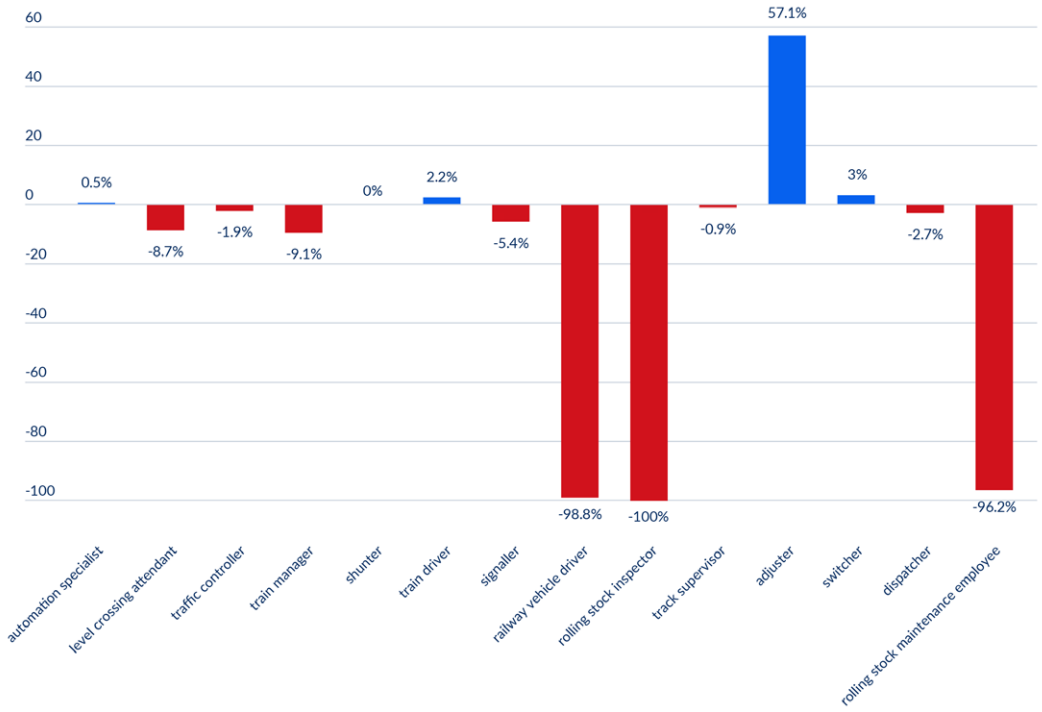


◀ Fig. 134 Dynamics of changes in employment among infrastructure managers in 2022/2021

manager	change
PKP PLK	-1.4%
PKP LHS	1.3%
CARGOTOR	-2.2%
PKP SKM w Trójmieście	3.1%
JSK	-19.8%
Infra SILESIA	-8.3%
PKM	-4.2%
PMT Linie Kolejowe	-7.3%
CTL Maczki - Bór	-5.1%
KP Kotlarnia Linie Kolejowe	-3.2%
Euroterminal Sławków	22.7%
DSDiK	-27.8%

◀ Tab. 109 Employment structure in individual professions with infrastructure managers in 2021–2022

job title	2021	2022
regulated professions	20,554	19,992
automation specialist	2,201	2,213
level crossing attendant	1,580	1,442
traffic controller	8,558	8,395
train manager	11	10
shunter	0	0
train driver	633	647
signaller	4,463	4,224
railway vehicle driver	80	1
rolling stock inspector	6	0
track supervisor	1,442	1,429
adjuster	7	11
switcher	1,573	1,620
non-regulated professions	693	625
dispatcher	640	623
rolling stock maintenance employee	53	2



◀ Fig. 135 Dynamics of changes in employment in rail professions in 2022/2021

job title	change
automation specialist	0.5%
level crossing attendant	-8.7%
traffic controller	-1.9%
train manager	-9.1%
shunter	0.0%
train driver	2.2%
signaller	-5.4%
railway vehicle driver	-98.8%
rolling stock inspector	-100.0%
track supervisor	-0.9%
adjuster	57.1%
switcher	3.0%
dispatcher	-2.7%
rolling stock maintenance employee	-96.2%

◀ Tab. 110 Comparison of the number of employees and the number of rights in regulated professions in 2022

job title	number of employees	number of authorisations
regulated professions	19,992	23,038
automation specialist	2,213	2,640
level crossing attendant	1,442	1,837
traffic controller	8,395	8,663
train manager	10	819
shunter	0	1
train driver	647	949
signaller	4,224	4,445
railway vehicle driver	1	160
rolling stock inspector	0	65
track supervisor	1,429	1,607
adjuster	11	8
switcher	1,620	1,844

▼ Tab. 111 Number of employees by gender and age structure in 2022

job title	women	men	employees up to 30 years of age	employees between 30 and 50 years of age	employees over 50 years of age
automation specialist	29	2,184	221	765	1,227
level crossing attendant	1,052	390	147	545	750
dispatcher	213	410	13	198	412
traffic controller	3,956	4,439	608	3,111	4,676
train manager	0	10	0	1	9
train driver	0	647	11	216	420
signaller	1,940	2,284	664	1,827	1,733
rolling stock maintenance employee	13,093	25,792	4,149	16,061	18,675
railway vehicle driver	4,936	13,332	2,115	8,177	7,976
rolling stock inspector	0	2	0	1	1
track supervisor	0	1	0	1	0
adjuster	24	1,405	114	516	799
switcher	0	11	1	10	0
others	943	677	255	693	672

▼ Tab. 112 Age structure of all employees employed by infrastructure managers by working time equivalents in 2021-2022[28]

year	age structure	employees up to 30 years of age	employees between 30 and 50 years of age	employees over 50 years of age
2021	In FTEs	4,168	16,220	18,927
	percentage share	10.6%	41.3%	48.1%
2022	In FTEs	4,138	16,081	18,715
		10.6%	41.3%	48.1%
change 2022/2021		-0.7%	-0.9%	-1.1%

▼ Tab. 113 Age structure of traffic controllers employed by infrastructure managers by working time equivalents in 2021–2022[28]

year	age structure	employees up to 30 years of age	employees between 30 and 50 years of age	employees over 50 years of age
2021	In FTEs	570	3,282	4,673
	percentage share	6.7%	38.5%	54.8%
2022	In FTEs	602	3,102	4,675
		7.2%	37.0%	55.8%
change 2022/2021		5.7%	-5.5%	0.05%

▼ Tab. 114 Gender structure of all employees working for infrastructure managers by working time equivalents in 2021-2022[28]

year	gender structure	women	men
2021	In FTEs	13,067	26,248
	percentage share	33.2%	66.8%
2022	In FTEs	13,111	25,824
		33.7%	66.3%
change 2022/2021		0.3%	-1.6%

▼ Tab. 115 Gender structure of traffic controllers working for infrastructure managers by working time equivalents in 2021-2022[28]

year	gender structure	women	men
2021	In FTEs	3	7,166
	percentage share	0.04%	99.96%
2022	In FTEs	5	7,706
		0.07%	99.93%
change 2022/2021		69.7%	7.5%

28 The age structure is calculated on the basis of full-time equivalents (FTEs) in rail transport operations from 1 January to 31 December 2021, and from 1 January to 31 December 2022. The FTE should be understood as the total number of hours (including overtime) worked in a position, divided by the average number of hours worked annually in a full-time position.

4.3. Financial results of infrastructure managers

Data provided by infrastructure managers operating in Poland shows that in 2022 their total revenue from operating activities amounted to PLN 7.7 billion and was lower by almost PLN 1.8 billion than the costs incurred for these activities. In the last decade (between 2013 and 2022), the values on the revenue and cost side have maintained an upward trend.

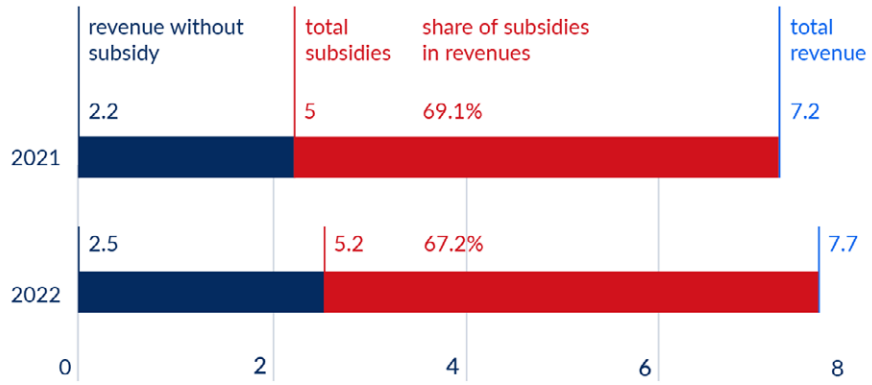
Each year, in addition to revenues resulting from the provision of infrastructure to railway undertakings, subsidies granted from various sources also occupy a high position in the revenues of infrastructure managers. In 2022, infrastructure managers declared additional revenues in this category totalling almost PLN 5.2 billion. Compared to 2021, the value of subsidies received increased by 3.9%, with their share in total revenue falling by 1.9 percentage points in the year-on-year terms (from 69.1% in 2021 to 67.2% in 2022).

In the structure of expenditure incurred by infrastructure managers, employee benefits account for the largest item each year. In 2022, the share of this item in total costs was 41.4%, an increase in share of 0.4 percentage points in the year-on-year terms. A higher share increase of 0.5 percentage points was recorded for the item materials and energy (from 7.3% in 2021 to 7.8% in 2022). For infrastructure managers, third-party services is the item with a 24.5% share of costs and, in comparison with a year earlier, fell by almost 1.5 percentage points. Depreciation is also a significant cost item in the expenditure structure of managers, with its share remaining at 24.4% in 2022.

When analysing the increase in infrastructure managers' expenditure on individual cost items, in the year-on-year terms, the highest increase in expenditure – by 38.0% – took place in the case of costs classified as ‚other'. There was also a significant increase – by 16.6 per cent – in costs under the heading ‚materials and energy', as well as – by 10.2 per cent – in employee benefits. The cost of expenses incurred in 2022 for depreciation increased by 9.2% in the 2021 statement.

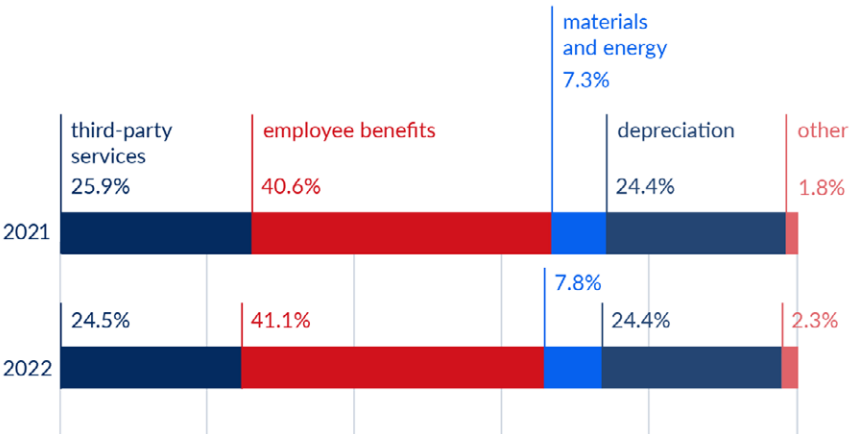
◀ Fig. 136 Performance of infrastructure managers in 2013–2022 (in PLN billion)

Year	operating revenue	operating costs
2013	5.1	4.2
2014	5.2	4.7
2015	5.7	4.7
2016	6.2	5.5
2017	6.7	5.7
2018	6.8	5.7
2019	7.4	6.4
2020	8.2	6.8
2021	8.6	7.2
2022	9.4	7.7



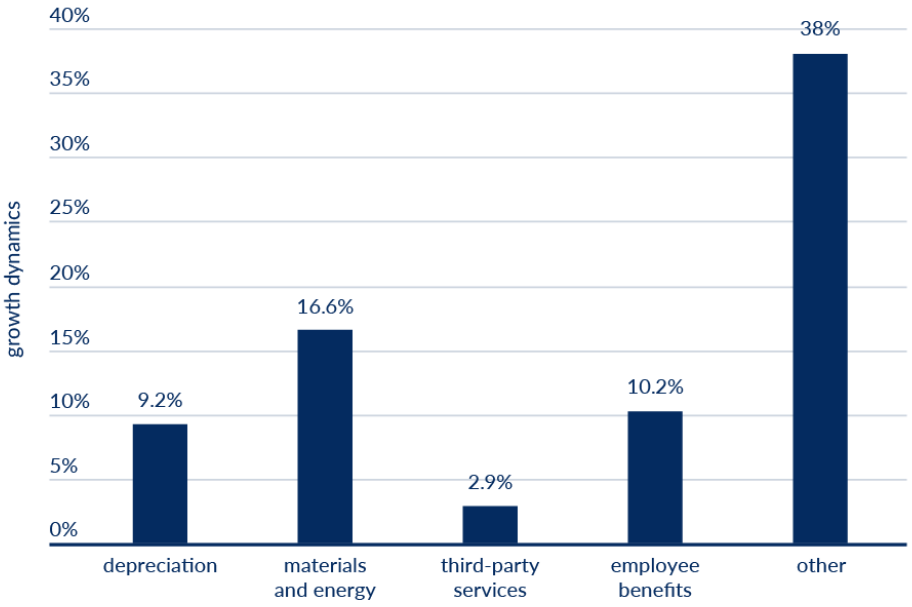
◀ Fig. 137 Share of subsidies in revenues of infrastructure managers in 2021–2022 (PLN billion)

	2021	2022
income without subsidy	2.2	2.5
total subsidies	5	5.2
total revenue	7.2	7.7
share of subsidies in revenues	69.1%	67.2%



◀ Fig. 138 Structure of operating costs of infrastructure managers in 2021–2022

	2021	2022
depreciation	24.4%	24.4%
materials and energy	7.3%	7.8%
third-party services	25.9%	24.5%
employee benefits	40.6%	41.1%
other	1.8%	2.3%



◀ Fig. 139 Growth dynamics of outlays for individual generic costs of infrastructure managers in 2022 compared to 2021.

	change
depreciation	9.2%
materials and energy	16.6%
third-party services	2.9%
employee benefits	10.2%
other	38.0%

4.4. Railway line parameters

The data presented here concerns the most common railway lines in Poland, the so-called normal-gauge lines with a gauge of 1435 mm and wide-gauge lines with a gauge of 1520 mm. All railway lines belonging to infrastructure managers as at 31 December 2022 had a length of 21,550 km, of which 19,393 km are, according to the declarations of infrastructure managers, lines in operation.

This represents an increase of 67 km in the length of lines in service compared to the data recorded in 2021. Wide-gauge lines accounted for 2.9% of the railway lines in service (568 km). The longest wide-gauge line is the line managed by PKP LHS, which is 394.7 km long – this line is 100% in operation.

Railway lines in Poland are supplied with 3 kV DC. The length of electrified railway lines operated by all infrastructure managers in Poland was in 2022 12,126 km, i.e. 18 km more than in 2021. Electrified lines account for 62.5% of the length of lines in operation in Poland. Of the electrified lines, 4 086 km were single-track lines and the remaining 8 040 km were double-track lines.

Single-track lines still account for the majority of railway lines in Poland - 10,500 lines in operation in Poland which is 54%. Double-track lines, on the other hand, are 8,900 km long and their electrification level is 90.2%.

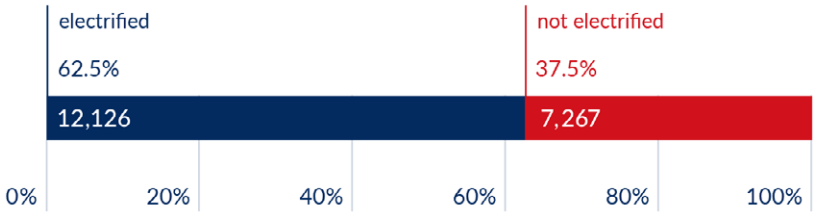
Lines of state importance accounted for 68.7% of all lines in Poland. The length of operated lines of state importance amounted to 13,323 km.

The level of the average density of railway lines in 2022 remained at virtually the same level as in 2021 and amounted to 6.2 km/100 km2. The density of the railway network in individual provinces measured in the length of lines (in km) per 100 km2 of area in 2021 remained at a similar level.

The technical parameters of the railway lines in connection with infrastructure specifications are determined by the values of the individual tracks and their operation. In 2022, the share of lines with a maximum speed above 160 km/h was 2.1%. The share of track of railway lines with parameters between 120 and 160 km was 15.5%.

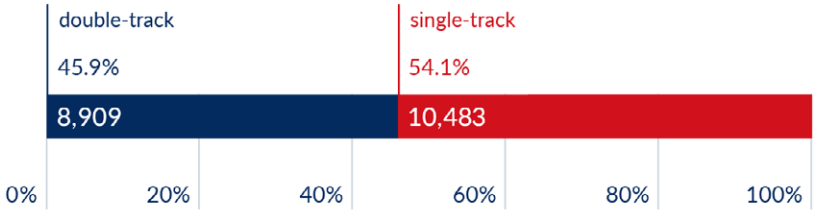
The axle load parameter of 221 kN or more met, according to the data for 2022 76.5% of tracks.

The wide-gauge lines and the condition of their infrastructure, as well as the adjacent sidings and service infrastructure, are of particular importance in terms of international freight handling. We are referring here to intermodal transport and deliveries via, for example, the Eurasian corridors In 2022, the wide-gauge crossings associated with the provision of transport between Poland and Ukraine, such as in the Medyka, Dorohusk and Werchrata areas, were key.



◀ Fig. 140 Structure of railway lines operated in Poland in 2022 broken down by type of traction (length in km and percentage share)

	length	share
electrified	12,126	62.5%
not electrified	7,267	37.5%



◀ Fig. 141 Structure of railway lines operated in Poland in 2022 by type of line (length in km and percentage share)

	length	share
double-track	8,909	45.9%
single-track	10,483	54.1%

▼ Tab. 116 Length (in km) and share of railway lines by type of network in 2022

	length (km)		share	
province	electrified	not electrified	electrified	not electrified
total	12,126	7,267	62.53%	37.47%
Dolnośląskie	1,087	711	60.44%	39.56%
Kujawsko-pomorskie	564	636	46.99%	53.01%
Lubelskie	497	599	45.37%	54.63%
Lubuskie	334	583	36.44%	63.56%
Łódzkie	982	98	90.95%	9.05%
Małopolskie	908	172	84.07%	15.93%
Mazowieckie	1,428	299	82.70%	17.30%
Opolskie	435	347	55.62%	44.38%
Podkarpackie	457	528	46.39%	53.61%
Podlaskie	223	538	29.33%	70.67%
Pomorskie	468	772	37.75%	62.25%
Śląskie	1,686	186	90.09%	9.91%
Świętokrzyskie	552	174	76.02%	23.98%
Warmińsko-Mazurskie	492	598	45.17%	54.83%
Wielkopolskie	1,264	630	66.74%	33.26%
Zachodniopomorskie	749	396	65.39%	34.61%

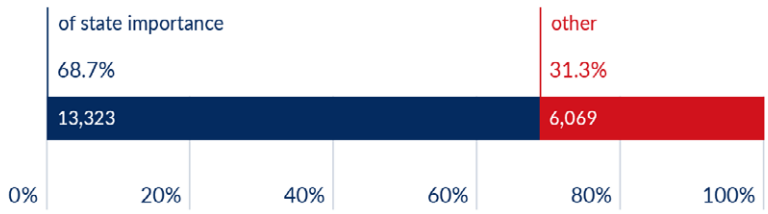
▼ Tab. 117 Length (in km) and share of single-track and double-track lines in 2022

	length (km)		share	
province	single-track	double-track	single-track	double-track
total	10,483	8,909	54.06%	45.94%
Dolnośląskie	990	808	55.06%	44.94%
Kujawsko-pomorskie	654	546	54.50%	45.50%
Lubelskie	712	385	64.90%	35.10%
Lubuskie	513	405	55.89%	44.11%
Łódzkie	396	684	36.65%	63.35%
Małopolskie	600	480	55.57%	44.43%
Mazowieckie	619	1,108	35.83%	64.17%

	length (km)		share	
province	single-track	double-track	single-track	double-track
Opolskie	357	425	45.61%	54.39%
Podkarpackie	753	232	76.42%	23.58%
Podlaskie	655	106	86.04%	13.96%
Pomorskie	830	409	67.00%	33.00%
Śląskie	852	1,019	45.52%	54.48%
Świętokrzyskie	338	389	46.52%	53.48%
Warmińsko-Mazurskie	789	301	72.40%	27.60%
Wielkopolskie	735	1,159	38.80%	61.20%
Zachodniopomorskie	692	454	60.40%	39.60%

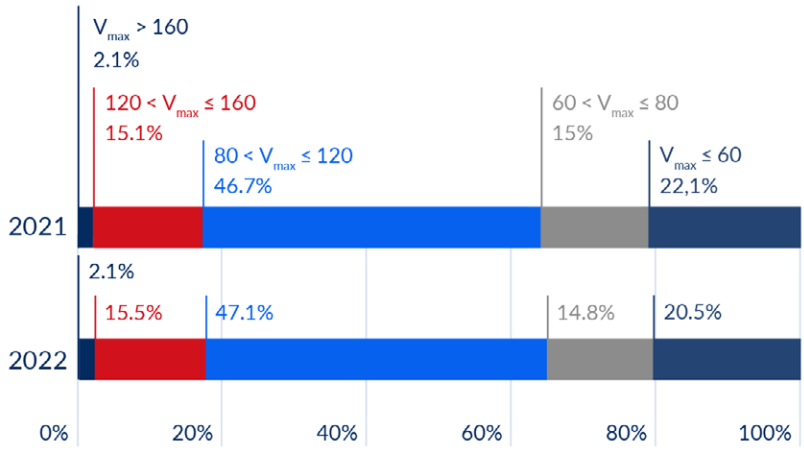
province	share	network density in km/100 km²
Dolnośląskie	9.27%	9.01
Kujawsko-pomorskie	6.18%	6.67
Lubelskie	5.65%	4.36
Lubuskie	4.73%	6.56
Łódzkie	5.57%	5.92
Małopolskie	5.57%	7.12
Mazowieckie	8.90%	4.85
Opolskie	4.03%	8.31
Podkarpackie	5.08%	5.52
Podlaskie	3.93%	3.77
Pomorskie	6.39%	6.76
Śląskie	9.65%	15.17
Świętokrzyskie	3.75%	6.21
Warmińsko-Mazurskie	5.62%	4.51
Wielkopolskie	9.76%	6.35
Zachodniopomorskie	5.91%	5.00

◀ Tab. 118 Share of individual provinces in the length of railway lines in Poland and the density (in km per 100 km²) of lines operated in individual provinces in Poland in 2022



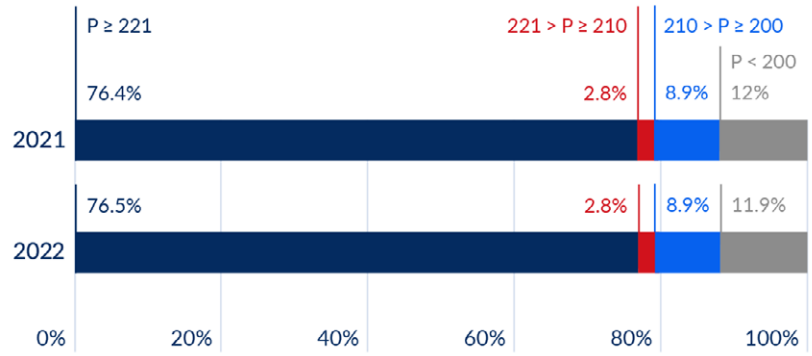
◀ Fig. 142 Structure of railway lines operated in Poland in 2022 by line importance (length in km and percentage share)

	length	share
of state importance	13,323	68.7%
other	6,069	31.3%



◀ Fig. 143 Structure of railway tracks operated in Poland in 2021 and 2022 according to the allowed speed

	2021	2022
Vmax >160	2.1%	2.1%
120<Vmax ≤160	15.1%	15.5%
80< Vmax ≤120	46.7%	47.1%
60< Vmax ≤80	15.0%	14.8%
Vmax ≤ 60	22.1%	20.5%



◀ Fig. 144 Structure of railway tracks operated in Poland in 2021 and 2022 according to allowable pressure (kN), for the maximum value

	2021	2022
P ≥ 221	76.4%	76.5%
221 > P ≥ 210	2.8%	2.8%
210 > P ≥ 200	8.9%	8.9%
P < 200	12.0%	11.9%

▼ Tab. 119 Share of railway tracks by permissible speeds in provinces and in Poland in 2022

Province	$V_{max} > 160$	$120 < V_{max} \leq 160$	$80 < V_{max} \leq 120$	$60 < V_{max} \leq 80$	$V_{max} \leq 60$
Dolnośląskie	0.00%	17.45%	33.52%	18.60%	30.4%
Kujawsko-pomorskie	0.00%	20.94%	45.66%	18.14%	15.26%
Lubelskie	0.00%	24.58%	53.60%	21.29%	17.91%
Lubuskie	0.00%	14.93%	55.57%	9.73%	19.77%
Łódzkie	5.58%	19.26%	56.60%	8.17%	10.39%
Małopolskie	0.00%	15.35%	26.44%	24.72%	33.48%
Mazowieckie	8.60%	22.59%	37.38%	11.60%	19.83%

Province	$V_{max} > 160$	$120 < V_{max} \leq 160$	$80 < V_{max} \leq 120$	$60 < V_{max} \leq 80$	$V_{max} \leq 60$
Opolskie	0.00%	10.77%	35.99%	13.98%	39.26%
Podkarpackie	0.00%	10.40%	40.20%	27.30%	22.10%
Podlaskie	0.00%	0.00%	63.72%	12.81%	23.47%
Pomorskie	5.29%	11.98%	53.58%	15.27%	13.88%
Śląskie	2.90%	7.79%	49.22%	12.83%	27.26%
Świętokrzyskie	3.02%	11.40%	46.53%	15.84%	23.21%
Warmińsko-Mazurskie	3.87%	10.00%	54.28%	17.43%	14.42%
Wielkopolskie	0.00%	28.60%	52.26%	7.31%	11.83%
Zachodniopomorskie	0.00%	7.89%	70.58%	13.30%	8.22%
Poland	2.11%	15.55%	47.07%	14.76%	20.52%

▼ Tab. 120 Share of railway tracks by permissible pressures in the provinces and in Poland in 2022

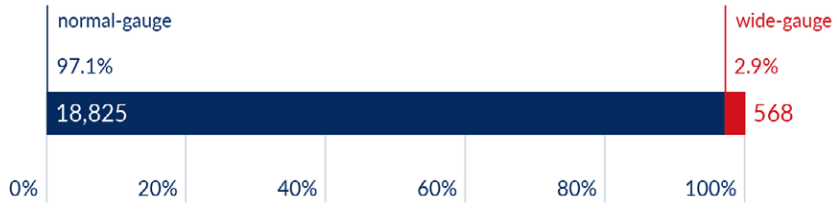
province	$P \geq 221$	$221 > P \geq 210$	$210 > P \geq 200$	$P < 200$
Dolnośląskie	49.83%	14.81%	6.98%	28.37%
Kujawsko-pomorskie	56.53%	0.00%	16.06%	27.40%
Lubelskie	66.36%	0.00%	18.85%	32.16%
Lubuskie	88.23%	0.00%	1.37%	10.40%
Łódzkie	97.85%	0.00%	2.15%	0.00%
Małopolskie	90.97%	0.00%	4.15%	4.88%
Mazowieckie	92.76%	0.00%	1.42%	5.81%
Opolskie	49.98%	16.12%	0.91%	32.99%
Podkarpackie	64.44%	8.60%	1.95%	25.01%
Podlaskie	66.29%	0.42%	32.46%	0.84%
Pomorskie	67.78%	1.17%	14.69%	16.37%
Śląskie	93.60%	1.27%	3.84%	1.29%
Świętokrzyskie	100.00%	0.00%	0.00%	0.00%
Warmińsko-Mazurskie	20.65%	0.44%	55.07%	23.83%
Wielkopolskie	74.33%	1.27%	12.78%	11.61%
Zachodniopomorskie	91.68%	0.00%	4.24%	4.08%
Poland	76.46%	2.79%	8.89%	11.86%

The data broken down by speed and axle load is contained in the appendixes to the network regulation for the 2021/2022[29] timetable.

Wide-gauge lines in Poland connect to parts of the infrastructure of Belarus, Lithuania, Ukraine and Kaliningrad Oblast.

▼ Tab. 121 Data on wide-gauge lines managed by PKP PLK

		Line start		Line end		Departs from line		Reaches line	
Line no.	Line name	Name	Km	Name	Km	No.	Km	No.	Km
57	Kuźnica Białostocka – Geniusze	State border – Białoruś	161.496	Geniusze	188.26				
59	State border (Svislac) – Zabłotczyzna	State border – Białoruś	0	Zabłotczyzna	20.132				
60	Kobylany – Terespol	Kobylany – Białoruś	205.247	State border	211.657	446	-1.202		
63	Dorohusk – Zawadówka Naftobaza	State border – Ukraina	0	Zawadówka Naftobaza	31.258				
92	Przemyśl – Medyka	Przemyśl – (near the border with Ukraine)	-0.283	State border Ukraina	14.046				
116	State border (Werchrata) – Kaplisze	State border – Ukraina	0	Kaplisze	22.472				
123	Hurko – Krówniki	Hurko (near the border with Ukraine)	0	Krówniki	3.571	92	5.363		
124	Medyka – Chałupki Medyckie	Medyka (near the border with Ukraine)	0	Chałupki Medyckie	2.302	92	11.092		
125	Żurawica – Małkowice	Żurawica (near the border with Ukraine)	0	Małkowice	3.679	614	2.18		
205	Wielewo – Anielin Gradowo	State border (near the border with Russia)	47.602	Anielin Gradowo	58.884				
217	Wielkie Wieżno – Braniewo	Wielkie Wieżno	39.1	State border (Rosja)	61.75				
446	Terespol – State border (Brest)	Terespol	209.913	State border (Białoruś)	211.655	60	209.913		
614	Żurawica Żrb – Hurko	Żurawica Żrb	-0.924	Hurko (on the border with Ukraine)	7.617			92	5.508
916	Siemianówka – Wiącków	Siemianówka (near the borderwith Belarus)	0.021	Wiącków	3.931	59	8.69		
923	Bufałowo Wschód – Bufałowo S	Bufałowo Wschód (near the borderwith Belarus)	0	Bufałowo S	1.12	57	176.952		



◀ Fig. 145 Structure of railway lines operated in Poland in 2022 by track gauge (length in km and percentage)

	length	share
normal-gauge	18,825	97.1%
wide-gauge	568	2.9%

29 www.plk-sa.pl/klienci-i-kontrahenci/warunki-udostepniania-infrastruktury-i-regulaminy/regulamin-sieci/regulamin-sieci-2021/2022

4.5. Operation of service infrastructure facilities

As defined in the Railway Transport Act, a service infrastructure facility (OIU) is a building facility, together with the land on which it is located, systems and devices, intended in whole or in part to provide one or more of the services referred to in sections 2 and 3 of Appendix 2 to the Act. service infrastructure facilities should be made available by operators on an equal and non-discriminatory basis to all railway undertakings requesting access. The operator of the facility is obliged to develop regulations for access to the facility, a price list and the statute of the facility.

The competence of the President of UTK in the area of supervision of fair and non-discriminatory treatment by infrastructure service facility operators of railway undertakings as regards access to their facilities includes: control of correctness of development and application of facility regulations;

- checking the correctness of the development and application of the regulations of the facility;
- supervising the conclusion of contracts with service infrastructure facility operators;
- checking the correctness of determining and collecting fees by operators for the use of a service infrastructure facility.

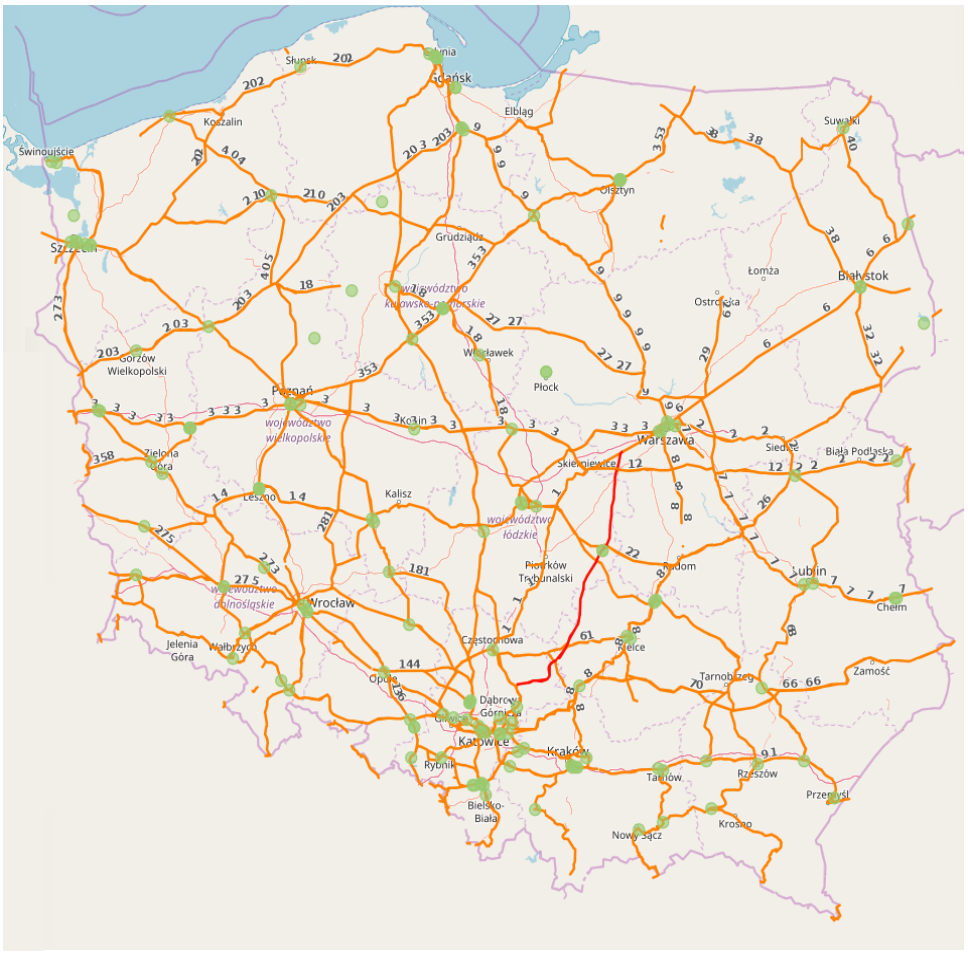
In 2022, the President of UTK conducted a number of activities aimed at disseminating the rules of access to service infrastructure facilities. Particular attention was paid to the problem of making railway stations available as passenger stations, and a document entitled Passenger stations as service infrastructure facilities – frequently asked questions, which is the answer to the growing interest of the market in this subject. The compilation includes information on, for example, defining what is the provision of a passenger station to railway undertakings and what is the provision of a passenger station to passengers, as well as resolving issues relating to the passenger station operator's duties regarding out-of-service passenger stations and other obligations of operators. In 2022, UTK carried out activities to clarify the rules of passenger stations for local government operators.

The Register of Service Infrastructure Facilities is one of the tasks that the UTK President has been carrying out since 2017. The Register collects data on service facilities available on the railway network for the purpose of recording and disseminating information on service infrastructure facilities and the rules for their provision. By gathering the data of all service infrastructure facilities in one place, quick access to information and technical characteristics of service facilities is ensured. Service infrastructure facility operators are obliged to keep their data up to date and to provide access to the regulations on the provision of service infrastructure facilities based on the provisions of the Railway Transport Act.

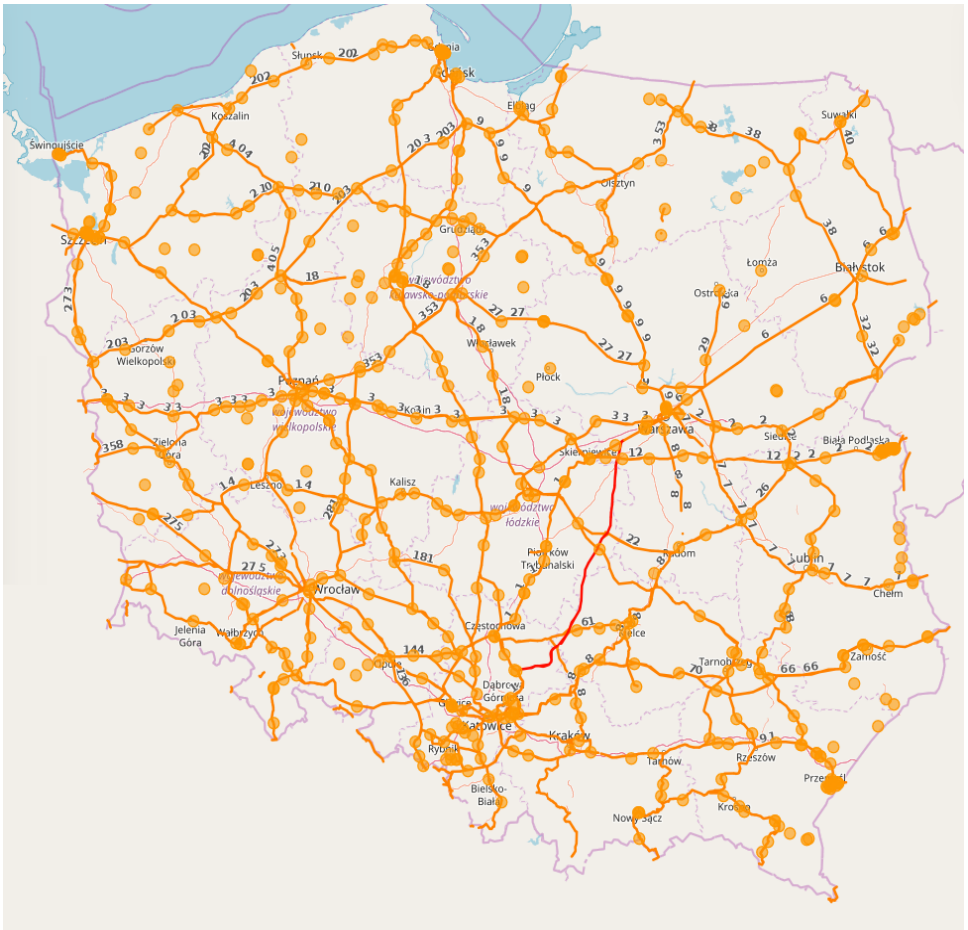
Information on service infrastructure facilities is continuously updated and verified in the register, thus ensuring access to reliable information on the facilities of entities operating in the railway market. The application provides the possibility to remotely correct the data entered into the form without tying this activity to the submission of letters and additional documentation.

In 2022, the number of service infrastructure facilities by category was as follows:

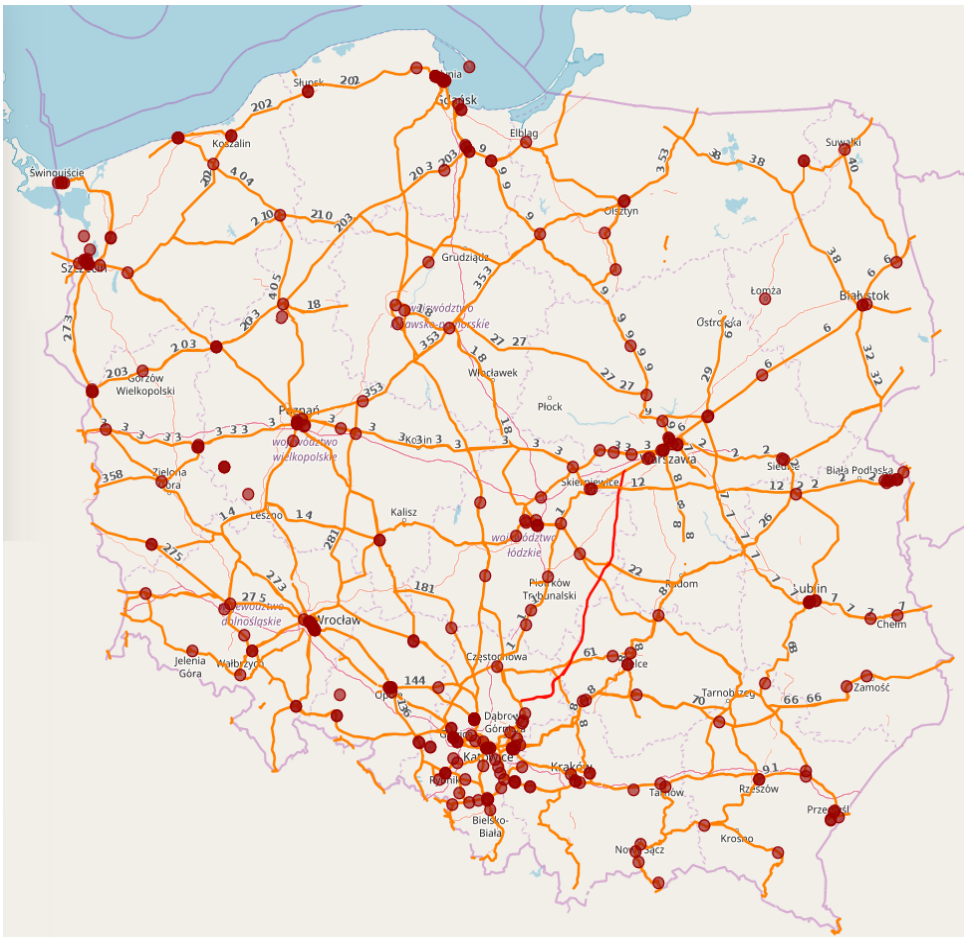
1. 587 active service infrastructure facilities where loading and unloading of goods is performed;
2. 153 active service infrastructure facilities where rolling stock repair and servicing is performed;
3. 576 active service infrastructure facilities where passenger services are performed;
4. 308 active service infrastructure facilities of service facilities services related to train formation are performed.



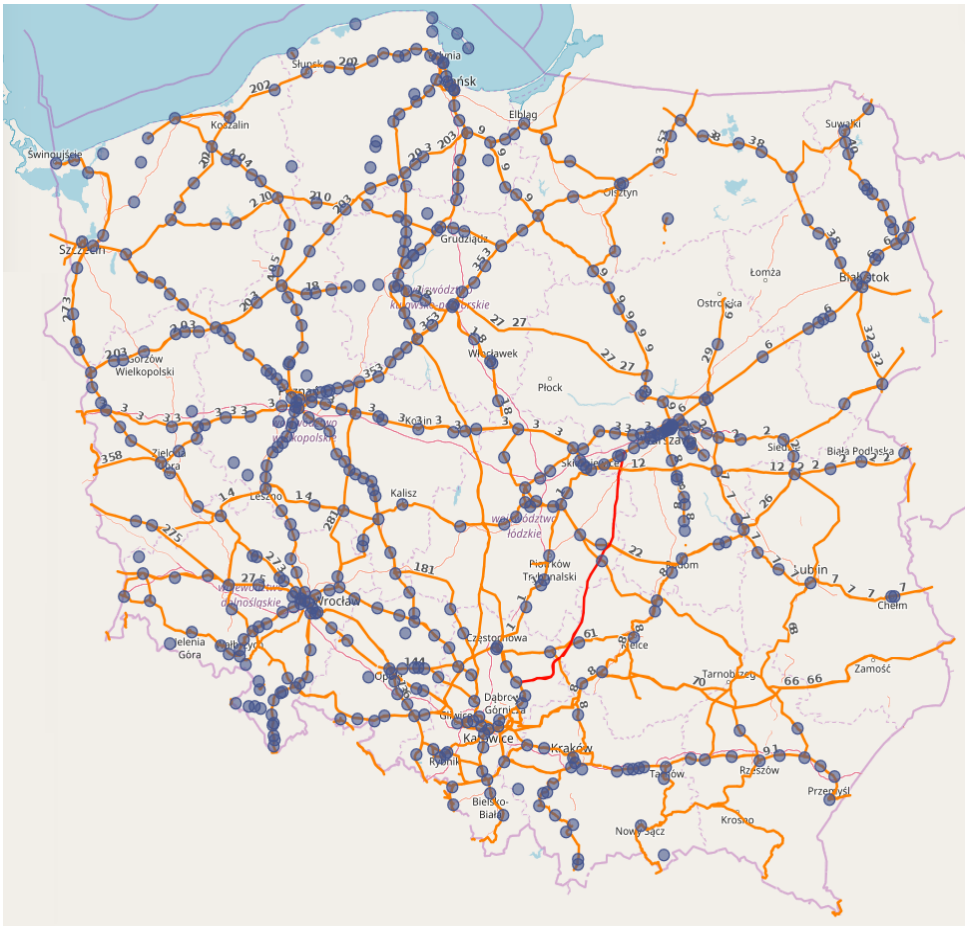
◀ Fig. 146 The distribution of service facilities where rolling stock repair and servicing is performed in Poland



◀ Fig. 147 The distribution of service facilities where loading and unloading of cargo is performed in Poland



◀ Fig. 148 The distribution of service facilities services related to train formation are performed in Poland



◀ Fig. 149 The distribution of service facilities where passenger services are performed in Poland

4.6. Infrastructural investments and the interoperability of the rail system

The year 2022 was marked by the settlement of railway investments financed, for example, by the Operational Programme Infrastructure and Environment 2014-2020. The settlement of this perspective will last until 2024. In order for a given investment to be settled correctly, it is necessary to obtain a permit from the President of UTK to authorise the operation of a structural subsystem. In 2018, the President of UTK obliged the largest Polish beneficiary of EU funds earmarked for railway infrastructure (PKP PLK) to report on the planned number of applications submitted for authorisations to operate a subsystem under the 2014-2020 European Union budget perspective. The purpose of this was to plan the issuing of authorisations without risking the settlement of funds obtained from the European Union.

However, PKP PLK did not meet the declared schedules. The reason was mainly due to delays in the implementation of railway investments as a result of the outbreak of the COVID-19 pandemic. This resulted in a significant accumulation of applications in 2023 and 2024. PKP PLK, out of the applications scheduled to be submitted in 2022. 90 structural subsystem applications, they have submitted 40.

In 2022, the President of UTK issued 25 authorisations for the operation of fixed systems (Infrastructure, Energy, Control – track-side devices). The length of railway lines authorised for operation in 2022 is as follows:

- Infrastructure' subsystem – 138,247 km;
- 'Energy' subsystem – 433,236 km;
- 'Control – track-side devices' subsystem – 406,595 km.

▼ Tab. 122 Structural subsystems of fixed installations authorised by the President of UTK in 2022

no.	line no.	section	chainage	subsystem	status
1.	7	Substations: Otwock, Stara Wieś, Karpiska, Pilawa, Ruda Talubska, Sobolew, Życzyn, Dęblin, Wólka Profecka, Klementowice, Czesławice	26,050 – 150,700	energy	modernisation
2.	351	Substations: Poznań, Kiekrz, Pamiątkowo, Szamotuły, Samołęż	0,000 – 59,650	energy	modernisation
3.	7	Otwock – Pilawa	26,050 – 55,600	energy	modernisation
4.	447	Warszawa Włochy – Grodzisk Mazowiecki	6,300 – 30,989	energy	modernisation
5.	71	Substations: Rzeszów	47,950 – 67,447	energy	modernisation
6.	7	Pilawa – Dęblin	55,600 – 107,283	energy	modernisation
7.	133	Krzeszowice – Kraków Mydlniki	46,733 – 62,315	energy	modernisation
8.	3	Barłogi – Swarzędz	171,910 – 290,178	energy	modernisation
9.	3	Substations: Żychlin, Złotniki Kutnowskie, Kutno Majdany, Franki, Kłodawa, Barłogi	93,600 – 164,500	energy	modernisation

no.	line no.	section	chainage	subsystem	status
10.	4	Opoczno Płd. – Olszamowice	track no. 1: 106+326,41 – 106+574,73 track no. 2: 106+270,00 – 106+631,14	infrastructure	modernisation
11.	59	Granica Państwa – Chryzanów	0,000 – 20,132	infrastructure	modernisation
12.	271	Korzeńsko – Leszno	59,693 – 94,750	infrastructure	modernisation
	271	Leszno – Czempiń	94,750 – 109,000	infrastructure	modernisation
	271	Leszno – Czempiń	109,800 – 131,080	infrastructure	modernisation
	366	Kościan – Kurza Góra	0,000 – 1,018	infrastructure	modernisation
13.	4	Olszamowice station	123,368 – 125,151	infrastructure	modernisation
14.	4	Opoczno Płd. station	91,541 – 93,888	infrastructure	modernisation
15.	226	Pruszcz Gdański – Gdańsk Port Północny	1,329 – 13,550	infrastructure	modernisation
16.	7	Otwock – Pilawa	26,050 – 55,600	infrastructure	modernisation
17.	32	Białystok – Bielsk Podlaski (Lewki)	18,856 – 77,003	control – track-side devices	modernisation
18.	226	Pruszcz Gdański – Gdańsk Port Północny	3,309 – 14,580	control – track-side devices	modernisation
	721	Pruszcz Gdański – Gdańsk Port Północny	0,975 – 2,573	control – track-side devices	modernisation
	965	Pruszcz Gdański – Gdańsk Port Północny	0,008 – 1,376	control – track-side devices	modernisation
19.	18	Nieszawa Waganiec – Aleksandrów Kujawski	78,240 – 90,095	control – track-side devices	modernisation
	18	Cierpice – Bydgoszcz Łęgnowo	120,425 – 148,732	control – track-side devices	modernisation
20.	353	Gniezno – Trzemeszno	44,69 – 60,355	control – track-side devices	modernisation
21.	4	Idzikowice station area	79,465 – 84,150	control – track-side devices	modernisation
	573	Idzikowice – Radzice „Rd	0,895 – 5,097	control – track-side devices	modernisation
	574	Radzice „Rd1” – Idzikowice	0,000 – 3,914	control – track-side devices	modernisation
22.	248	Gdańsk Wrzeszcz – Gdańsk Osowa	1,204 – 18,182	control – track-side devices	modernisation

no.	line no.	section	chainage	subsystem	status
	253	Gdańsk Rębiechowo – Gdańsk Osowa R1	0,000 – 1,356	control – track-side devices	modernisation
23.	91	Biadoliny – Rzeszów Zachodni	61,300 – 154,900,	control – track-side devices	modernisation
	96	Tarnów – Tarnów Filia	0,000 – 0,920 oraz 3,755	control – track-side devices	modernisation
	609	Tarnów Filia – Tarnów Wschód	0,240 – 1,514	control – track-side devices	modernisation
	987	Tarnów Mościce – Tarnów Azoty	-0,767 – 1,500	control – track-side devices	modernisation
24.	216	Kozłowo station and LCS Działdowo	2,059 – 15,687	control – track-side devices	modernisation
25.	3	Warszawa Zachodnia – Kunowice	172,000 – 290,000	control – track-side devices	modernisation
	281	Oleśnica – Chojnice	128,320 – 145,880	control – track-side devices	modernisation
26.	3	Warszawa Zachodnia – Kunowice	172,000 – 290,000	control – track-side devices	modernisation
	281	Oleśnica – Chojnice	128,320 – 145,880	control – track-side devices	modernisation

Obtaining authorisation is a complex and lengthy process. It involves the analysis of a significant number of documents attached to the application, e.g.: implementation designs, declarations of conformity for railway products, reports of assessment entities and accompanying certificates, or acceptance reports, as well as documentation proving safe integration. On average, it takes PKP PLK around 18 months to obtain an authorisation for the operation of a structural subsystem. Applications submitted are very often burdened with errors and deficiencies that can be avoided even before they are submitted. These include inconsistencies between the application and the scope of EC verification of the subsystem in the form of different line and kilometre entries in the application itself, the EC certificate of verification and the EC declaration of verification, lack of submission of documents such as the EC certificate of conformity of the subsystem, detailed design, EC declarations of conformity of interoperability constituents, proof of payment of the initial charge or proof of safety. The quality and completeness of the documentation provided is also affected by the work of the notified, designated and inspection bodies. In order to obtain an authorisation for placing a subsystem in service or placing a railway vehicle on the market, it is necessary to submit to the President of UTK, for example, the documentation prepared by the notified bodies (EC verification certificate and assessment report/report) and the inspection bodies (safety assessment report). This documentation should be complete, pertinent and coherent. It should demonstrate that the assessment has been carried out to the full extent required and clearly show how the results relate to the assessment process and the evidence gathered. The documents should not contain contradictory information.

The quality of the work of notified bodies and inspection bodies is reflected in the quality of the documents produced by them and consequently in the processing of applications for authorisation of the subsystem by the President of UTK.

The need for the bodies to provide explanations, amend the documentation issued by the bodies and, in extreme cases, reassess the subsystem and suspend the administrative procedure thereby, adversely affect the length of the case procedure.

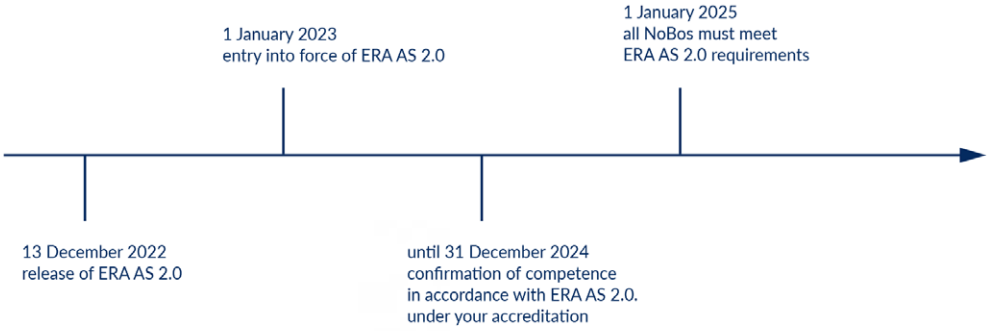
The President of UTK regularly inspects notified bodies in respect of their activities concerning the EC verification of structural subsystems. The purpose of these inspections is to identify areas for improvement in the body concerned by means of irregularities detected during the inspection, which in turn should translate into the quality of the documentation produced by the inspected body.

Notified bodies, with the entry into force of the Fourth Railway Package, are also subject to monitoring by EUAR. In 2022, the first audit took place at a Polish notified body. Representatives of UTK and the Polish Centre for Accreditation also participated in this audit. During the audit, the Agency paid particular attention to the competence of the staff to carry out conformity assessment and the independence and impartiality of the activities of such a body in the context of the requirements set by the ERA Assessment Scheme Technical Document No. 000MRA1044 ver 1 – Requirements for conformity assessment bodies seeking notification.

A further version of the ERA Assessment Scheme Technical Document No. 000MRA1044 ver 2.0 – 2022 was produced. Requirements for conformity assessment bodies seeking notification. The purpose of this update was to clarify the provisions in the first version of the technical document relating to personnel. In the new version, the Agency has focused on adding provisions relating to impartiality and the provision of consultancy services, thus placing emphasis on these two issues.

New provisions are also indicated regarding the assessment tasks performed by notified bodies and inspection bodies. The alignment of the entities' activities with the requirements contained in the new version of technical document 000MRA1044 ver 2.0 may also have an impact on the authorisation process for a subsystem or a railway vehicle.

The document was published on 13 December 2022. Its provisions should be followed by new notified bodies applying for notification from 1 January 2023. Other notified bodies, on the other hand, should confirm competence in accordance with the new version of this document within the framework of their accreditation until 31 December 2024, as from 1 January 2025 all entities are obliged to comply with the requirements of this document.



◀ Fig. 150 Scheme for the entry into force of ERA Assessment Scheme No. 000MRA1044 ver. 2.0

4.7. The implementation of ERTMS within the Polish railway network

The implementation of the European Rail Traffic Management System (ERTMS) is an essential element in creating a single European transport area. This system consists of: European Train Control System (ETCS) and the Global System for Railway Mobile Radiocommunication (GSM-R).

The implementation of ERTMS brings benefits for the competitiveness of rail transport and improved safety. Among the most important are:

- increased capacity on existing lines: as a system based on continuous transmission, ERTMS reduces train following times, enabling 40% more capacity on existing infrastructure;
- greater safety for passengers: ETCS provides greater automation of the train guidance process than previous signalling systems;
- higher speeds: ERTMS allows trains to run at speeds of up to 500 km/h;
- lower production costs: one proven system, common to the entire European Union, is easier to produce, install and maintain;
- lower maintenance costs: ERTMS level 2 does not require trackside signalling, significantly reducing costs for infrastructure managers;
- a common supply market for infrastructure managers: customers can contract components anywhere in Europe, making the supplier market more competitive;
- greater reliability: the use of ERTMS improves the reliability of services and their punctuality.

4.7.1 The European Train Control System (ETCS) – track-side equipment

4.7.1.1 European ERTMS Deployment Plan

The European committee on 5 January 2017 adopted the ERTMS European Deployment Plan[30], the purpose of which was to establish an ERTMS deployment plan at European level and to ensure that railway vehicles that are equipped with ERTMS gradually gain access to an increasing number of lines, ports, terminals and railway stations without having to have Class B systems in addition to ERTMS. The European ERTMS Implementation Plan in conjunction with the National Implementation Plan for the Technical Specification for Interoperability 'Control-Command and Signalling'[31] (hereinafter referred to as CCS TSI NIP) should ensure that vehicle owners can plan their activities accordingly.

Accordingly, rail infrastructure managers must equip core network corridors with ERTMS and put it into service on these corridors at the latest by the dates specified in Appendix I of the European Deployment Plan. For core network corridors running through Poland, these deadlines are as follows.

In the case of 'the Baltic Sea-Adriatic Sea' corridor, ERTMS should be implemented:

- on the section Gdynia – Warszawa – Grodzisk Mazowiecki until 2018;
- on the section Grodzisk Mazowiecki – Świnoujście – after 2023.

The detailed status of implementation is presented in the table. The plan in this area has so far been implemented for the Gdynia - Warsaw section (commissioned in 2020), for the Warszawa – Grodzisk Mazowiecki – Zawiercie section work is currently underway and the infrastructure manager plans to commission the system in 2025.

For the North Sea-Baltic Sea corridor, ERTMS should be implemented after 2023. The exception is the section between Warszawa and Łódź, which should be equipped with the system by 2018. This has not been achieved and the completion of the ETCS Level 2 installation is planned by the infrastructure manager for 2025.

30 Commission Implementing Regulation (EU) 2017/6 of 5 January 2017 on the European Deployment Plan for the European Rail Traffic Management System (OJ EU. L No. 3, p. 6).

31 www.gov.pl/web/infrastruktura/krajowy-plan-wdrazania-technicznej-specyfikacji-interoperacyjnosci-sterowanie.

▼ Tab. 123 List of railway lines which, according to the European ERTMS Deployment Plan, should be implemented on the Polish railway network – the Baltic Sea – Adriatic Sea corridor. Source: PKP PLK materials.

line no.	line name	status	planned commissioning date	length	level
4	Grodzisk Mazowiecki – Zawiercie	Completed / in progress	2025	224,059	Level 1 / Level 2
9	Warszawa Wschodnia Osobowa – Gdańsk Główny	Finished	in operation	311,000	Level 2
131	Chorzów Batory – Tczew	Planned	2030	493,472	Level 2
132	Bytom – Zabrze Biskupice	Planned	2030	5,747	Level 2
132	Pyskowice – Opole Groszowice	Planned	2030	54,562	Level 2
133	Dąbrowa Górnicza Ząbkowice – Sosnowiec Maczki	Planned	2030	14,200	Level 2
135	Gliwice Łabędy – Pyskowice	Planned	2030	5,310	Level 2
136	Kędzierzyn Koźle – Opole Groszowice	Planned	2030	37,510	Level 2
137	Gliwice – Rudzieniec Gliwicki	Planned	2030	22,079	Level 2
139	Katowice – Zwardoń	Planned	2030	113,785	Level 2
147	Zabrze Biskupice – Gliwice	Planned	2030	13,564	Level 2
151	Kędzierzyn Koźle – Chałupki	Planned	2030	53,800	Level 2
161	Katowice Szopienice Północne – Chorzów Stary	Planned	2030	12,126	Level 2
202	Gdańsk Główny – Gdynia Główna	Finished	in operation	27,444	Level 2
273	Wrocław Główny – Szczecin Główny	Planned	2050	349,303	Level 2
277	Opole Groszowice – Wrocław Brochów	Finished	in operation	85,570	Level 2
349	Święta Katarzyna – Wrocław Kuźniki	Planned	2030	13,130	Level 2
401	Szczecin Dąbie Sdb – Świnoujście Port	Planned	2030	99,971	Level 2

▼ Tab. 124 List of railway lines which, according to the European ERTMS Deployment Plan, should be implemented on the Polish railway network – the North Sea – Baltic Sea corridor Source: materials of PKP PLK.

line no.	line name	status	planned commissioning date	length	level
1	Warszawa Zachodnia – Koluszki	In progress	2025	102,000	Level 2
2	Warszawa Zachodnia – Sulejówek Miłosna	Planned	2030	24,186	Level 2
2	Sulejówek Miłosna – Terespol	In progress	2025	190,090	Level 2
3	Warszawa Zachodnia – Warszawa Gołąbki	Planned	2030	7,637	Level 2
3	Warszawa Gołąbki – Kunowice	In progress	2025	467,379	Level 2
6	Zielonka – Białystok	In progress	2025	162,542	Level 2

line no.	line name	status	planned commissioning date	length	level
11	Skierniewice – Łowicz Główny	Planned	2030	21,704	Level 2
12	Skierniewice – Łuków	Planned	2030	160,515	Level 2
14	Łódź Kaliska – Ostrów Wielkopolski	Planned	2030	136,121	Level 2
17	Łódź Fabryczna – Koluszki	In progress	2025	7,203	Level 2
38	Białystok – Głomno	Planned	2030	103,326	Level 2
39	Olecko – Suwałki	Planned	2030	42,335	Level 2
41	Ełk – Gołdap	Planned	2030	27,486	Level 2
51	Suwałki – Trakiszki	Planned	2030	28,62	Level 2
272	Ostrów Wielkopolski – Poznań Główny	Planned	2030	106,87	Level 2

According to the European ERTMS Implementation Plan, Poland should implement and put into service the ETCS system on about 2,750 km of railway lines within the TEN-T core network. At present, ERTMS can be operated on about 420 km of railway lines included in the European ERTMS Implementation Plan.

For the purpose of the European ERTMS Deployment Plan[32], the infrastructure manager is obliged to conclude agreements with infrastructure managers of neighbouring countries for the coordination of ERTMS implementation. According to the information provided by PKP PLK, these agreements have not yet been concluded, and the status of the implementation of this obligation is at a very low stage of advancement (the most developed is the cooperation with the Czech Republic and Germany). However, the requirements set by the European ERTMS Implementation Plan cannot be considered to have been fulfilled.

4.7.1.2 Implementation status – implementation of CCS TS NIP

CCS TSI NIP – is a document that defines the strategy for the implementation of ERTMS in Poland not only on the TEN-T core network (which is specifically addressed by the ERTMS European Deployment Plan), but in relation to the entire railway network in Poland.

As at the end of December 2022, the ETCS system was implemented on almost 1,000 km of railway lines in Poland.

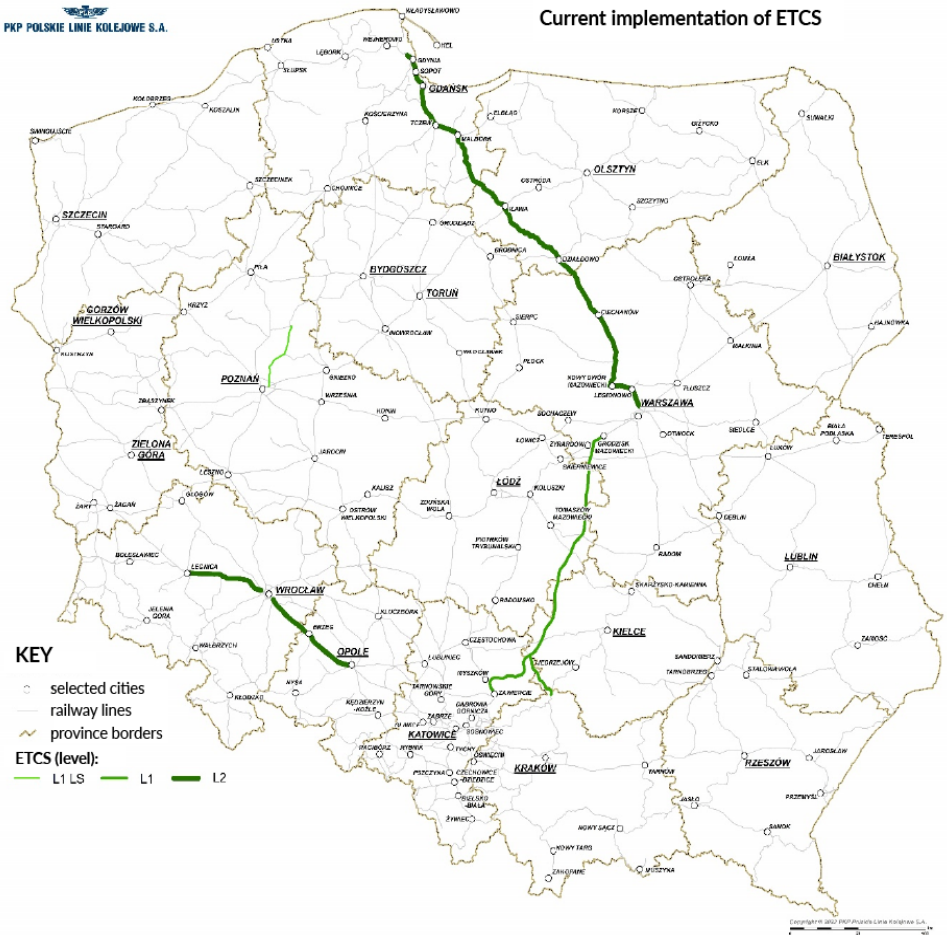
In 2022, the President of UTK issued a permitto authorise the operation of the ‚Control – track-side devices' subsystem covering the ETCS system on railway lines 248 and 253 (managed by Pomorska Kolej Metropolitalna).

However, railway undertakings were only allowed to operate trains under the supervision of the system on a stretch of approximately 750 km of railway line. The restriction of the possibility of operating ETCS on 250 km was related to:

- its partial deactivation by the infrastructure manager on line 4 due to ongoing modernisation works (change from level 1 to level 2);
- the withdrawal from operation of the ETCS level 2 subsystem on the Legnica – Bielawa Dolna section of the E30 line, due to the decision of the President of UTK of 31 March 2022 that this subsystem does not meet the essential requirements of the railway system.

In accordance with the CCS TSI NIP, by the end of 2023. PKP PLK should implement and commission the ETCS system on a further 14 railway lines, covering a total of approximately 1,600 km. However, the timely completion of most of these projects is at risk, mainly due to delays in the project ‚Construction of ERTMS/GSM-R infrastructure on PKP Polskie Linie Kolejowe's railway lines under the ERTMS National Implementation Plan'.

32 Commission Implementing Regulation (EU) 2017/6 of 5 January 2017 on the European Deployment Plan for the European Rail Traffic Management System (OJ EU. L No. 3, p. 6).



◀ Fig. 151 Map of the railway network managed by PKP PLK, on which ETCS is put into operation as at 31 December 2022. Source: materials of PKP PLK.

4.7.1.3 Implementation plan until 2030

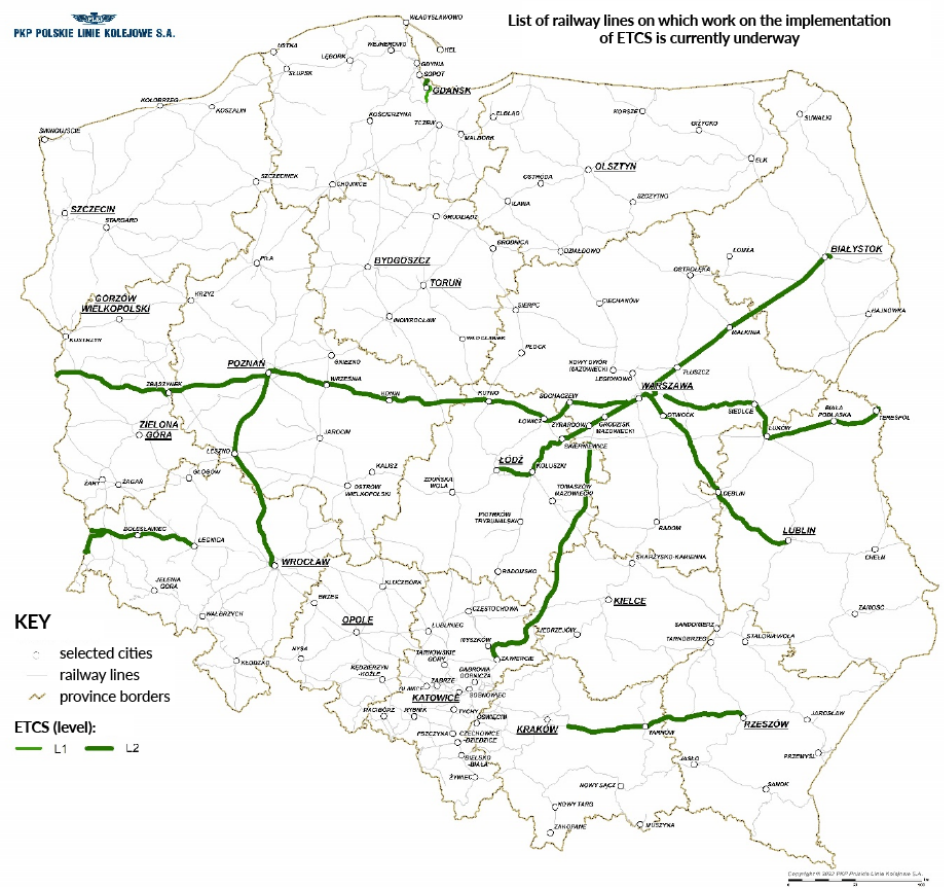
However, according to the CCS TSI NIP, which takes into account the implementation of the assumptions of the European ERTMS Implementation Plan and indicates plans covering railway lines outside the TEN-T core network in Poland until 2030, PKP PLK should implement and put into operation the ETCS system for a total of approx. 4,750 km of railway lines.

PKP PLK has already started work on approx. 1,800 km of railway lines (Figure 2, Table 3). The implementation of another 2,950 km of railway lines is still planned.

▼ Tab. 125 List of railway lines on which ETCS implementation is in progress. Source: PKP PLK materials.

line no.	line name	planned commissioning date	length	level
1	Warszawa Zachodnia – Koluszki	2025	102,112	Level 2
2	Sulejówek Miłosna – Terespol	2025	190,09	Level 2
3	Warszawa Gołąbki – Kunowice	2025	467,38	Level 2
4	Szeligi – Zawiercie	2026	198,51	Level 2 (change from level 1)
6	Zielonka – Białystok	2027	162,54	Level 2
7	Warszawa Wschodnia Osobowa – Lublin	2027	170,72	Level 2
17	Łódź Fabryczna – Koluszki	2025	26,20	Level 2
37	Białystok – Białystok Fabryczny	2027	3,74	Level 2

line no.	line name	planned commissioning date	length	level
91	Podłęże – Rzeszów	2025	139,18	Level 2
226	Pruszcz Gdański – Gdańsk Port Północny	2023	13,21	Level 1
227	Gdańsk Główny – Gdańsk Zaspa Towarowa	2030	4,24	Level 2
249	Gdańsk Główny – Gdańsk Brzeźno	2030	5,94	Level 2
271	Wrocław Główny – Poznań Główny	2025	164,45	Level 2
273	Wrocław Grabiszyn – Wrocław Muchobór	2025	2,35	Level 2
274	Jerzmanki – Zgorzelec	2025	3,50	Level 2
275	Legnica – Miłkowice	2025	9,3	Level 2
282	Miłkowice – Węgliniec	2025	63,351	Level 2
295	Węgliniec – Bielawa Dolna	2025	12,902	Level 2
278	Węgliniec – Zgorzelec	2025	26,15	Level 2
449	Warszawa Rembertów – Zielonka	2025	8,65	Level 2



◀ Fig. 152 Map of the railway network managed by PKP PLK detailing the railway lines on which ETCS implementation is currently in progress. Source: PKP PLK materials.

4.7.1.4 Revision of CCS TSI NIP

Under the assumptions of the new draft Technical Interoperability Specification for the 'Control' subsystem, which is currently being prepared, a revision of the national implementation plans will be required. Therefore, in 2022, the Ministry of Infrastructure (at the initiative of UTK) has undertaken work in this regard. The revised National Implementation Plan for the Control Command and Signalling TSI should cover, e.g.:

- issues related to the implementation of the ETCS Level 1 Limited Supervision system (ETCS L1 LS). According to the 2017 CCS TSI National Implementation Plan, ETCS Level 1 or Level 2 is planned to be built on 8,233 km of railway lines by 2050, i.e. on approximately 42% of the Polish railway network. Only on such a part of the railway network will modern, computer-based traffic control devices providing continuous train driver supervision therefore be available. The challenge therefore remains how to ensure interoperability and improve traffic safety on that part of the rail network on which ETCS installation is not currently planned. This is because the major part of the Polish railway network will continue to be secured only by automatic train braking devices developed in the 1960s. In addition, the draft CCS TSI (in item 7.4.4) obliges Member States to develop a plan for switching off Class B systems, i.e. in the case of the Polish railway network the automatic train braking system (and 150 MHz radio). A solution, which would make it possible to improve safety on lines where ETCS Level 1 or 2 is not currently planned to be implemented (while at the same time improving the interoperability of the network), is to install the ETCS system with the ETCS L1 Limited Supervision mode. The concept of equipping this part of the Polish railway network with ETCS L1 LS has been approved by the Ministry of Infrastructure;

- improving the qualifications of railway staff in terms of ERTMS. The implementation of ERTMS is one of the strategic activities in the Polish railway sector, which, in addition to the challenges associated with the design and construction of the ETCS and GSM-R system itself, involves operational challenges, particularly with regard to the human factor. The commissioning of the ETCS system is also a challenge the employees responsible for maintaining or using the system, as well as those who supervise the compliance of the railway system with the essential requirements;

- the need to develop design principles for ERTMS. A significant challenge with regard to the implementation of ERTMS in Poland is the lack of engineering (or otherwise design) rules developed by infrastructure managers (and, in an optimal scenario, coordinated at national level). This refers to those requirements for the ERTMS trackside which, for various reasons, have not been harmonised in European specifications, but which are necessary to design and build a fully functional and coherent system on a network scale. If the Ordering Party does not establish and specify such rules in the contract requirements, each subsystem in the individual implementations is free to design the system according to its own guidelines, sometimes aiming at cost reduction;

- the need to develop rules for migration to ETCS baseline 4. The ETCS systems in operation on the Polish railway network today are built according to baseline 2, the maintenance of which was discontinued in 2016. PKP PLK is now indicating that further systems in Poland will be built according to baseline 3, the maintenance of which will be discontinued when the revision of the CCS TSI, which is currently under development, comes into force. Compilation of an implementation strategy for the CCS baseline 4 introduced by the revision of the CCS TSI is therefore necessary, and this strategy, in addition to new systems, should also include a plan for updating systems currently in operation. The specifications of the ETCS baseline 4 allow the construction of such a system configuration in the trackside part, which allows the operation of vehicles equipped with ETCS on-board devices built according to any older baseline, including all those in use in Poland.

- information on the benefits of the implementation of ERTMS affecting safety, capacity, reliability and efficiency of the railway system. In accordance with item 7.4.4 of the draft CCS TSI, the national implementation plan should include, in addition to information on the current status of ERTMS implementation, information on the indicated benefits provided by the implemented ERTMS system.

4.7.2 The European Train Control System (ETCS) – on-board equipment

The ERTMS system does not include only track-side devices, but also devices installed on board railway vehicles. The rule is that any new railway vehicle authorised for the first time must be equipped with ETCS. Exceptions to this rule are detailed in the CCS TSI.

The European Train Control System (ETCS) provides cab signalling and driver control with an increased level of safety. The system is based on digital data transmission via (depending on the level): Eurobalises, Euroloops, GSM-R radio communications or STM modules (allowing data to be downloaded from national solutions), through which information such as the maximum speed of the train is transmitted. Compared to the solutions used so far on the Polish railway, a key feature is cab signalling, which allows the situation on the railway line to be shown on the console in the rail vehicle, and not, as before, only on the semaphores along the railway line. Such a solution allows an appropriate response and adaptation of driving to the prevailing conditions. The implementation of cab signalling also eliminates possible human error, resulting, for example, from the lack of visibility of semaphores or from the driver's unfamiliarity with the route. If a train is not being driven in accordance with an ETCS command, the system initially signals the non-compliance and, if necessary, initiates braking. According to the legal requirements, the ETCS system is required to run a train at speeds above 160 km/h or a one-man traction service above 130 km/h.

According to data provided by railway undertakings, electric multiple units (324 units) had the highest proportion of ETCS-equipped traction vehicles at the end of 2022, followed by electric locomotives (239 units). Rail undertakings do not plan to retrofit vehicles with ETCS on a larger scale, rather this concerns individual vehicle units. Most of the planned investments involve the purchase of new rolling stock, which needs to be provided with the ETCS system according to from CCS TSI regulations. This is influenced by the cost of retrofitting an existing vehicle, which can be up to 50% higher than the cost of fitting this system to a newly built vehicle. Another reason is that, for some traction vehicles, retrofitting ETCS can be technically challenging (adapting the vehicle to the system). The average age of traction vehicles in Poland and the short series of traction vehicle types ordered in recent years are also not conducive to investment in vehicle upgrades for ETCS retrofitting.

The still limited area in which it is possible to operate a vehicle under ETCS supervision remains a certain barrier. This is affected by the pace of implementation of the system by infrastructure managers. Despite this, railway undertakings are planning further investments in new vehicles equipped with ETCS. By 2025, freight undertakings plan to purchase 100 ETCS-equipped traction vehicles, while passenger undertakings plan to purchase 390.

▼ Tab. 126 Vehicles equipped with ETCS as at 31 December 2022

type of rolling stock	vehicles equipped with ETCS	having ETCS Level 1 only	with ETCS level 1 and 2 baseline 2	with ETCS level 1 and 2 baseline 3	purchased with ETCS installed at the time of vehicle production	retrofitted with ETCS
total	589	5	354	230	563	26
electric locomotives	239	5	124	110	216	23
diesel locomotives	2	0	1	1	0	2
electric multiple units	324	0	212	112	323	1
diesel multiple units	14	0	10	4	14	0
electric railcars	0	0	0	0	0	0
diesel railcars	0	0	0	0	0	0
other traction units	10	0	7	3	10	0

In 2022, the proposed changes covered almost all TSIs applicable to rolling stock, including the CCS TSI. The most significant proposed changes affecting ongoing rolling stock projects include the removal of item 7.4.2.1 (2) and (3) from the Control-Command and Signalling TSI This item contained exceptions to the obligation to install the ETCS system on new vehicles. The removal of this clause means that with the entry into force of the new version of the TSI, any new railway vehicle will have to be equipped with ETCS, including:

- new mobile devices intended for the construction and maintenance of railway infrastructure;
- new shunting locomotives;
- other new vehicles not intended for transport on high-speed lines:
  - if they are intended exclusively for domestic services outside the TEN corridors or
  - if they are intended for non-TEN cross-border services, i.e. services to the first station in the neighbouring country or to the first station with connections deep into the neighbouring country, using only lines not included in the TEN network.

This change means that all traction vehicles (including shunting locomotives) and special vehicles with a driver's cab will have to be equipped with the ETCS system after the entry into force of the new TSI (according to the transitional regime). This approach can be a major challenge for some vehicle manufacturers.

4.7.3 GSM-R

Permission of the President of UTK for admission to operation of the GSM-R system

In 2022, the President of UTK continued to monitor the progress of work on the construction of the GSM-R system. In accordance with the schedule of applications submitted to the President of UTK for authorisation to operate fixed systems with the first authorisation under the project ‚Construction of ERTMS/GSM-R system infrastructure on PKP Polskie Linie Kolejowe railway lines within the framework of NPW ERTMS', PKP PLK was to apply in 2022.

The first releases of the GSM-R network system planned for 2022 have been postponed to 2024 and 2025 due to delays in the construction of the GSM-R infrastructure. There is also still no timetable presented to the President of UTK for the submission of applications for authorisation to operate the above-mentioned system, at the moment it is only known that there will be around 50 applications.

This means that the number of kilometres of railway lines equipped with GSM-R in 2022 has not changed. 1,947 km of railway lines remain equipped with GSM-R.

Operation of the GSM-R system observed

It is worth recalling that the infrastructure manager had originally planned to start observed operation using the GSM-R network on railway line No. 9 from 2 January 2022, but this date was postponed first to June 2022, then to 4 July 2023. Eventually, the infrastructure manager informed the President of the UTK that the start of the scheduled observed operation, due to the ongoing migration process to the GSM-R system baseline 1, would take place on a different date. According to the provisions of the Supplement to the National Implementation Plan of the Control-Command and Signalling TSI, the exact date of the beginning of the observed operation of the GSM-R system will be communicated by PKP PLK to the operators at least six months in advance.

The commencement of GSM-R observed voice communication operation on railway line No. 9 is crucial to ensure that railway undertakings are properly prepared for the operation of the new communication system. Bearing in mind the importance of proper risk management for the safe introduction of the change related to the operation of observed GSM-R on railway line No. 9, the President of UTK

will continue to supervise the way in which the obligations related thereto are implemented.

Actions related to the mitigation of interference in the reception of the GSM-R signal

It is worth pointing out that, in 2022, activities were undertaken within the ERTMS Users Group on solutions for mitigating interference in GSM-R network signal reception in the Tricity area, which affected train journeys under the supervision of the ETCS Level 2 system. The infrastructure manager informed the undertakings carrying out transport under the supervision of the ETCS Level 2 system. on the need to adapt on-board communication devices to the technical parameters conditioning the mitigation of irregularities related to the reception of the GSM-R network signal. The infrastructure manager also planned to expand the transmitting and receiving stations of the GSM-R network in places where it has become necessary to increase the signal strength of the GSM-R network.

On the other hand, the undertaking has started preparations for the upgrade of GSM-R communication systems with regard to data transmission for the ETCS system on the vehicles in operation to technical standards that will ensure uninterrupted reception of the GSM-R network signal.

Equipping railway vehicles with the GSM-R system

With the implementation of the GSM-R standard on the railway network, it is also important to equip railway vehicles with GSM-R for the purpose of operating them on the whole railway network in Poland.

Once a vehicle has been retrofitted with a GSM-R radio, the entity managing the change is required to apply for a new marketing authorisation. In 2022, the President of UTK received 23 applications for authorisations for vehicles retrofitted with GSM-R devices. The table shows the status of equipping vehicles with GSM-R by type of rolling stock - 1,945 vehicles represent less than 50% of all traction vehicles. It should be borne in mind that communications in the 150 MHz band will be retained only in shunting operations and in some networks of infrastructure managers other than PKP PLK. After the transition to GSM-R communications, the lack of appropriate rolling stock equipment will make it technically impossible to operate them on the railway network.

▼ Tab. 127 Vehicles equipped with a GSM-R radiotelephone as of 31 December 2022.

type of vehicle equipped with GSM-R	number
passenger diesel locomotives	54
passenger electric locomotives	203
diesel multiple units	101
electric multiple units	503
freight diesel locomotives	353
freight electrical locomotives	552
diesel passenger railcars	20
other traction units	159

4.7.4 Compatibility of ETCS and GSM-R

The compatibility of the ETCS system (ESC) requires technical compatibility between on-board and track-side devices built by often different manufacturers. Even if each manufacturer makes every effort to build in the ETCS devices to the required quality, the combination of the subsystems into a single system reveals, under actual operational conditions, anomalies in the cooperation between the on-board and track-side equipment which are not apparent when they are verified independently. Compatibility of ETCS system is affected by both requirements of the 'Control-Command and Signalling' TSI, operational scenarios, technical guidelines for the construction of the system, interpretation of these requirements by each stakeholder involved, as well as specific technical solutions of ETCS on-board and track-side equipment suppliers. Ensuring the compatibility of the ETCS system is required in order to ensure that on-board equipment works properly with the track-side equipment of the ETCS system on a specific line.

The obligation to carry out tests has entered into force on 1 July 2021, when the infrastructure manager indicated a set of applicable tests in the RINF database. Any failure to carry them out, despite the presence of an ETCS system with EC verification certificates on the vehicle, is included in the non-coded restrictions contained in the authorisation. Such a vehicle may then not be operated on lines equipped with ETCS. The UTK President has monitored the implementation of the obligation to carry out ESC and RSC radio compatibility tests in 2022 in the applications for the first authorisation and in the applications for type and variant versions.

In addition, the President of UTK analysed all available possibilities and eventually published on the Office's website guidance for undertakings on how to effectively carry out tests with the least amount of effort. This initiative has made the implementation of the process more efficient and the proposed solutions are being used by the undertakings. In 2022 the UTK President also monitored the performance of ESC/RSC tests on vehicles in operation by collecting information from test coordinators.

In 2022 the UTK President, together with the entities concerned (test coordinators and the infrastructure manager), developed a template for the report on ETCS compatibility controls carried out. The template was prepared for the purpose of standardising the documentation and the information contained therein, and to standardise the data necessary for managing incompatibility.

Railway undertakings have repeatedly raised their concerns about the timely implementation of ESC/RSC testing based on a developed timetable that takes into account contracts for the execution of the Agreement for ESC testing and specific deadlines for individual tests for railway undertakings/rolling stock manufacturers. The postponement of the requirement to demonstrate ESC compatibility as part of route compatibility has occurred three times in 2022 – the deadline has now been moved by PKP PLK to 10 December 2023.

Due to the failure to start observed GSM-R operation in 2022, RSC testing for voice radio communications in 2022 was still suspended.

The draft of the new Control-Command and Signalling TSI, which is still expected to enter into force in 2023, implies that all the necessary information for the compatibility tests will be included directly in the TSI, in particular:

- the minimum information that the ESC/RSC test sets should contain;
- model statements for ESC/RSC tests performed;
- the scope of the checks carried out by the notified body.

In terms of ESC/RSC testing, the table of essential design features will change. The new TSI will introduce additional conditions for change management for ESC/RSC testing.

4.8. The capacity of railway infrastructure

Infrastructure capacity is one of the important factors affecting the organisation of rail services. The diversity of services, the occurrence of peak hours and speed restrictions on selected sections of the railway line require undertakings and infrastructure managers to agree on the level of maintenance and operation of the railway line.

The capacity of a railway line depends on technical parameters such as maximum permissible speed, number and length of sections with speed restrictions, number of tracks, type of control devices railway traffic, the track layout of the station and the type structure of trains using a given railway station. The total infrastructure capacity is defined by the highest number of trains or train pairs that can run on a given section of the railway line in a given period of time.

The presented data on sections with limited capacity in 2022 come from railway undertakings and is obtained as part of the reporting by the President of UTK. Each of the railway undertakings could assign a given section with limited capacity to one of eight categories concerning various technical and organisational aspects related to the provision of railway transport:

- reduction in line capacity during peak hours;
- the negative impact of passenger transport on the liquidity of freight transport;
- operation of single-track sections of railway lines;
- unfavourable condition of railway infrastructure;
- restrictions on the useful length of station tracks;
- restrictions on operating hours at line stations;
- other factors affecting traffic capacity limitations.

The change in the method for assigning the constraints that occur to the appropriate category[33] has resulted in marked changes and deviations from the data for 2020 and for 2021. First and foremost, it should be noted that there has been a clear increase in the length of capacity-constrained sections assigned to the category associated with negative passenger traffic impact. In 2020 and in 2021, the length of these sections did not exceed 362 km; in 2022, the undertakings indicated that they accounted for more than three times as many – 1,175.3 km. Similarly, the sections assigned by the undertakings to the category related to restrictions on the useful length of station tracks – in previous years – were 104.3 km in 2020, 356.7 km in 2021 and 1,589.2 km in 2022.

Irrespective of the change in the method of assigning constraints, it should be noted that the length of sections with limited capacity according to the railway undertakings is increasing steadily due to the unfavourable condition of the railway infrastructure or restrictions on operating hours at the line stations. There has also been a slight decrease in the length of capacity-constrained lines due to the operation of single-track sections of railway lines.

In 2022, capacity usage exceeded 70% for 9 railway lines. Full capacity usage (70%) between 5.00 am and 9.00 am and between 3.00 pm and 7.00 pm concerned more sections. For the morning rush hours it was 15 sections and for the afternoon rush hours 33 sections.

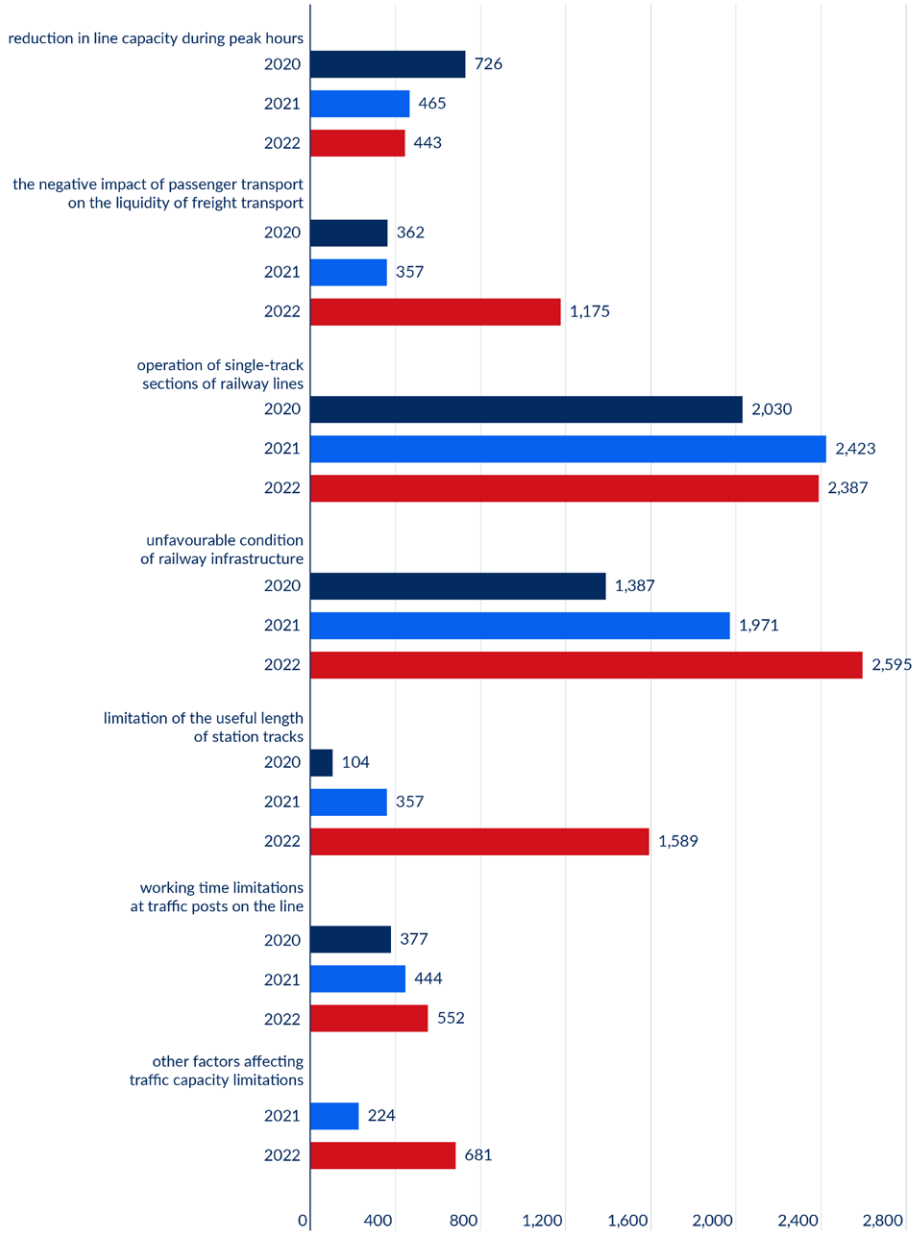
Railway undertakings also indicated sections of railway lines which, according to them, should be rebuilt. In particular a 17 km section in the Śląskie Province on line 132 (Zabrze Biskupice – Pyskowice) and a 1.9 km section in the Podlaskie Province on line 516 (Turczyn – Białystok Starosielce).

▼ Tab. 128 Sections of railway lines with full capacity usage in 2022

railway line	section with full capacity usage	section length
20	Warszawa Główna Towarowa – Warszawa Gdańska	11.1 km
100	Kraków Olsza – Kraków Bieżanów	12.3 km
138	Mysłowice – Katowice	7.3 km
150	Most Wisła – Bronów	9.5 km
277	Czernica Wrocławska – Siechnice	7.3 km
358	Babimost – Sulechów	17.2 km
370	Zielona Góra Główna – Nowogród Osiedle	29.9 km
448	Warszawa Zachodnia – Warszawa Wschodnia	6.6 km
629	Kraków Główny – Kraków Zabłocie	2.4 km

33 In the 2022 report on the operation of the rail transport market, there was a change in the method of assigning sections with limited capacity to categories. In the 2020 and 2021 reports, the undertakings presented sections with limited capacity and described the causes of the problems themselves, and UTK, at the stage of analysing the aggregate data, assigned the responses received to a category. From 2022 onwards, the undertakings themselves will assign the existing constraints to one of the categories indicated in the form.

◀ Fig. 153 Length of railway lines with limited traffic capacity in 2020–2022



	2020	2021	2022
reduction in line capacity during peak hours	726	465	443
the negative impact of passenger transport on the liquidity of freight transport	362	357	1,175
operation of single-track sections of railway lines	2,030	2,423	2,387
unfavourable condition of railway infrastructure	1,387	1,971	2,595
limitation of the useful length of station tracks	104	357	1,589
working time limitations at traffic posts on the line	377	444	552
other factors affecting traffic capacity limitations		224	681

▼ Tab. 129 Sections of railway lines with total capacity usage during morning peak hours in 2022

railway line	sections of railway lines with full capacity usage during morning peak hours in 2022	section length
6	Łapy – Białystok	23.3 km
20	Warszawa Główna Towarowa – Warszawa Gdańska	11.1 km
71	Kolbuszowa – Głogów Małopolski	17.1 km
100	Kraków Olsza – Kraków Bieżanów	12.3 km
106	Czudec – Strzyżów nad Wisłokiem	10.6 km
138	Mysłowice – Katowice	7.3 km
139	Most Wisła – Czechowice Dziedzice	1.8 km

railway line	sections of railway lines with full capacity usage during morning peak hours in 2022	section length
202	Reda – Wejherowo	8.5 km
273	Wrocław Główny – Wrocław Grabiszyn	2.0 km
	Brzeg Dolny – Wołów	10.0 km
277	Czernica Wrocławska – Siechnice	7.3 km
358	Babimost – Czerwieńsk Wschód	31.8 km
370	Zielona Góra Główna – Nowogród Osiedle	29.9 km
448	Warszawa Zachodnia – Warszawa Wschodnia	6.6 km
629	Kraków Główny – Kraków Zabłocie	2.4 km

▼ Tab. 130 Sections of railway lines with total capacity usage during evening peak hours in 2022

railway line	a section with full capacity usage during the evening peak hours in 2022	section length
9	Pszczółki – Pruszcz Gdański	10.4 km
20	Warszawa Główna Towarowa – Warszawa Gdańska	11.1 km
40	Augustów – Las Suwalski	25.0 km
71	Kolbuszowa – Głogów Małopolski	17.1 km
96	Rytro – Piwniczna	8.6 km
100	Kraków Olsza – Kraków Bieżanów	12.3 km
101	Bobrówka – Lubaczów	26.2 km
108	Biecz – Jasło	18.4 km
131	Bytom Północny – Radzionków	4.8 km
	Nakło Śląskie – Tarnowskie Góry	3.7 km
137	Katowice – Katowice Towarowa	2.5 km
138	Mysłowice – Katowice	7.3 km
171	Stawiska – Katowice Muchowiec	7.6 km
202	Reda – Wejherowo	8.5 km
207	Toruń Wschodni – Ostaszewo Toruńskie	9.9 km
208	Brodnica – Jabłonowo Pomorskie	23.3 km
214	Sononimo – Kartuzy	7.6 km
215	Osie – Szlachta	26.3 km
220	Małdyty – Pasłęk	18.3 km
273	Wrocław Główny – Wrocław Grabiszyn	2.0 km
	Zielona Góra Główna – Czerwieńsk	10.2 km

railway line	a section with full capacity usage during the evening peak hours in 2022	section length
220	Małdyty – Pasłęk	18.3 km
277	Czernica Wrocławska – Siechnice	7.3 km
288	Nysa – Brzeg	47.2 km
289	Lubin Górniczy – Rudna Gwizdanów	16.7 km
311	Piechowice – Szklarska Poręba Górna	15.1 km
326	Wrocław Psie Pole – Trzebnica	19.7 km
354	Oborniki Wielkopolskie – Rogoźno Wielkopolskie	14.7 km
357	Rakoniewice – Grodzisk Wielkopolski	14.3 km
358	Babimost – Sulechów	17.2 km
367	Skwierzyna – Gorzów Wielkopolski Zieleniec	21.4 km
370	Zielona Góra Główna – Nowogród Osiedle	29.9 km
448	Warszawa Zachodnia – Warszawa Wschodnia	6.6 km
629	Kraków Główny – Kraków Zabłocie	2.4 km

▼ Tab. 131 Sections of railway lines indicated by railway carriers for reconstruction

railway line	section indicated by undertakings	section length	additional information
132	Zabrze Biskupice – Pyskowice	17.0 km	At present, it is not possible to exit Silesia to the west, bypassing the increasingly congested Gliwice area.
516	Turczyn – Białystok Starosielce	1.9 km	The railway line is closed. The need to change direction in Białystok when driving from Małkinia towards Ełk

4.9. PKP PLK's investments in 2022

The National Railway Infrastructure Manager conducted investment activities in 2022 on the basis of the Company's Investment Plan (PI2022) assuming the implementation of projects financed from the Cohesion Fund, the state budget, ROP and own funds, as well as part of the Station Programme. The most important group consisted of projects financed from the CEF and OPI&E.

Under PI2022, more than 300 investment projects were accepted for implementation and cost approximately PLN 10.93 billion. Investment works were carried out on the railway network managed by PKP PLK, including the renewal, upgrade or construction of, for instance, 789.2 km of track, including: 672.2 km of main and route tracks, 206 level crossings and 63 railway and road viaducts.

At the end of the ninth year of the current EU perspective, out of the total amount of the National Railway Programme, about 98.8 per cent was under implementation (at various levels of advancement) or completed.

PKP PLK's investment activities as manager of the national railway infrastructure have the purpose of improving the efficiency and effectiveness of the country's transport system through the implementation of a broad investment programme involving the upgrade of many railway lines.

▼ Tab. 132 The largest contracts for infrastructural works signed in 2022 (PLN million)

no.	project name	programme	order name	net value of the contract (PLN million)
1	Revitalisation of the railway line No. 283 on the section Zebrzydowa – Żagań	Military	Execution of construction works on the railway line No. 283 on the Zebrzydowa – Żagań section	379,1*
2	Modernisation of railway line no. 4 – Central Railway Main Line	Budget	Execution of track works to increase the speed on the railway line No. 4 Grodzisk Mazowiecki – Zawiercie	269,2
3	Works on the E 20 railway line on the section Siedlce – Terespol, stage III – LCS Terespol	CEF 14–20	Design and execution of extension of the track system at the Biała Podlaska station and at the Małaszewicze station	122,9
4	Works on the railway line No. 25, section Skarżysko Kamienna – Sandomierz	PO PW 14–20	Development of design documentation and execution of construction works on the section Bodzechów – Sandomierz	117,5
5	Works on the railway line No. 94, section Kraków Płaszów – Skawina – Oświęcim	Budget	Development of design documentation and execution of construction works on the section Podbory Skawińskie – Oświęcim	92,0

*The indicated value includes the total value of the concluded contract for construction works on lk 283 on the Zebrzydowa – Żagań section, the amount of financing under the KPK until 2023 is PLN 14 million net

▼ Tab. 133 The largest projects (investments) implemented in 2022

no.	project name
1.	Works on the E75 line on the Czyżew – Białystok section
2.	Works on the C-E 65 railway line on section Chorzów Batory – Tarnowskie Góry – Karsznice – Inowrocław – Bydgoszcz – Maksymilianowo
3.	Works on the cross-city line in Warsaw, section Warszawa Wschodnia – Warszawa Zachodnia, stage I
4.	Improvement of rail access to the seaport in Gdynia
5.	Works on the E59 railway line, section Wronki – Słonice
6.	Works on the E 75 line, section Białystok – Suwałki – Trakiszki (state border), stage I, section Białystok – Ełk, phase I
7.	Works on railway lines No. 97, 98, 99 on the section Skawina – Sucha Beskidzka – Chabówka – Zakopane
8.	Works on the E59 railway line, section Poznań Główny – Szczecin Dąbie
9.	Works on basic passenger routes (E 30 and E 65) in Silesia, stage I line E 65 on section Będzin – Katowice – Tychy – Czechowice Dziedzice – Zebrzydowice, LOT C
10.	Improvement of rail access to seaports in Szczecin and Świnoujście

4.10. Charges for access to infrastructure

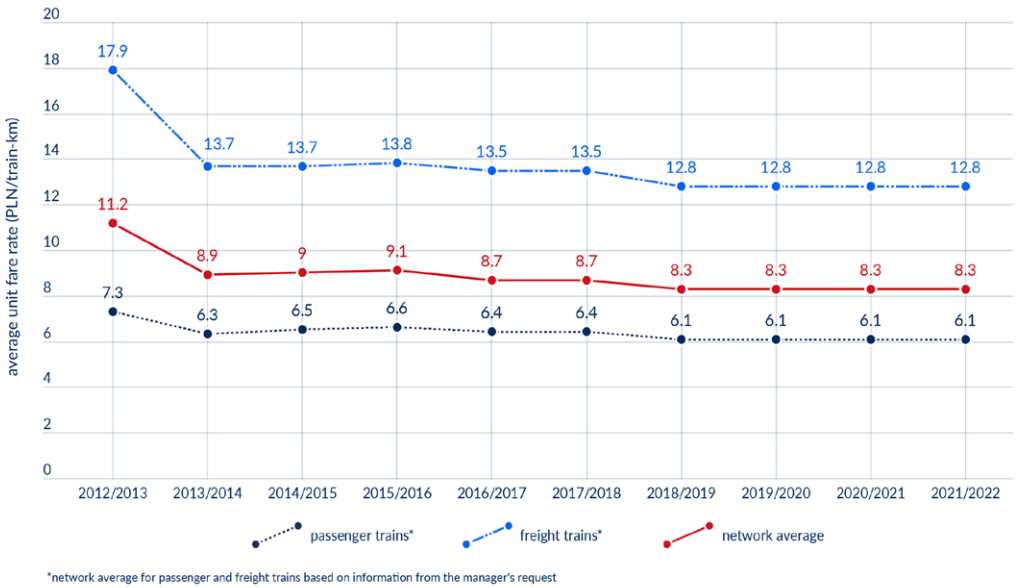
The President of UTK has approved, for the 2021/2022 train timetable, the draft price lists of the railway infrastructure managers PKP SKM in Tri-City and Pomorska Kolej Metropolitalna in the part concerning the method of determining the unit rate of the basic or shunting charge.

Managers: PKP PLK, CARGOTOR, DSDiK, CTL Maczki-Bór, Euroterminal Sławków, PGE Energia Ciepła o. Lublin Wrotków, Track Tec and PTS Betrans have announced the abandonment of the price list compilation for the 2021/2022 timetable (on the basis of Article 33 section 22 of the Railway Transport Act) and the application of the price list in force during the 2020/2021 timetable.

Some of the infrastructure managers considered to be local, not of strategic importance for the functioning of the railway market (JSK, Infra SILESIA, KP Kotlarnia Linie Kolejowe and PMT Linie Kolejowe) decided not to apply the provisions of the Railway Transport Act concerning approval of the price list, informing the President of UTK about it in advance.

PKP PLK is the infrastructure manager and is responsible for the majority of lines of strategic importance. The average network rate according to the plan for the minimum access to infrastructure of the infrastructure manager PKP PLK decreased from PLN 8.68/train-km in the 2017/2018 timetable to PLN 8.28/train-km in the 2018/2019 timetable and remained unchanged until the 2021/2022 timetable. From the 2013/2014 timetable to the 2018/2019 timetable, the average rate for all trains has mostly been in steady, small decreases. The data on the average cost for infrastructure access from the actual performance deviates slightly from the plan and is due to differences between the plan and the operational performance and the parameters of the trains put into operation.

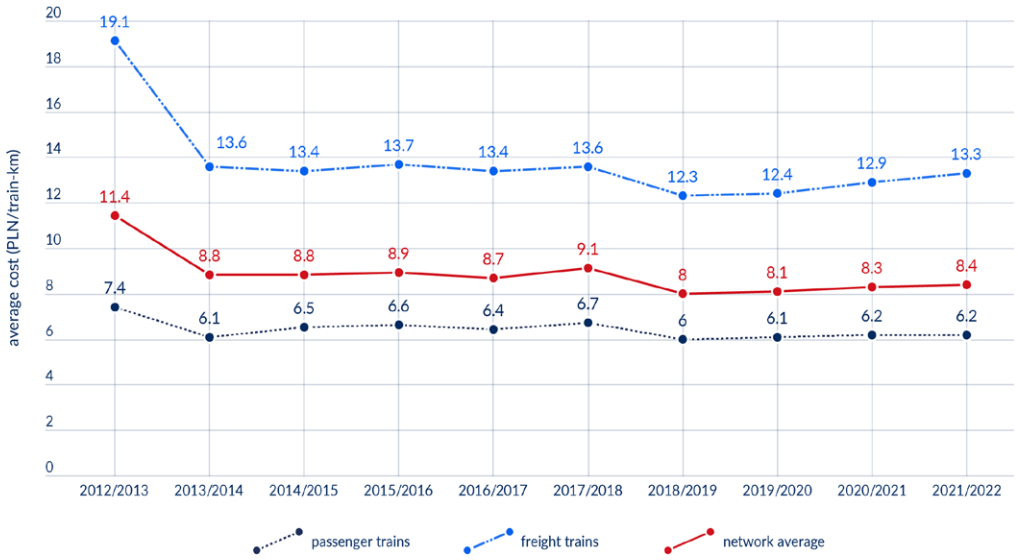
The President of UTK in August 2022 appointed a Team for charges for access and use of railway infrastructure. The purpose of the representatives of UTK, the Ministry of Infrastructure, social and industry organisations, railway infrastructure managers and undertakings participating in the team is, for example, to establish system solutions stimulating the development of railway transport, as well as to prepare proposals for changes in the method of shaping charges for access to railway infrastructure. As part of the work on agreeing 'costs directly incurred as a result of a train journey' for calculating fees for minimum access to railway infrastructure. The team plans to develop a catalogue of costs acceptable as direct costs.



*network average for passenger and freight trains based on information from the manager's request

◀ Fig. 154 Average cost (PLN per train-km) according to the plan for minimum access to PKP PLK infrastructure from the 2012/2013 timetable to the 2021/2022 timetable

	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022
passenger trains	7.3	6.3	6.5	6.6	6.4	6.4	6.1	6.1	6.1	6.1
freight trains	17.9	13.7	13.7	13.8	13.5	13.5	12.8	12.8	12.8	12.8
network average	11.2	8.9	9	9.1	8.7	8.7	8.3	8.3	8.3	8.3



◀ Fig. 155 Average cost (PLN per train-km) according to the implementation for the minimum access to PKP PLK infrastructure from the 2012/2013 timetable to the 2021/2022 timetable

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
passenger trains	7.4	6.1	6.5	6.6	6.4	6.7	6	6.1	6.2	6.2
network average	11.4	8.8	8.8	8.9	8.7	9.1	8	8.1	8.3	8.4
freight trains	19.1	13.6	13.4	13.7	13.4	13.6	12.3	12.4	12.9	13.3

4.11. Railway infrastructure in Europe

According to IRG-Rail[34] data, Europe's rail infrastructure in 2021[35] comprised more than 233,800 km of railway lines, a slight decrease of 404 km (-0.2%) compared to 2020. Germany has the largest length of railway lines in Europe (16.8% share). The 39,400 km of railway lines operated by this country are 53.7% electrified. France, with a railway network of 27,700 km, is in second place (11.8% share). The level of electrification of railway lines in this country was 60.3%. Railway lines in Poland are third in terms of length (19,300 km) - accounting for 8.3% of the length of railway lines in the 31 countries analysed. Railway lines in Poland were 62.9% electrified in 2021.

According to the IRG-Rail ranking, more than half of the length of railway lines in Europe (55.8%) are electrified lines. Switzerland remains the only country with a fully electrified railway network. In 2021, 5,300 km of lines were in service there (2.3% share). In Luxembourg, the rail network is 96.7% electrified, with less than 271 km of rail lines in service in 2021, putting the country in last place in terms of rail line length among the countries analysed according to IRG Rail ranking.

For 10 of the 31 countries analysed, the length of rail lines in operation increased in the year-on-year terms. Spain (+126 km) and Norway (+60 km) added the most lines. For 11 countries there was a decrease in length compared to 2020 – the largest for Denmark (-238 km), France (-156.1 km) and Poland (-135 km).

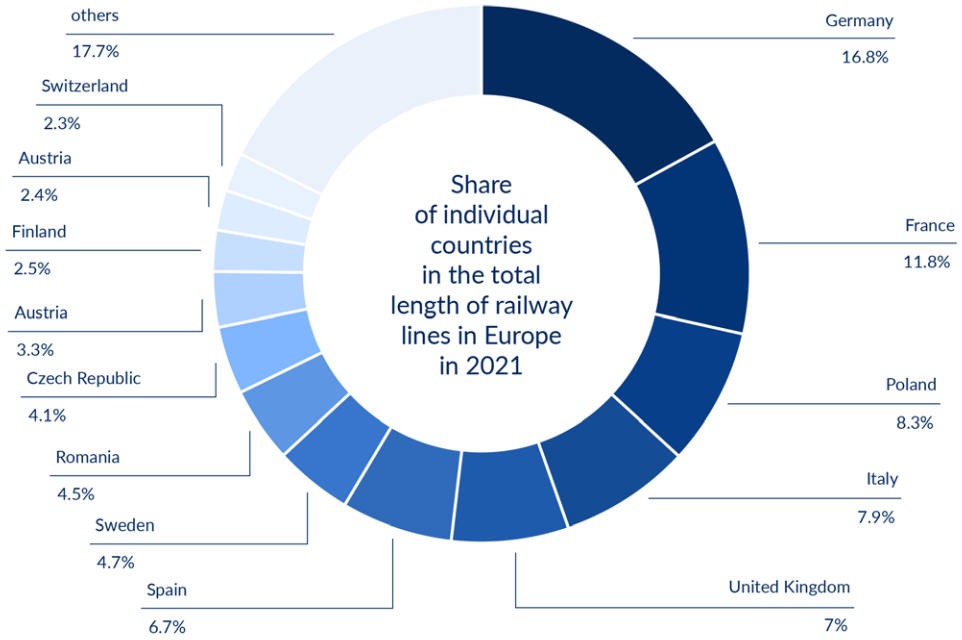
In the vast majority of European countries, rail networks are used more by passenger transport than freight. In 2021, the European average intensity of network use by passenger trains was 42 train-kilometres per line km per day (40 in 2020). The highest values for this parameter remain in the Netherlands (136 train-kilometres in 2021 and 124 train-kilometres in 2020), Switzerland (106 train-kilometres in 2021 and 101 train-kilometres in 2020) and Denmark (99 train-kilometres in 2021 and 87 train-kilometres in 2020). In the case of Poland this value was respectively 25 train-km in 2021 and 23 train-km in 2020.

In terms of the intensity of use of the network by freight trains, the European average in 2021 was 10 train-kilometres per 1 km of line per day (in 2020 it was 9 train-kilometres

34 *Independent Regulators' Group – Rail*, an organisation associating independent rail regulatory authorities from 31 European countries, including Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, North Macedonia, Greece, Spain, the Netherlands, Ireland, Kosovo, Lithuania, Luxembourg, Latvia, Germany, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Switzerland, Sweden, Hungary, Great Britain and Italy.
35 The most up-to-date data on rail infrastructure in Europe available as at the date of publication of the Rail Transport Market Performance Assessment 2022 comes from the 11th Market Report in Europe published by IRG-Rail in April 2023. The data in the report covers 2021.

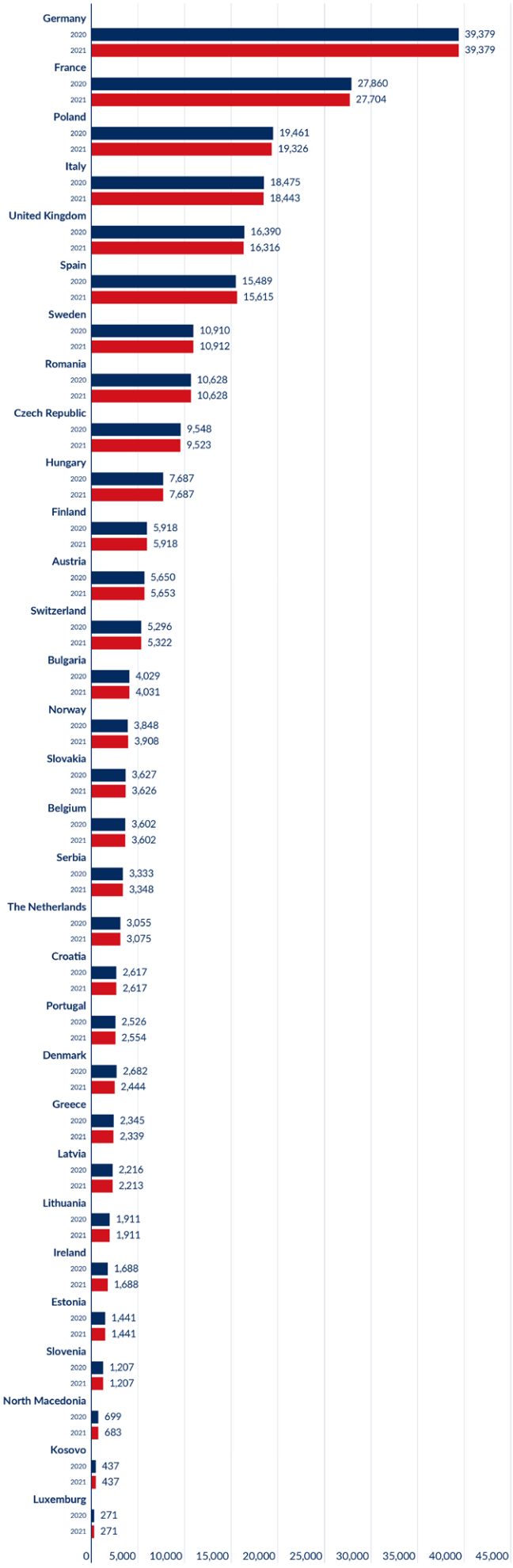
per 1 km of line per day). The highest values for this parameter were recorded in Slovenia (25 train-kilometres in 2021 and 23 train-kilometres in 2020), followed by Austria (25 train-kilometres in 2021 and 23 train-kilometres in 2020) and Germany (19 train-kilometres in 2021 and 17 train-kilometresin 2020). In Poland, the intensity of use of the network by freight trains is 12 train-kilometres in 2021 and 11 train-kilometres in 2020, respectively. For two countries: Lithuania and Slovenia, the degree of use of the network by freight transport was higher than by passenger transport.

In 2021, the total length of high-speed lines in the countries that have them was 8,726 km – 140 km more (+1.6%) than in 2020. In the year-on-year terms, only Spain declared an increase in the length of high-speed lines – by 144 km (+4.9%).



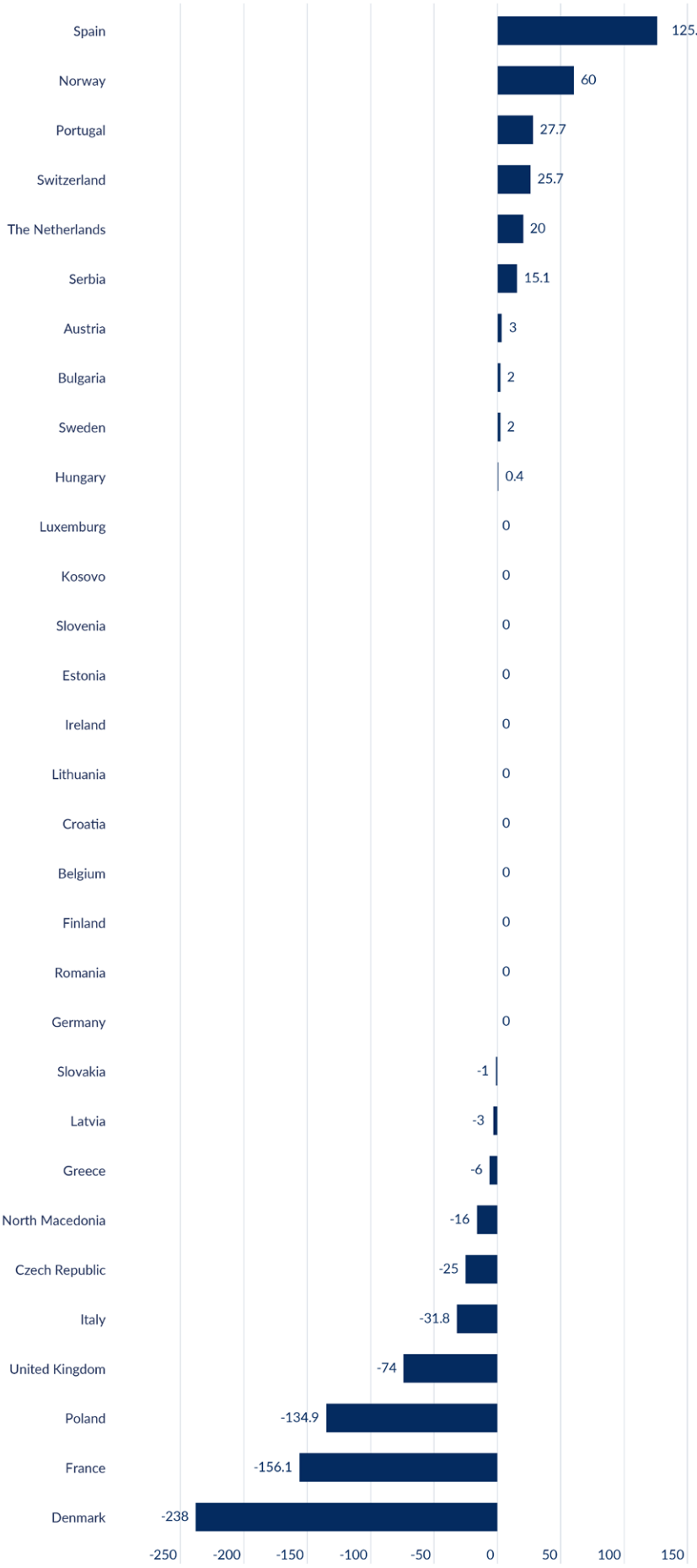
◀ Fig. 156 Share of individual countries in the total length of railway lines in Europe in 2021
Source: compiled by the company on the basis of UTK and IRG-Rail data.

	share
Germany	16.8%
France	11.8%
Poland	8.3%
Italy	7.9%
United Kingdom	7.0%
Spain	6.7%
Sweden	4.7%
Romania	4.5%
Czech Rep.	4.1%
Hungary	3.3%
Finland	2.5%
Austria	2.4%
Switzerland	2.3%
others	17.7%



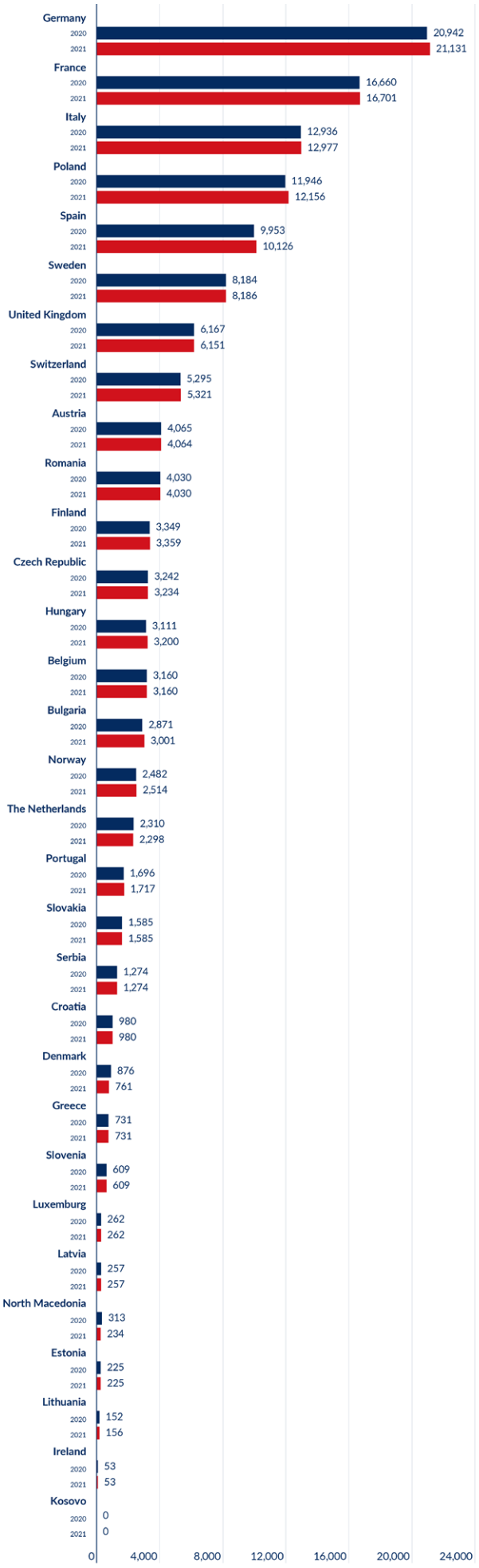
◀ Fig. 157 Length of railway lines in individual European countries in 2020 and 2021 (in km)
Source: compiled by the company on the basis of UTK and IRG-Rail data.

	2020	2021
Germany	39,379	39,379
France	27,860	27,704
Poland	19,461	19,326
Italy	18,475	18,443
United Kingdom	16,390	16,316
Spain	15,489	15,615
Sweden	10,910	10,912
Romania	10,628	10,628
Czech Rep.	9,548	9,523
Hungary	7,687	7,687
Finland	5,918	5,918
Austria	5,650	5,653
Switzerland	5,296	5,322
Bulgaria	4,029	4,031
Norway	3,848	3,908
Slovakia	3,627	3,626
Belgium	3,602	3,602
Serbia	3,333	3,348
The Netherlands	3,055	3,075
Croatia	2,617	2,617
Portugal	2,526	2,554
Denmark	2,682	2,444
Greece	2,345	2,339
Latvia	2,216	2,213
Lithuania	1,911	1,911
Ireland	1,688	1,688
Estonia	1,441	1,441
Slovenia	1,207	1,207
North Macedonia	699	683
Kosovo	437	437
Luxemburg	271	271



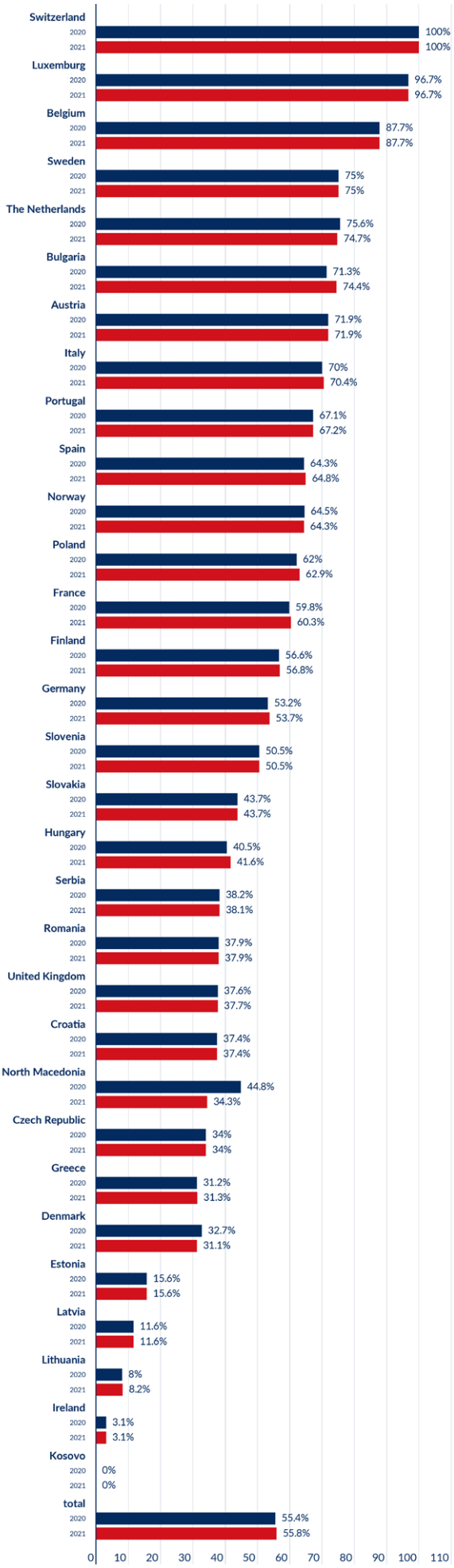
◀ Fig. 158 Change in the length of railway lines in 2021 compared to 2020 (in km) Source: compiled by the company on the basis of UTK and IRG-Rail data.

	Dynamika 2021/2020
Spain	125.7
Norway	60.0
Portugal	27.7
Switzerland	25.7
The Netherlands	20.0
Serbia	15.1
Austria	3.0
Bulgaria	2.0
Sweden	2.0
Hungary	0.4
Luxemburg	0.0
Kosovo	0.0
Slovenia	0.0
Estonia	0.0
Ireland	0.0
Lithuania	0.0
Croatia	0.0
Belgium	0.0
Finland	0.0
Romania	0.0
Germany	0.0
Slovakia	-1.0
Latvia	-3.0
Greece	-6.0
North Macedonia	-16.0
Czech Republic	-25.0
Italy	-31.8
United Kingdom	-74.0
Poland	-134.9
France	-156.1
Denmark	-238



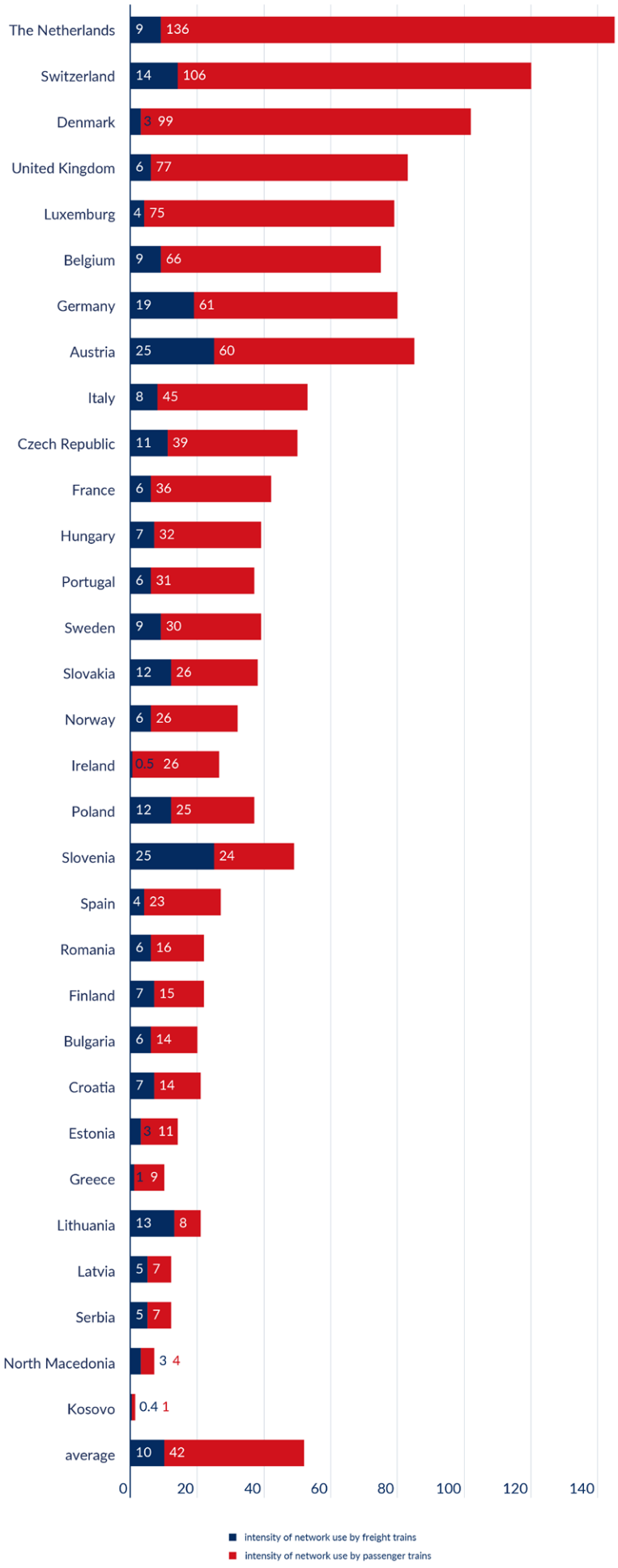
◀ Fig. 159 Length of electrified railway lines in 2020 and in 2021 in selected European countries (in km) Source: compiled by the company on the basis of UTK and IRG-Rail data.

	2020	2021
Germany	20,942	21,131
France	16,660	16,701
Italy	12,936	12,977
Poland	11,946	12,156
Spain	9,953	10,126
Sweden	8,184	8,186
United Kingdom	6,167	6,151
Switzerland	5,295	5,321
Austria	4,065	4,064
Romania	4,030	4,030
Finland	3,349	3,359
Czech Republic	3,242	3,234
Hungary	3,111	3,200
Belgium	3,160	3,160
Bulgaria	2,871	3,001
Norway	2,482	2,514
The Netherlands	2,310	2,298
Portugal	1,696	1,717
Slovakia	1,585	1,585
Serbia	1,274	1,274
Croatia	980	980
Denmark	876	761
Greece	731	731
Slovenia	609	609
Luxemburg	262	262
Latvia	257	257
North Macedonia	313	234
Estonia	225	225
Lithuania	152	156
Ireland	53	53
Kosovo	0	0



◀ Fig. 160 Share of electrified railway lines in the total length of lines in selected European countries in 2020 and in 2021
Source: compiled by the company on the basis of UTK and IRG-Rail data.

	2020	2021
Switzerland	100.0%	100.0%
Luxemburg	96.7%	96.7%
Belgium	87.7%	87.7%
Sweden	75.0%	75.0%
The Netherlands	75.6%	74.7%
Bulgaria	71.3%	74.4%
Austria	71.9%	71.9%
Italy	70.0%	70.4%
Portugal	67.1%	67.2%
Spain	64.3%	64.8%
Norway	64.5%	64.3%
Poland	62.0%	62.9%
France	59.8%	60.3%
Finland	56.6%	56.8%
Germany	53.2%	53.7%
Slovenia	50.5%	50.5%
Slovakia	43.7%	43.7%
Hungary	40.5%	41.6%
Serbia	38.2%	38.1%
Romania	37.9%	37.9%
United Kingdom	37.6%	37.7%
Croatia	37.4%	37.4%
North Macedonia	44.8%	34.3%
Czech Rep.	34.0%	34.0%
Greece	31.2%	31.3%
Denmark	32.7%	31.1%
Estonia	15.6%	15.6%
Latvia	11.6%	11.6%
Lithuania	8.0%	8.2%
Ireland	3.1%	3.1%
Kosovo	0.0%	0.0%
total	55.4%	55.8%



◀ Fig. 161 Average intensity of network use by passenger trains and freight trains in selected European countries in 2021 (train-km per 1 km of line per day)
Source: compiled by the company on the basis of UTK and IRG-Rail data.

	freight	passenger
The Netherlands	9	136
Switzerland	14	106
Denmark	3	99
United Kingdom	6	77
Luxemburg	4	75
Belgium	9	66
Germany	19	61
Austria	25	60
Italy	8	45
Czech Republic	11	39
France	6	36
Hungary	7	32
Portugal	6	31
Sweden	9	30
Slovakia	12	26
Norway	6	26
Ireland	0,5	26
Poland	12	25
Slovenia	25	24
Spain	4	23
Romania	6	16
Finland	7	15
Bulgaria	6	14
Croatia	7	14
Estonia	3	11
Greece	1	9
Lithuania	13	8
Latvia	5	7
Serbia	5	7
North Macedonia	3	4
Kosovo	0,4	1
average	10	42

▼ Tab. 134 Length of high-speed lines in countries declaring the possession of such lines in 2012–2021 (in km). Source: compiled by own based on IRG-Rail data.

	high-speed lines (km)									
country	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Spain	2,406	2,426	2,424	2,692	2,695	2,675	2,675	2,780	2,943	3,087
France	2,033	2,033	2,033	2,030	2,166	2,675	2,675	2,648	2,658	2,657
Germany	871	871	871	994	994	1,101	1,104	1,104	1,104	1,104
Italy	923	923	923	923	963	963	963	963	963	963
Belgium	261	261	261	261	261	261	261	261	261	261
United Kingdom	109	109	109	109	109	109	109	109	109	109
The Netherlands				125	72	87	87	87	87	87
Switzerland					137	137	149	158	176	176
Austria							225	225	225	225
Denmark									60	57
total	6,603	6,623	6,621	7,134	7,397	8,007	8,248	8,334	8,586	8,726

5. Rolling stock

5.1. The structure of rolling stock of passenger railway undertakings

Changes in the organisation of rail transport and the implementation of investment programmes in modern or upgraded rolling stock are influencing changes in the number of vehicles at the disposal of licensed passenger railway undertakings. There was an increase in the number of electric locomotives and passenger cars in 2022 relative to 2021, while the number of other types of vehicle decreased.

In 2022, the rolling stock usage rate improved. It is calculated on the basis of dividing the daily sum of the number of vehicles at the undertaking's disposal during the year by the number of calendar days. For most vehicles, the value of the coefficient exceeded 50%.

The highest usage rate was recorded for electric multiple units, where, with 1,206 vehicles in service, at least 65% of the vehicles were in active service each day and available for use in regular service. This was influenced by the decommissioning of depleted EN57-series units and their number is decreasing every year. At the same time, completely new vehicles are becoming available to undertakings.

The highest fluctuations in the rate over the past five years have taken place for electric railcars. In 2022, the usage level of this type of rolling stock fell to 26.44% from 53.5% in 2021. This variability is influenced by the small number of these vehicles at the undertakings' disposal – just two units.

Investments in modern rolling stock have halted the increase in the average age of railway vehicles operating on the Polish rail network. In the case of electric and diesel locomotives, electric multiple units and passenger cars, a decrease in the average age of vehicles can be observed. For electric locomotives, the average age in 2022 decreased relative to 2021 from 33.76 years to 32.16 years. For diesel locomotives, from 43.81 years to 41.94 years. For electric multiple units from 25.79 years to 24.43 years. For passenger cars from 32.52 years to 32.26 years.

On average, diesel locomotives are the oldest vehicles at the disposal of passenger undertakings, at 41.94 years, while on average, the youngest vehicles are dual-drive multiple units – 0.82 years. A steady increase in the average age has been observed over the last 5 years only in diesel multiple units.

Based on the data provided by passenger undertakings, the oldest vehicles at their disposal are:

- electric locomotive series EP05 with inventory number 23, manufactured in 1961 by Skoda Pilzno in Czechoslovakia (a vehicle operated by PKP Intercity and also used in scheduled traffic),
- an EN57-series electric multiple unit with the inventory number 001, produced in 1961 by Państwowa Fabryka Wagonów in Wrocław (the vehicle is at the disposal of POLREGIO company, but is excluded from active operation).

The youngest vehicles from 2022 at the disposal of passenger undertakings are:

- electric multiple units type 45WEa manufactured by Newag (vehicles operated by SKM Warszawa),
- dual-drive multiple units type 36WEh manufactured by Newag (vehicles operated by Koleje Dolnośląskie)

The appearance of a new rail operator, RegioJet, on the Polish railway network in 2022 has increased the number of electric locomotives available on the market. Among the data on RegioJet's rolling stock, there is no information on trailing vehicles, as this undertaking only carries out international transport, so fluctuations in rolling stock and changes in train formations could distort the actual picture.

In terms of rolling stock equipment, from a passenger perspective, as undertakings order new vehicles, the ratios for additional equipment improving the quality of the journey improve. The proportion of additional equipment looks particularly favourable in the case of dual-drive multiple units. All 23 vehicles of this type have air-conditioning, WiFi access, electric sockets for passengers, modern closed toilet system, spaces for bicycles and seats for people with disabilities. 21.7% of these vehicles have ticket machines. Electric railcars are also fully equipped with air conditioning, closed toilet

systems, spaces for bicycles and places for people with disabilities.

For passenger cars, 1.221 out of 1,982 cars with seats (61.6%) and 72 out of 81 cars with a dining compartment (88.9%) are equipped with air conditioning. In the case of wagons with lying spaces (couchette cars and sleeping cars), only 47 out of 171 cars have air conditioning. Persons with reduced mobility and cyclists using the services of undertakings owning traction rolling stock can plan their journey more calmly, as more and more train formations include a car adapted for transporting bicycles and persons with disabilities.

There are already 291 cars with places for transporting bicycles with seats. 170 of these vehicles have equipment for people with reduced mobility. There are 11 cars with lying spaces. However, the lack of additional equipment in most cars at the disposal of undertakings does not necessarily mean limited accessibility for people with special needs. There may be one or two cars per one car set adapted to serve passengers traveling with a bicycle or having problems with mobility.

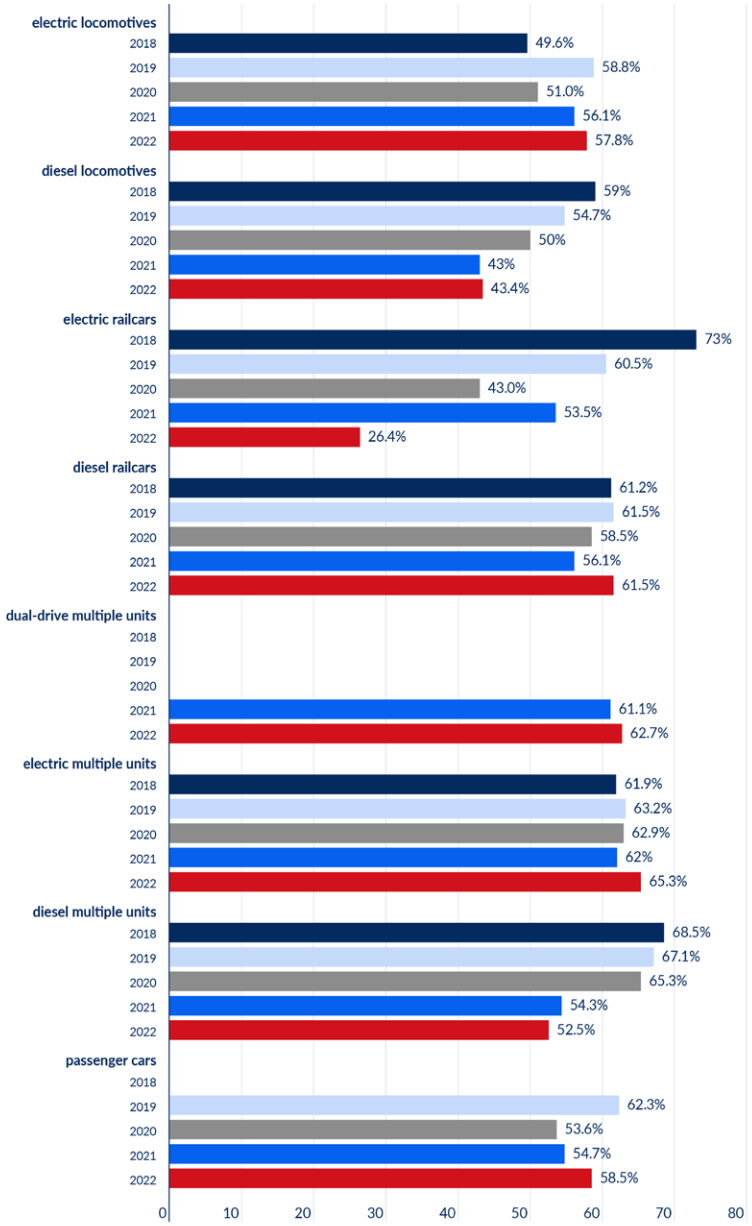
▼ Tab. 135 Structure of traction vehicles at the disposal of normal-gauge passenger railway undertakings in 2013–2022

traction vehicles	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
locomotives	534	508	484	441	429	423	421	448	471	478
electrical	394	363	332	322	320	314	313	343	342	355
diesel	140	145	152	119	109	109	108	105	129	123
motor railcars	79	95	85	77	81	79	77	76	81	79
electrical	8	8	8	2	2	2	2	2	2	2
diesel	71	87	77	75	79	77	75	74	79	77
traction units	1,423	1,470	1,518	1,445	1,466	1,442	1,388	1,423	1,498	1,477
electrical	1,256	1,321	1,341	1,268	1,279	1,250	1,192	1,212	1,242	1,206
diesel	167	149	177	177	187	192	196	206	240	248
dual-drive	0	0	0	0	0	0	0	5	10	23

▼ Tab. 136 Structure of towed vehicles at the disposal of normal-gauge passenger railway undertakings in 2013–2022

towed vehicles	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
passenger cars	3,069	2,789	2,592	2,473	2,435	2,242	2,216	2,215	2,224	2,234
with seats	2,687	2,408	2,245	2,156	2,124	1,973	1,940	1,943	1,951	1,982
single-deck	2,519	2,288	2,138	2,036	2,004	1,864	1,831	1,834	1,838	1,888
with a luggage compartment	40	40	25	18	18	15	15	15	15	15
with a dining compartment	3	5	5	5	5	5	5	5	5	5
double-deck	125	75	77	97	97	89	89	89	93	74
with lying spaces	275	267	248	236	220	195	188	190	190	171
couchette cars	105	101	102	93	80	60	55	57	57	44
sleeping cars	170	166	146	143	140	135	133	133	133	127

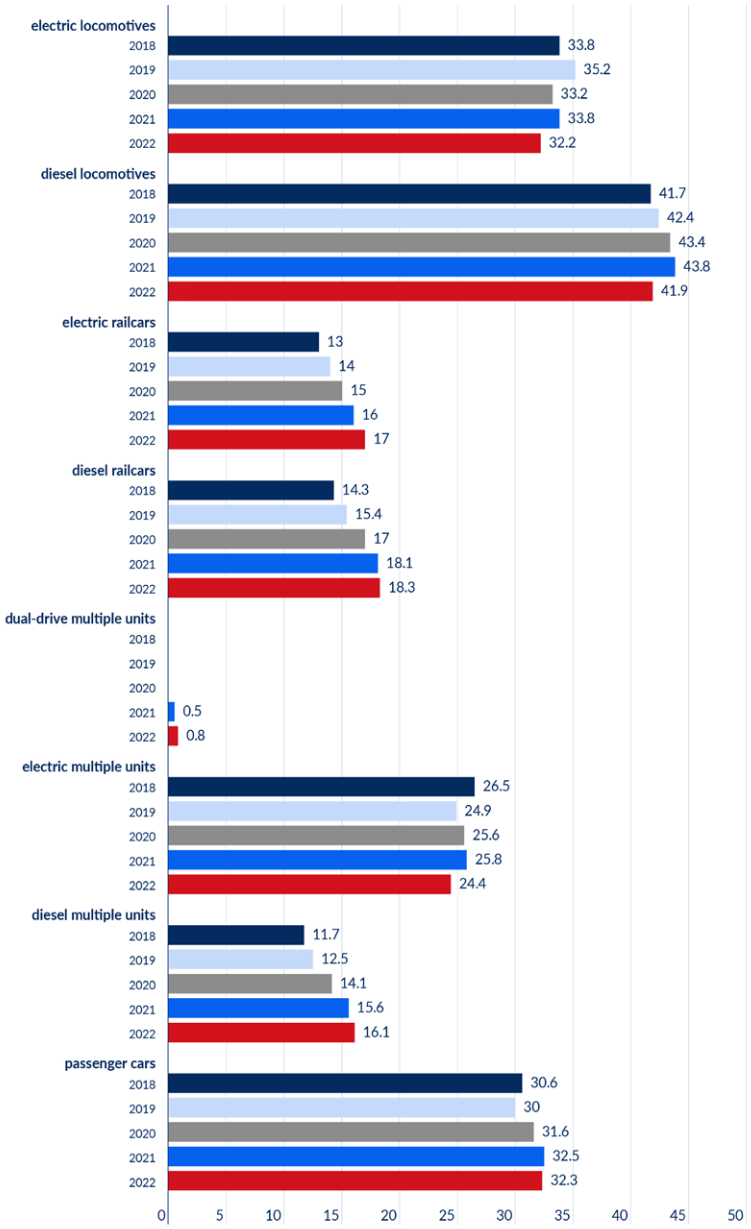
towed vehicles	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
other	107	114	99	81	91	74	88	82	83	81
baggage cars	2	1	1	0	0	0	0	0	0	0
dining cars	105	113	98	81	91	74	88	82	82	81
freight wagons	0	0	0	0	0	0	0	0	5	5
covered G	0	0	0	0	0	0	0	0	5	5



◀ Fig. 162 Use of rolling stock by passenger railway undertakings in 2018–2022[36]

	2018	2019	2020	2021	2022
electric locomotives	49.60%	58.80%	51.00%	56.10%	57.80%
diesel locomotives	59.00%	54.70%	50.00%	43.00%	43.40%
electric railcars	73.00%	60.50%	43.00%	53.50%	26.40%
diesel railcars	61.20%	61.50%	58.50%	56.10%	61.50%
dual-drive multiple units				61.10%	62.70%
electric multiple units	61.90%	63.20%	62.90%	62.00%	65.30%
diesel multiple units	68.50%	67.10%	65.30%	54.30%	52.50%
passenger cars		62.30%	53.60%	54.70%	58.50%

36 The chart was prepared on the basis of data provided by rail passenger undertakings. The presented data may depend on factors related to the operation and maintenance of the rolling stock. The data should be treated as estimates, used for long-term observation of changes. In the case of dual-drive multiple units, data obtained and verified from 2021, and in the case of passenger cars from 2019.



◀ Fig. 163 Average age of the rolling stock at the disposal of passenger undertakings between 2018 and 2022

	2018	2019	2020	2021	2022
electric locomotives	33.8	35.2	33.2	33.8	32.2
diesel locomotives	41.7	42.4	43.4	43.8	41.9
electric railcars	13	14	15	16	17
diesel railcars	14.3	15.4	17	18.1	18.3
dual-drive multiple units				0.5	0.8
electric multiple units	26.5	24.9	25.6	25.8	24.4
diesel multiple units	11.7	12.5	14.1	15.6	16.1
passenger cars	30.6	30	31.6	32.5	32.3

▼ Tab. 137 Additional equipment of traction vehicles at the disposal of passenger railway undertakings in 2022

traction vehicles	air conditioning	WiFi access	electrical sockets	closed toilet system	spaces for bicycles	ticket machine	places for persons with disabilities
motor railcars							
electrical	100.0%	–	–	100.0%	100.0%	–	100.0%
diesel	83.1%	22.1%	10.4%	83.1%	83.1%	7.8%	90.9%
multiple units							
electric	69.0%	48.8%	55.2%	72.9%	97.7%	19.5%	87.2%
diesel	62.1%	18.9%	33.1%	82.7%	87.5%	3.2%	93.5%
dual-drive	100.0%	100.0%	100.0%	100.0%	100.0%	21.7%	100.0%

▼ Tab. 138 Additional equipment of towed vehicles at the disposal of passenger railway undertakings in 2022

cars	air conditioning	WiFi access	electrical sockets	closed toilet system	spaces for bicycles	ticket machine	places for persons with disabilities
with seats	61.6%	54.6%	57.6%	76.7%	14.7%	–	8.6%
with lying spaces	27.5%	14.6%	47.9%	60.8%	–	–	14.0%
dining cars	88.9%	67.9%	12.3%	88.9%	–	–	–

▼ Tab. 139 Additional equipment of traction vehicles from the train driver's perspective in 2022

traction vehicles	air conditioning	toilet	front cameras	indoor cameras
locomotives				
electrical	85.9%	0.6%	76.6%	3.7%
diesel	48.0%	–	43.1%	–
motor railcars				
electrical	100.0%	100.0%	100.0%	100.0%
diesel	83.1%	98.7%	64.9%	76.6%
multiple units				
electric	75.6%	94.1%	79.8%	81.0%
diesel	64.9%	100.0%	68.1%	65.3%
dual-drive	100.0%	100.0%	100.0%	100.0%

5.2. Meeting the interoperability requirements in terms of passenger rolling stock in 2022

In 2022, the President of UTK issued passenger traffic authorisations for 255 vehicles. This is another year in which the upward trend has been maintained. The market was enriched by new and modernised vehicles. Compared to 2021 with 201 authorisations, this is an increase of more than 26%.

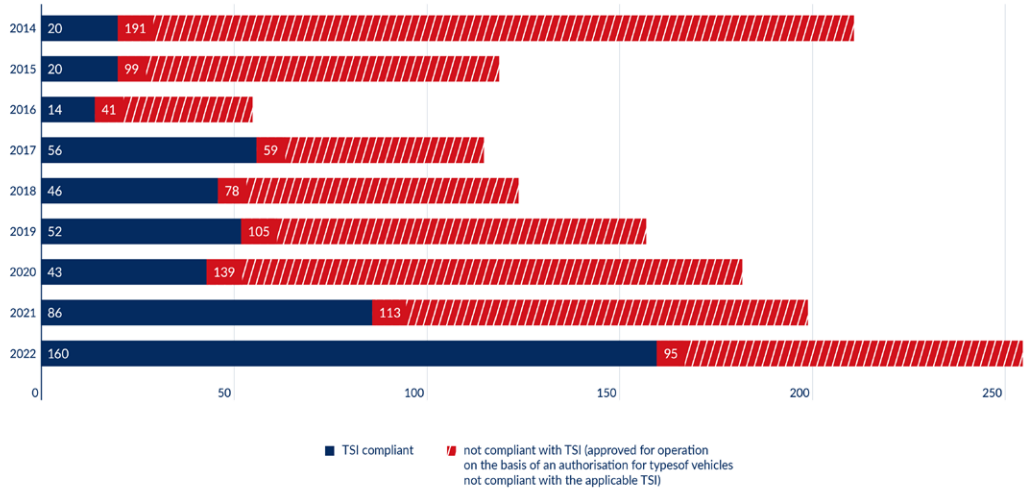
In 2022, 95 marketing authorisations were issued for electric multiple units, of which 15 authorisations were for bimodal vehicles. The number of electric multiple units placed on the market almost doubled compared to the previous year.

In terms of passenger coaches, an increase in the number of TSI-compliant vehicles to 54 can be observed. This is still lower than the stock of modernised wagons of 95 units. Despite the similar number of authorisations in the last two years, i.e. 143 units in 2021 versus 149 units in 2022, the trend towards an increase in the number of interoperability-compliant vehicles is a positive aspect.

Modernised vehicles do not have to meet all the requirements of the TSI. It is mandatory to demonstrate compliance with the TSI only for upgraded vehicle components. Hence, such vehicles are not marked as TSI compliant in the list. In contrast, in the case of new vehicles, all the requirements of the applicable technical specifications for interoperability must be met.

▼ Tab. 140 Number of marketing authorisations issued for passenger rolling stock in 2022

vehicles	number of authorisations issued for vehicles compliant with the TSI	number of authorisations issued for vehicles not compliant with the TSI
electric multiple units (EMU)	95	0
diesel multiple units	11	0
passenger cars	54	95



◀ Fig. 164 Number of passenger vehicles put into service in 2014–2022 in terms of compliance with TSI

	2014	2015	2016	2017	2018	2019	2020	2021	2022
TSI compliant	20	20	14	56	46	52	43	86	160
not compliant with TSI (approved for operation on the basis of an authorisation for types of vehicles not compliant with the applicable TSI)	191	99	41	59	78	105	139	113	95

5.3. The structure of rolling stock of freight railway undertakings

Changes in the freight market, the possibility of leasing specialised rolling stock and the implementation of investments subsidised by European Union funds are all elements influencing changes in the structure of railway vehicles at the disposal of licensed freight undertakings. In 2022, undertakings also decided to decommission worn-out rolling stock, which had the effect of reducing the number of individual vehicles and increasing their usage rate.

An increase in the number of traction vehicles was recorded only for two-propulsion locomotives; however, this increase was not as large as in previous years. It can be seen that freight undertakings are increasingly appreciating the possibility of operating these vehicles on electrified and non-electrified lines, as well as on sidings. Therefore, a further increase in the number of these vehicles on the Polish railway network is to be expected, at the expense of traditional electric and diesel locomotives.

Also in the case of towed vehicles, where the number of freight wagons decreases every year, but their usage rate increases. In the case of special construction flat wagons on bogies, adapted to carry containers, the average age has decreased from 24.12 years in 2021 to 23.65 years in 2022. These wagons are also the only semi-trailer vehicles to have increased in number.

The number of operational vehicles at the disposal of railway undertakings is increasing, which is also influenced by the introduction of new rolling stock into active service and the decommissioning of worn-out units. Thanks to the decommissioning of inoperative vehicles, the average age of electric locomotives (from 36.57 years in 2018 to 33.82 years in 2022) and diesel locomotives (from 38.31 years in 2018 to 33.51 years in 2022) has decreased over the five-year period – in these cases, a trend can already be noticed.

Based on the data provided by freight undertakings, the oldest vehicles at their disposal are:

- electric locomotive of the EP03 series with inventory number 01, manufactured in 1951 by ASEA in Sweden (vehicle out of active service),
- electric locomotive of series 140 with inventory number 059, manufactured in 1957 by Skoda Plzeň in what was then Czechoslovakia (vehicle in active service).

The youngest vehicles at the disposal of passenger undertakings are:

- electric locomotives type 111Eo manufactured by Pesa Bydgoszcz,
- dual-drive locomotives type 111Ed manufactured by Pesa Bydgoszcz,
- electric locomotives of the ET43 series manufactured by Newag,

▶ X4EA electric locomotives manufactured by Siemens.

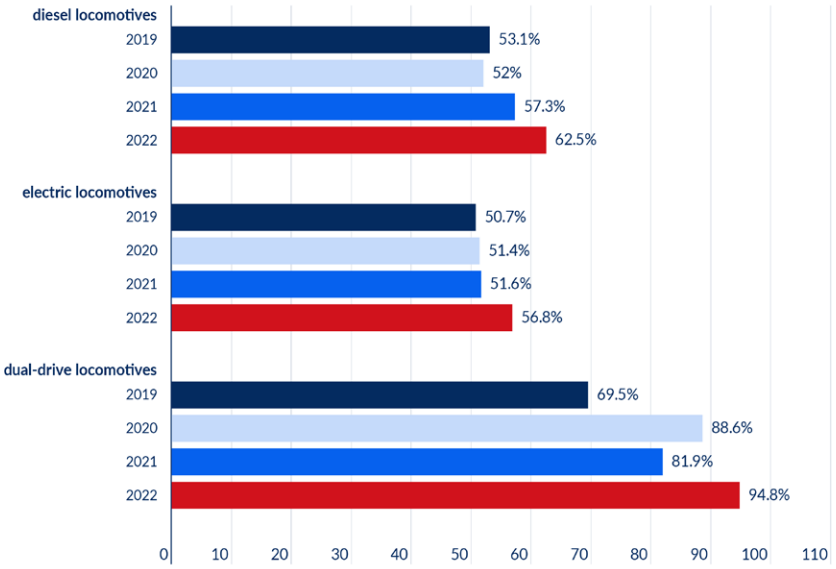
UTK also monitors the equipment of the traction rolling stock from the perspective of the train driver's position. The purpose is to verify the railway undertakings' efforts to improve the quality of the freight train drivers' place of work. In all cases, an increase was observed in the number of traction vehicles equipped with air conditioning. In the case of electric locomotives, the increase between 2021 and 2022 was 12.1 percentage points to 36.5% of all vehicles of this type at the undertakings' disposal. For diesel locomotives, the increase was 22.7 percentage points (share in 2022 was 41.1%).

▼ Tab. 141 Structure of traction vehicles at the disposal of freight railway undertakings in 2013–2022

traction vehicles	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
locomotives	3,657	3,483	3,596	3,632	3,451	3,563	3,655	3,401	3,188	2,942
electrical	1,491	1,388	1,474	1,497	1,409	1,449	1,487	1,386	1,376	1,255
diesel	2,166	2,095	2,121	2,130	2,032	2,101	2,146	1,981	1,741	1,609
dual-drive	0	0	1	5	10	13	22	34	71	78

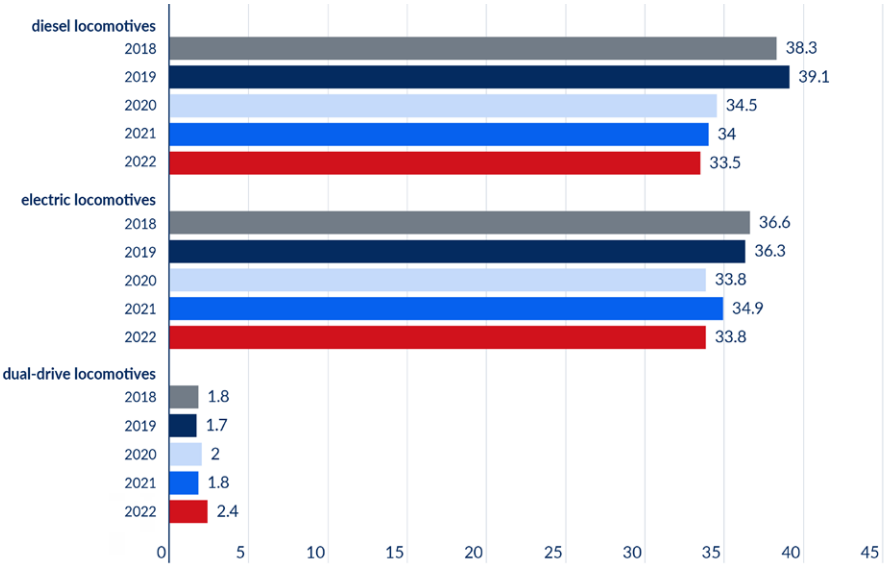
▼ Tab. 142 Structure of towed vehicles at the disposal of freight railway undertakings in 2013–2022

towed vehicles		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
freight wagons		97,246	86,358	90,326	91,768	90,584	90,800	90,130	87,390	85,458	83,429
coal wagons	E	45,365	45,111	45,446	46,752	45,173	46,990	46,757	45,892	42,730	41,136
	F	14,869	14,159	14,195	15,167	14,259	14,687	14,720	13,881	13,558	13,483
covered	G	2,595	2,264	2,207	2,084	2,006	171	148	78	52	49
	H	1,898	1,896	1,893	1,892	1,891	1,904	1,917	1,264	1,259	1,259
platforms	K	608	592	590	578	570	555	602	578	553	553
	L	138	212	14	20	58	100	20	20	0	0
	R	5,258	5,214	5,261	5,029	5,125	5,362	5,768	4,413	4,388	4,043
	S	5,186	5,650	5,738	5,914	6,798	6,956	7,063	8,228	9,856	9,896
with opening roof	T	1,220	1,226	1,256	1,273	1,289	1,596	1,555	1,555	1,569	1,575
special	U	5,927	6,094	6,070	6,241	6,297	5,343	4,299	4,272	4,465	4,493
gauge		53	53	54	50	50	50	49	48	48	48
tank wagons	Z	14,129	3,887	7,602	6,768	7,068	7,086	7,232	7,161	6,980	6,894



◀ Fig. 165 Use of traction vehicles by freight railway undertakings in 2019–2022[37]

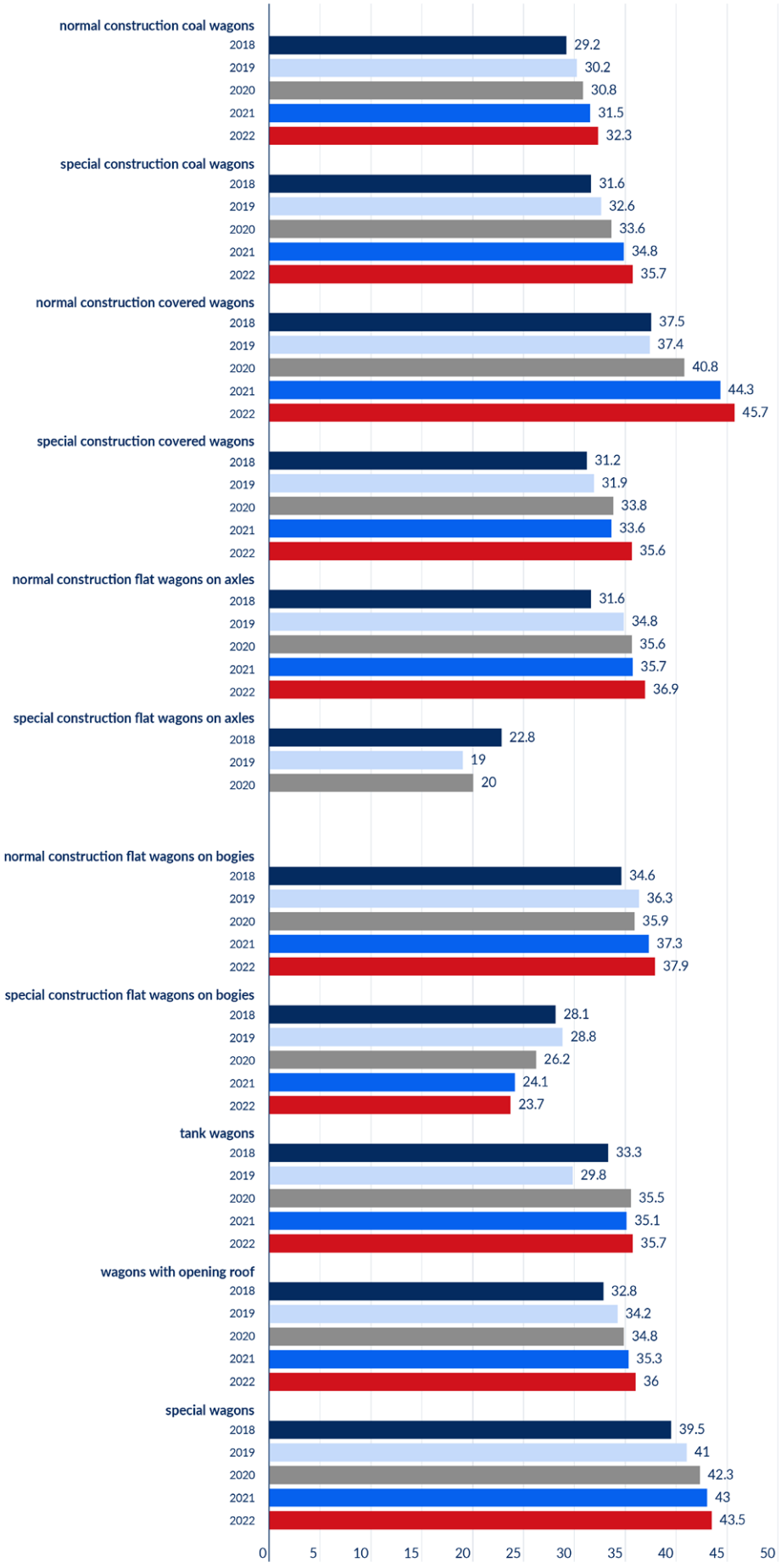
	2019	2020	2021	2022
diesel locomotives	53.1%	52.0%	57.3%	62.5%
electric locomotives	50.7%	51.4%	51.6%	56.8%
dual-drive locomotives	69.5%	88.6%	81.9%	94.8%



◀ Fig. 166 Average age of the traction rolling stock at the disposal of freight railway undertakings in 2018–2022

	2018	2019	2020	2021	2022
diesel locomotives	38.3	39.1	34.5	34.0	33.5
electric locomotives	36.6	36.3	33.8	34.9	33.8
dual-drive locomotives	1.8	1.7	2.0	1.8	2.4

37 This chart has been prepared on the basis of data provided by rail freight undertakings. The presented data may depend on factors related to the operation and maintenance of the rolling stock. The data should be treated as estimates, used for long-term observation of changes.



◀ Fig. 167 Average age of the towed rolling stock at the disposal of freight railway undertakings in 2018–2022

	2018	2019	2020	2021	2022
normal construction coal wagons	29.2	30.2	30.8	31.5	32.3
special construction coal wagons	31.6	32.6	33.6	34.8	35.7
normal construction covered wagons	37.5	37.4	40.8	44.3	45.7
special construction covered wagons	31.2	31.9	33.8	33.6	35.6
normal construction flat wagons on axles	31.6	34.8	35.6	35.7	36.9
special construction flat wagons on axles	22.8	19.0	20.0		
normal construction flat wagons on bogies	34.6	36.3	35.9	37.3	37.9
special construction flat wagons on bogies	28.1	28.8	26.2	24.1	23.7
tank wagons	33.3	29.8	35.5	35.1	35.7
wagons with opening roof	32.8	34.2	34.8	35.3	36.0
special wagons	39.5	41.0	42.3	43.0	43.5

▼ Tab. 143 Additional equipment of locomotives from the train driver's perspective in 2022

locomotives	air conditioning	toilet	front cameras	interior cameras
electrical	36.5%	0.3%	20.6%	2.9%
diesel	41.1%	–	32.7%	5.2%
dual-drive	100.0%	47.4%	85.9%	1.3%

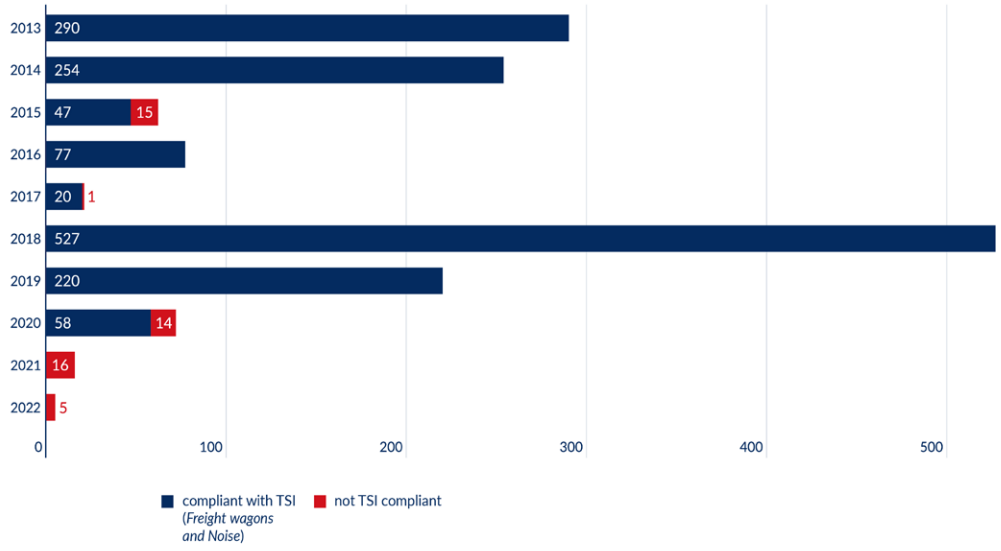
5.4. Meeting the interoperability requirements in terms of freight rolling stock in 2022

Although the vast majority of railway vehicles moving on Polish tracks are freight wagons, in 2022 not a single application for approval of a new type was submitted to the President of UTK. This is due to the fact that, as a rule, new freight wagons are approved for the entire European railway network, so the type authorisation is issued by the EU Railway Agency. This is the result of the implementation of the 4th railway package. Railway vehicles used in cross-border traffic are currently type-approved directly at the EU Railway Agency. In addition, meeting all the requirements of the TSI (requirements of item 7.1.2. and Appendix C of the TSI WAG), allows operation throughout the European Union without further checks. Also, the number of major upgrades is relatively small and minor changes do not require a new authorisation.

The small number of new freight wagons authorised in 2022 results in the average age of this type of vehicle in Poland still being over 30 years old.

The upcoming changes to Noise TSI clearly affect the pace of rolling stock modernisation. As early as 8 December 2024, only wagons complying with the requirements of the updated Noise TSI, i.e. equipped with composite brake blocks, which ensure quieter operation and have a positive impact on the degree of noise pollution, will be allowed to run on designated so-called 'quiet sections' of railway lines. Although transition periods have been negotiated in some EU countries (in Poland until 2036), restrictions will be introduced on a significant number of European routes as early as the end of next year. Undertakings therefore need to prepare at least the part of their rolling stock that is dedicated to international transport.

2022 is another year in which the percentage of vehicles equipped with composite brake blocks on Polish tracks increased and amounts to 29.03% (24,582 pcs.) of freight vehicles. Part of the reason, admittedly, is the decommissioning of the oldest vehicles (as indicated by a



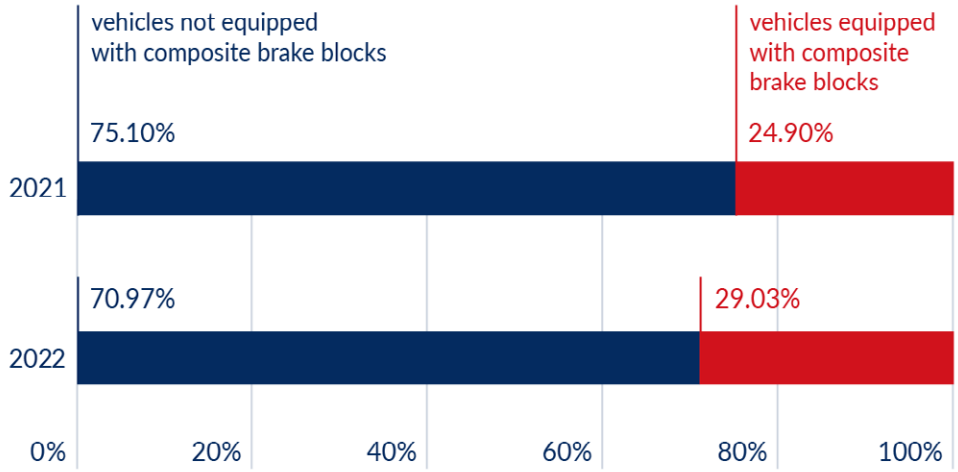
◀ Fig. 168 Number of freight wagons placed on the market in 2013–2022

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
compliant with TSI (*Freight wagons and Noise*)	290	254	47	77	20	527	220	58	0	0
not TSI compliant			15		1			14	16	5

decrease in the number of locomotives equipped with quieter blocks), but the total number of quieter vehicles increased by 2,207 units.

Among the vehicles equipped with composite brake blocks, wagons dominate. In 2022, undertakings had 24,382 of them. Compared to 2021, their number increased by 10.3%.

Despite the noticeable decrease in the number of vehicles at the undertakings' disposal, the proportion of wagons equipped with composite brake blocks increased to 29.9% (up from 22,103 units to 24,382 units). The opposite relationship can be seen in the case of locomotives, 5% of which are equipped with quieter brake blocks (down from 203 to 131). The share of other traction vehicles was 18.2%, which is higher than the previous year, although this is only due to a reduction in the total number of this type of vehicle.



◀ Fig. 169 Share of vehicles equipped with composite brake blocks in 2021 and 2022

	2021	2022
vehicles not equipped with composite brake blocks	75.10%	70.97%
vehicles equipped with composite brake blocks	24.90%	29.03%

▼ Tab. 144 Share of vehicles equipped with composite brake blocks in 2021–2022, broken down by vehicle type

year	vehicles	cars	locomotives	other traction units
2021	all vehicles	86,356	3,198	411
	vehicles equipped with composite brake blocks	22,103	203	69
	percentage share	25.6%	6.3%	16.8%
2022	all vehicles	81,662	2,632	380
	vehicles equipped with composite brake blocks	24,382	131	69
	percentage share	29.9%	5.0%	18.2%
change 2022/2021		10.3%	-35.5%	0%

5.5. Market of owners and keepers according to the data of the National Vehicle Register (NVR)

Railway undertakings perform transport using their own rolling stock and vehicles made available to them by other entities. In order to clearly define the responsibility for these vehicles, the provisions on rail transport distinguish the term 'keeper'. The keeper is an entity that, regardless of the legal title, assumes responsibility for the operation of vehicles, both those belonging to it and those rented from other entities.

On the Polish market, the majority of rolling stock belongs to railway undertakings. However, there is also a segment of 'rolling stock pools' that are not undertakings, but act as keepers.

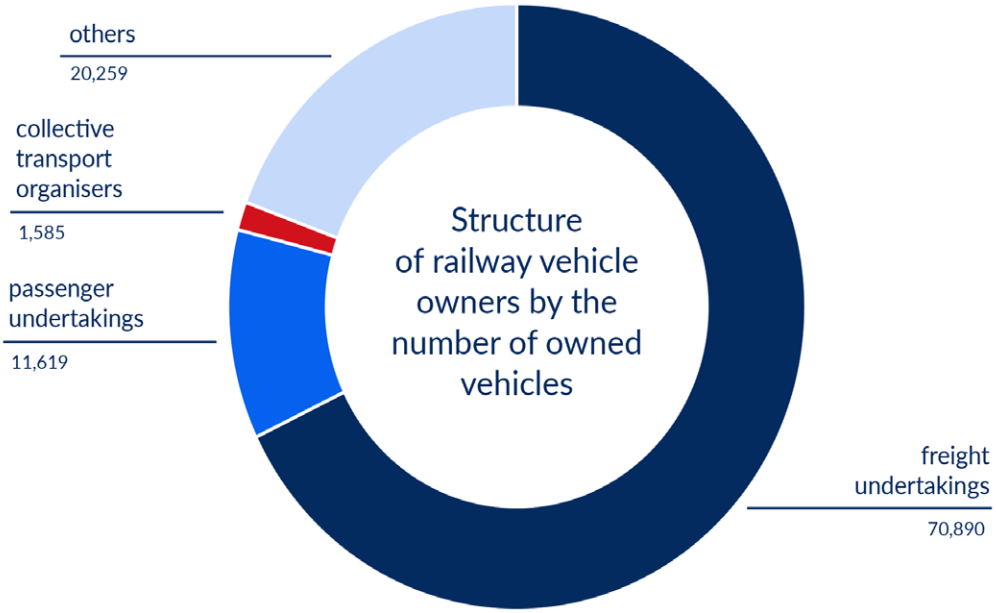
On the market of rail vehicle owners, there is also an important group, namely public transport organisers. They have the largest share in the number of owned passenger vehicles. Railway undertakings also have a share in this market as rolling stock owners, and the proportions are almost identical to those in the market of keepers.

In 2022, freight railway undertakings had 70,890 railway vehicles, which accounted for 68% of all railway vehicles registered in Poland with a valid or suspended registration. Most of these vehicles are freight wagons.

In 2022, 8,740 railway undertakings with valid or suspended registration were at the disposal of passenger undertakings, which represents 8.4% of all railway vehicles registered in Poland, of which 5,792 were traction vehicles.

According to the EVR, more than 104,000 railway vehicles (vehicles with valid registration) are currently in operation. The number of registered railway vehicles increased by 5,374 units compared to 2021 (in 2021 – 98,966). According to the data in the EVR, freight wagons account for the largest number of railway vehicles.

Poland was the first Member State in the European Union to fully implement the European Vehicle Register (EVR) and to exclude the previously applicable National Vehicle Register (NVR). From 1 February 2022, all vehicle registration tasks are carried out in the European Vehicle Register (EVR). In 2022, 2,239 applications were submitted through the European Vehicle Register (EVR). The structure of vehicle keepers looks different than the structure of vehicle owners.



◀ Fig. 170 Structure of railway vehicle owners by the number of owned vehicles

undertaking	number of vehicles
freight undertakings	70,890
passenger undertakings	11,619
collective transport organisers	1,585
others	20,259

▼ Tab. 145 Structure of all vehicles according to EVR (registered and deregistered)

vehicle type	number
passenger car	5,030
special vehicle	4,556
freight wagon	120,183
traction vehicle	11,763
total	141,532

▼ Tab. 146 Structure of registered vehicles according to EVR

vehicle type	number
passenger car	3,054
special vehicle	3,662
freight wagon	88,043
traction vehicle	9,594
total	104,353

6. Eco rail

The climate policy of the European Union, as well as the increasing environmental awareness of society, including businesses, represent a huge opportunity for the development of railways. It already plays a huge role in reducing greenhouse gas emissions from economic activities, including CO_2, is more efficient and generates lower external costs compared to road or air transport.

Initiatives are being developed in the rail market for the purpose of more rational management of electricity and reducing CO_2 emissions by railway undertakings. These can include the Centre for Railway Energy Efficiency, which develops and implements efficient energy solutions. Centre for Railway Energy Efficiency's mission is the continuous optimisation of energy consumption on Polish railways[38].

The assumptions of building sustainable and environmentally friendly railways include the implementation of the Green Railway programme, the purpose of which is to change the energy consumption mix from conventional sources to energy obtained from RES. At the beginning of 2022, the first contract was signed (between PGE Energetyka Kolejowa (formerly: PKP Energetyka) and the Łódzka Kolej Aglomeracyjna) to supply traction energy from the sun and wind. From 1 January 2022. PKP Energetyka has been supplying ŁKA with electricity derived from approximately 30% RES. Ultimately (according to the contract provisions), ŁKA's electric trains are to run exclusively on electricity derived from RES. In 2022, the first freight undertaking CTL Logistics also signed a contract under the Green Railway Programme – for this entity, the share of energy derived from RES is to be 100% as early as 2025. According to the programme's assumptions, the railway industry is to emit 85% less CO_2 by 2030, while a reduction of 100% is to be achieved as a target. Entities that have so far declared their participation in the programme annually perform 22% of freight and 34% of passenger transport in the country (calculated in terms of number of passengers and weight of goods, respectively)[39]. Investments are also expected to contribute to the decarbonisation of the Polish railway. PKP Polskie Linie Kolejowe plans extensive electrification of lines in the country - according to the assumptions, almost 14,000 km of lines are to be electrified by 2030 – that is more than 72% of the railway lines under the company's management.

The long-distance carrier PKP Intercity has the ambition to become the first Polish passenger undertaking whose operations will be climate-neutral. The purchase of low-emission rolling stock is an important element in the investment strategy pursued under the title ‚PKP Intercity – Railway of Large Investments'. The undertaking is placing particular emphasis on multi-system locomotives and hybrid rolling stock (locomotives and electric multiple units). Currently, according to PKP Intercity's declarations, about 85% of the vehicles do not emit exhaust fumes, and the locomotives that run on non-electrified lines meet stringent emission standards. The company's calculations show that in 2020, people travelling on PKP Intercity trains contributed to reducing carbon dioxide emissions into the atmosphere by 460,000 tonnes. Already at the stage of purchasing a ticket from the undertaking, it is possible to check what carbon footprint a particular journey will leave (in comparison with other means of transport). In addition, on its website, the undertaking educates passengers on what they can do to make their journey even more environmentally friendly.

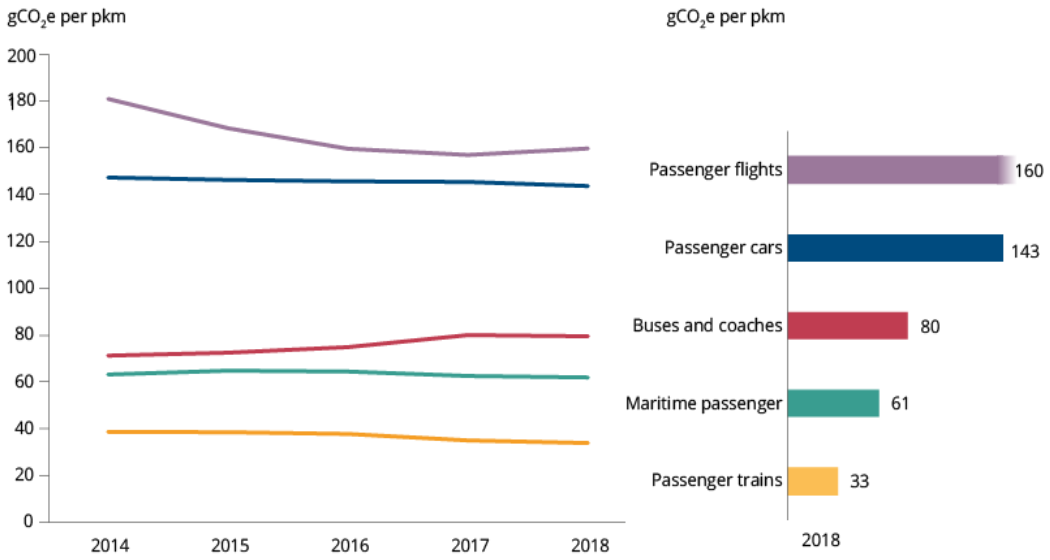
In view of the high price of traction energy, among the undertakings aimed at increasing energy efficiency, carriers are increasingly adopting the rules of so-called eco-driving or recuperation (returning energy to the overhead line during train braking). These are measures that not only bring real savings to the industry, but are also environmentally friendly.

The role of ecology in passenger railway transport

In Poland, an average of more than 937 000 passengers used trains each day in 2022, which translates into more than 65 million train-kilometres per day. Rail vehicles perform daily operational performance at a level of just over 0.5 million train-kilometres, which is nearly 128 times less than that which would be performed by individual passenger cars, assuming the use of one vehicle by one person. The capacity of multiple units can reach a figure of nearly a thousand persons per vehicle, so the advantage and advantage of rail transport is its function of enabling the collective movement of passengers at a relatively low cost to society and the environment.

One of the key issues to pay attention to in the analysis of the environmental benefits of rail transport is CO_2 emissions – as its reduction is one of the purposes of the European Green

38 ceek.pl/o-ceek/o-nas
39 zielonakolej.pl



◀ Fig. 171 Average GHG emissions by type of passenger transport, EU-27, 2014–2018
Source: www.eea.europa.eu/publications/rail-and-waterborne-transport; Fraunhofer ISI and CE Delft, 2020

Deal, it also remains extremely important for businesses in the context of ESG reporting obligations. A realistic assessment of the carbon footprint left by a passenger car is difficult due to the many factors that influence the final calculation, but it can be assumed that by choosing rail over road transport, more than 342.2 million passengers had an impact on reducing greenhouse gas emissions by a total of around 2.6 million tonnes in 2022[40].

Passenger rail transport is largely based on electric multiple units and electric locomotives, which is associated with low direct greenhouse gas emissions. In the case of rail, only internal combustion rail vehicles directly generate greenhouse gases.

It should be borne in mind that the value of greenhouse gas emission factors may include both those directly related to the movement of vehicles and those resulting from energy production. The standards defined as the average value of greenhouse gas production in the EEA report include both direct and indirect emissions.

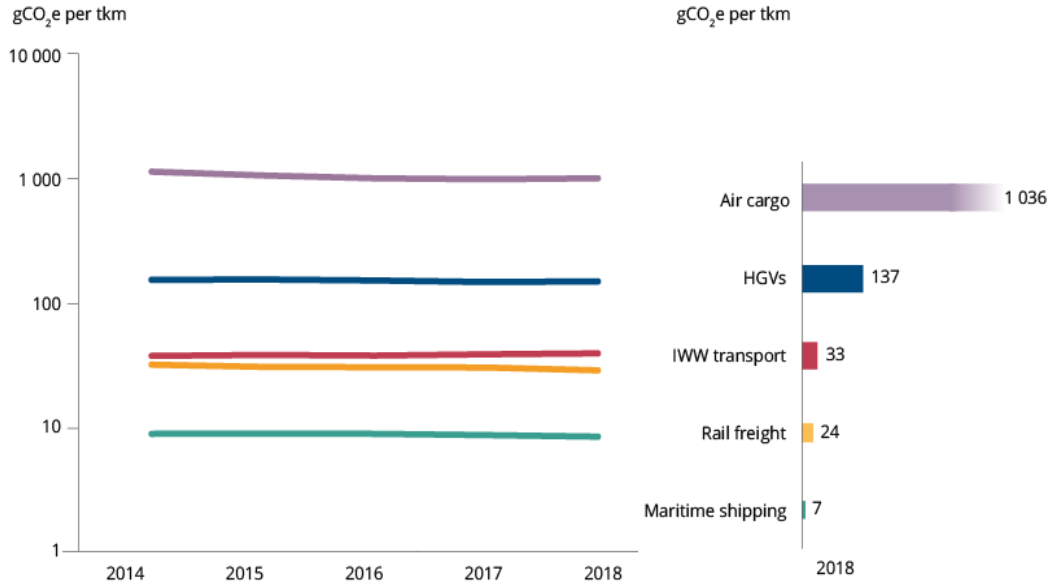
Of course, road transport includes not only internal combustion vehicles, but also electric vehicles, for which greenhouse gas emission factors are significantly lower than those for internal combustion vehicles. Importantly, electric train sets do not require expensive batteries using rare elements, as is the case with electric car transport.

For the purpose of meeting European environmental targets and the associated reduction of greenhouse gas emissions in the transport sector, rail should become the main mode of daily transport. In Poland, electric multiple unit trains are primarily used to serve the largest conurbations and for regional connections, with electric rolling stock playing the largest role for long-distance connections.

Passengers who have used the railways have thus contributed to improving living conditions in agglomerations:

- reducing the value of greenhouse gases produced, including CO_2,
- reducing the presence of suspended particulate matter, including PM2.5 and PM10 dust, which can carry heavy metals and various carcinogenic compounds, such as polycyclic aromatic hydrocarbons,
- reducing the phenomenon of noise, especially in urban spaces,
- minimising indirect costs associated with the manufacture of tyres and exploratory parts of cars,
- reducing road congestion,
- reducing consumption and extraction of raw materials.

40 Calculation based on assumed averaged emissions generated by the selected mode of transport on the basis of research by the Frankfurt ISI centre, CE Delft (carried out on order of the European Environment Agency). Assuming 342.2 million rail passengers, transport performance was 23,768 million tonne-km. For this figure, the difference in CO2 emissions for passenger cars and passenger trains was calculated. The result is the estimated mass of carbon dioxide that was not emitted due to this. Due to the variety of energy sources for transport, these assumptions must be treated as estimates.



◀ Fig. 172 Average GHG emissions by freight transport mode, EU-27, 2014–2018
Source: www.eea.europa.eu/publications/rail-and-waterborne-transport; Fraunhofer ISI and CE Delft, 2020

Significant environmental benefits can also be achieved by developing the rail freight market. According to Eurostat[41] in 2021. 77.3% of total transport performance in freight transport in Europe was carried out by road and only 17.0% by rail. Rail's share is currently too low given that rail is part of the Sustainable and Smart Mobility Strategy, which is one element of the European Green Deal. This strategy envisages, for example, that rail freight traffic will double by 2050 and that almost all cars, vans, lorries and new heavy vehicles will be zero-emission vehicles.

The issue of examining greenhouse gas emissions is a complex topic due to the diverse vehicle fleet (e.g. share of internal combustion vs. electric vehicles, compliance with exhaust gas standards – Euro 2 – Euro 6) the very large differences between countries in the types of traction energy used and the types of electricity produced. One of the research methods is defined by standard EN 16258 - Methodology for calculating and declaring energy consumption and greenhouse gas emissions of transport services[42]. This standard was introduced by the European Committee for Standardisation (Comité Européen de Normalisation). Emission pollution (CO2) is also one of the key performance indicators (KPIs) used in the assessment of the environmental impact of rail transport used by the UIC – International Union of Railways[43].

Despite rail being one of the least emission-intensive modes of transport, according to an audit by the European Automobile Manufacturers' Association (ACEA)[44] there are 6.2 million heavy and medium commercial vehicles on EU roads with an average age of 13 years. Almost 98% of these trucks use diesel as fuel and only 0.04% (2,300 units) are zero-emission vehicles. According to data from the committee in its Statistical Pocketbook 2022 Mobility and Transport[45], light lorries and heavy lorries (including vans) were responsible for 271 million tonnes of greenhouse gas emissions in 27 EU countries in 2020, while the entire rail segment (freight and passenger rail) accounted for 3.7 million tonnes in terms of direct emissions production.

Rail transport already significantly reduces the carbon footprint in the transport sector, as well as reduces the emission of dust and other pollutants. Assuming that the average transport distance of 1 tonne of freight in rail transport was in 2022 251.5 km and the total weight of goods transported was 248.5 million tonnes, transporting this volume of freight would require (assuming a vehicle payload of 24 tonnes) 10,355,919 truck trips and a total operational performance of over 2.6 billion km.

These figures indicate significant environmental benefits from the potential elimination of the most emission-generating vehicles. With rail transport according to the EEA average generating 24 grams of greenhouse gases per tonne-kilometre (these figures include emissions associated with the provision of traction power) and the heavy road transport segment 137 grams of greenhouse gases per

41 ec.europa.eu/eurostat/statistics-explained/index.php?title=Freight_transport_statistics_-_modal_split.
42 EN 16258 Methodology for calculation and declaration of energy consumption and GHG emissions of transport services (freight and passengers). CEN European Committee for Standarization.
43 330 Railway specific environmental performance indicators, ISBN 978-2-7461-1539-2
44 acea.auto/files/ACEA-report-vehicles-in-use-europe-2022.pdf
45 transport.ec.europa.eu/facts-funding/studies-data/eu-transport-figures-statistical-pocketbook/statistical-pocketbook-2022_en

tonne-kilometre, the difference in terms of emissions is very large. In terms of direct GHG emissions, the difference is much larger due to the large share of eclectic traction vehicles.

Increased use of rail transport is not only a way to meet climate objectives, but also has other tangible benefits for society. These can beillustrated by external costs, i.e. those costs that are not borne by the entities generating them, but by those who do not contribute to them or suffer their negative impacts[46]. These include the costs of air pollution, climate change, the impact of noise on people, land occupation by transport infrastructure, congestion or water and soil pollution etc. On the other hand, the reduction of externalities as a result of increased use of rail transport can bring about an improvement in living conditions manifested, for example, in less congestion on roads, reduced air pollution, losses due to late arrivals at work or even reduced stress effects due to congestion and fewer traffic accidents.

46 Pawłowska B.: *Zewnętrzne koszty transportu. Problem ekonomicznej wyceny.* (i.e. *External transportation costs. The problem of economic valuation.*) Publishing House of the University of Gdańsk, Gdańsk 2000, p.16.

7. Twenty years of UTK statistics

The Office of Rail Transport has been collecting statistics on the rail transport market in Poland since its inception – that is, since 2003. This chapter of the 'Reports on rail transport performance' presents data and indicators that have been continuously collected and aggregated by the Office of Rail Transport over a 20-year period in the area of passenger and freight transport.

The concept of presenting data in a 20-year cycle is aimed at presenting market parameters in a broader perspective, going back to the times before the restructuring of railways in Poland. This resulted in the division of the PKP company and the separation of the functions of infrastructure manager and railway undertakings. In 2003, there were far fewer passenger and freight undertakings in operation. The last 20 years have brought major changes to the market, although these have not always translated into an increase in transport. This is particularly evident in freight transport, where the weight of freight transported has fallen over the 20 years (although transport performance has increased).

With regard to the basic parameters of the passenger transport market, the number of rail passengers in Poland from 2003 to 2016 fluctuated around 260-290 million, never exceeding the limit of 300 million passengers. This limit was only exceeded in 2017. In 2019, passenger numbers reached 335.9 million passengers, followed by a large drop to 209.4 million passengers in 2020 due to the pandemic. In the following year, 2021, the market slowly recovered from the crisis, with passenger numbers reaching 245.1 million. It was not until 2022 that passenger traffic returned to its pre-pandemic upward trend, with freight performance higher than in 2019. The market reached 342.2 million passengers carried, the highest result in the last 20 years.

Within the basic parameters of the passenger transport market, transport performance and the rail usage rate were also presented, which also reached its highest level in 20 years in 2022. To date, however, it has not exceeded the level of 10 journeys per capita per year.

For the purpose of verifying the level of commercialisation of rail passenger transport services, a rail commercialisation rate was adopted based on statistical data held by UTK. It represents the percentage of the numbeof passengers travelling on commercial and occasional trains, launched by undertakings taking into account the business risk. It is worth noting that over the last 20 years, the level of commercialisation of railways in Poland recorded its highest value in 2010, when numerous commercial connections were launched by POLREGIO (formerly Przewozy Regionalne).

In the last 20 years, rail freight transport has been characterised by a decrease in the weight transported and an increase in transport performance, where there is an upward trend. The weight of freight transported reached its highest value in 2007, when 293.0 million tonnes of goods were transported by rail. Subsequent years saw a decline in the parameter, although small increases were also recorded – in 2010 and in 2018. The weight of goods reached in 2022, despite the lifting of pandemic restrictions, did not exceed the 2018 level. In contrast, transport performance reached its highest level in the last 20 years just in 2022.

The report provides data on existing passenger and freight undertakings in the market. The number of authorised undertakings with an active passenger licence is set against the number of operating normal-gauge passenger carriers on a 20-year basis. The number of operating undertakings has increased from 4 undertakings in 2003 to 21 in 2022.

The increases in the number of operators in the freight market were much larger in the area of the nominal number of undertakings. In 2003, there were 20 operating freight undertakings and by 2022 there were already 81 freight undertakings.

Statistics on the ownership of different types of rolling stock by passenger undertakings are also presented. In particular, it is shown how the number of passenger and diesel locomotives, electric and diesel railcars and electric and diesel multiple units has changed over the 20 years. The changes in the state of wagons at the disposal of passenger undertakings appear to be of interest. The number of cars with seats has fallen by about half in 20 years, and the number of double-deck cars with seats has fallen from 897 in 2003 to 74 in 2022. The number of dining cars, cars with lying spaces and sleeping cars also fell.

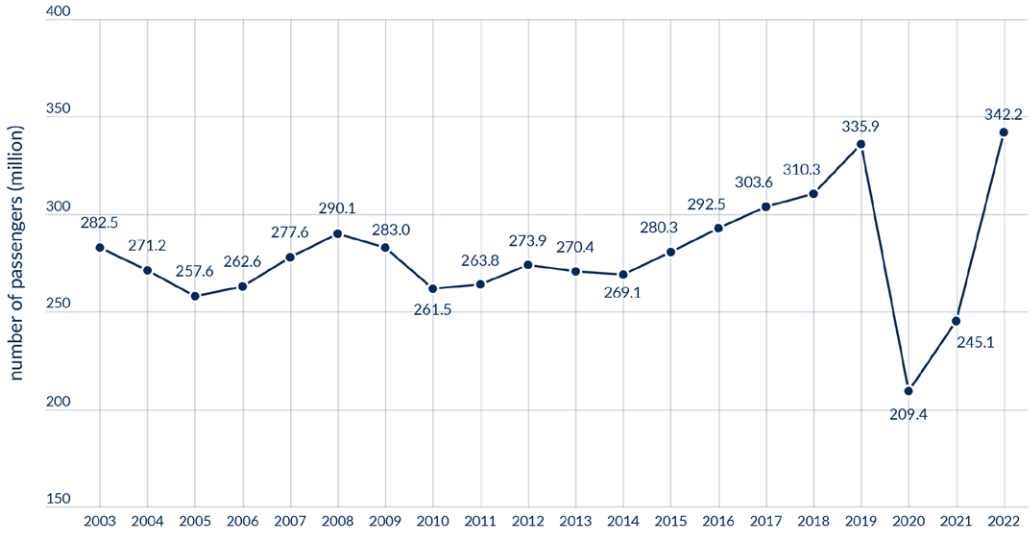
The list of data on the change in the number of rolling stock at the disposal of railway undertakings also includes selected types of freight rolling stock - electric and diesel locomotives, normal construction coal wagons, flat wagons and tank wagons.

In the area of industry employment, it is presented how employment levels have changed among passenger carriers, freight undertakings and infrastructure managers. The level

of employment by passenger undertakings recorded in 2022 was only slightly higher than that in 2003. The number of employees in freight transport decreased steadily, almost annually, starting from a level of 55,000 in 2003 to 26,500 in 2022. Infrastructure managers have seen a similar decline in employment.

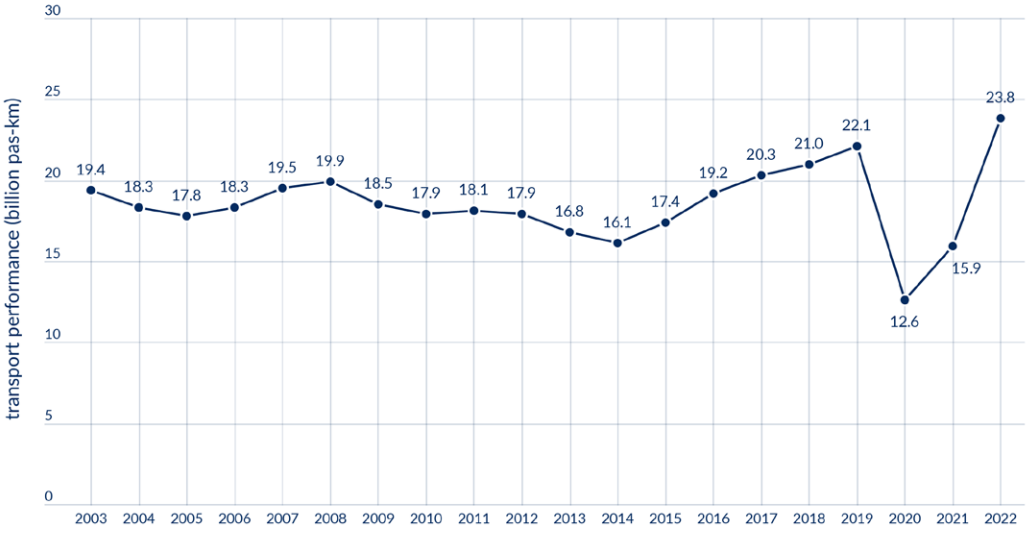
The ranking of the last 20 years in the rail transport market also presents parameters related to intermodal transport. During this time, there has been a several-fold increase in the use of intermodal transport in Poland. One of the basic parameters – the weight of goods transported in intermodal transport – has increased more than 11 times. In 2003, 2.3 million tonnes of freight were transported by this mode of transport, and in 2022 this will be over 26.2 million tonnes. The situation was similar with regard to transport performance, which increased from 0.8 billion tonne-km in 2003 to 8.6 billion tonne-km in 2022. It was also indicated which companies were undertaking services in the intermodal transport market. For some companies, intermodal transport was only a one-off (one-year) episode, while for others the provision of intermodal services has been continuous since 2003. In 2003, the only companies offering this type of transport were PKP Cargo and PKP LHS. In 2022, there were already 23 undertakings carrying out intermodal transport.

Information on the infrastructure operated over 20 years is shown. With regard to normal-gauge lines, 770 km less were in operation in 2022 than in 2003 (a decrease of 3.9%). In contrast, the length of wide-gauge lines decreased by 35 km (-5.8%).



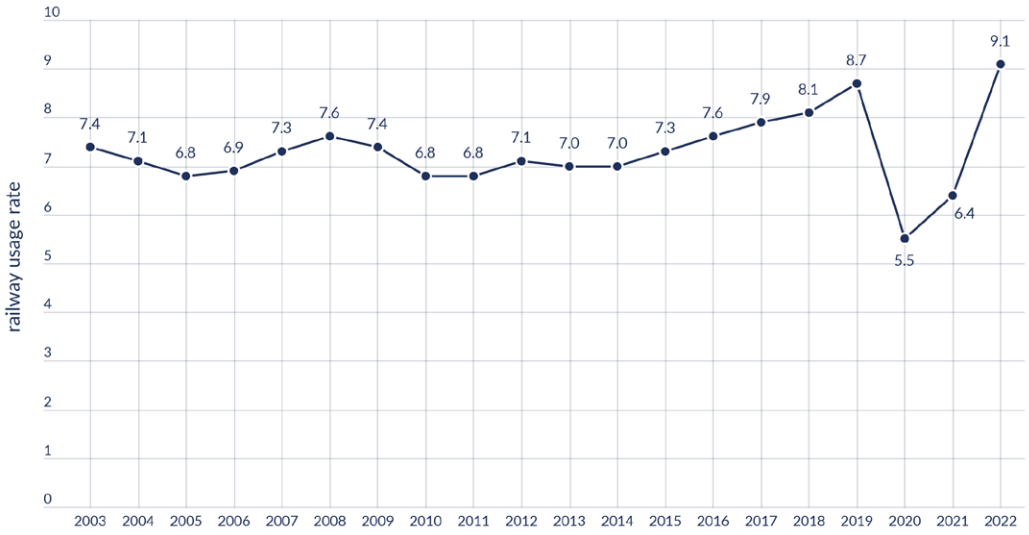
◀ Fig. 173 Number of railway passengers in 2003–2022 (million passengers)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of people	282.5	271.2	257.6	262.6	277.6	290.1	283.0	261.5	263.8	273.9	270.4	269.1	280.3	292.5	303.6	310.3	335.9	209.4	245.1	342.2



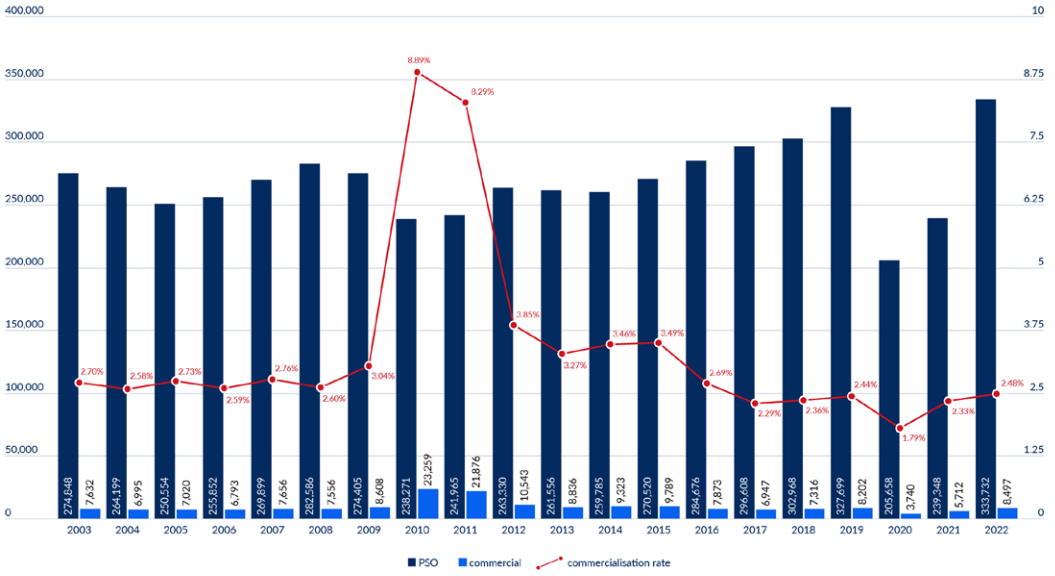
◀ Fig. 174 Transport performance in passenger transport from 2003 to 2022 (billion pas-km)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
transport performance	19.4	18.3	17.8	18.3	19.5	19.9	18.5	17.9	18.1	17.9	16.8	16.1	17.4	19.2	20.3	21.0	22.1	12.6	15.9	23.8



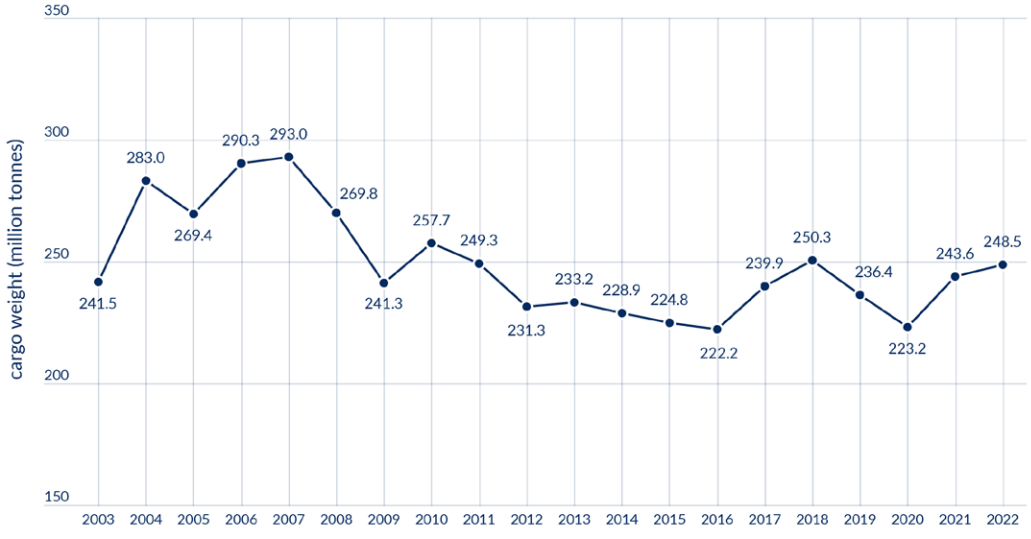
◀ Fig. 175 Rate of the use of passenger railways in the years 2003–2022 (number of trips per 1 inhabitant of Poland)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
indicator	7.4	7.1	6.8	6.9	7.3	7.6	7.4	6.8	6.8	7.1	7.0	7.0	7.3	7.6	7.9	8.1	8.7	5.5	6.4	9.1



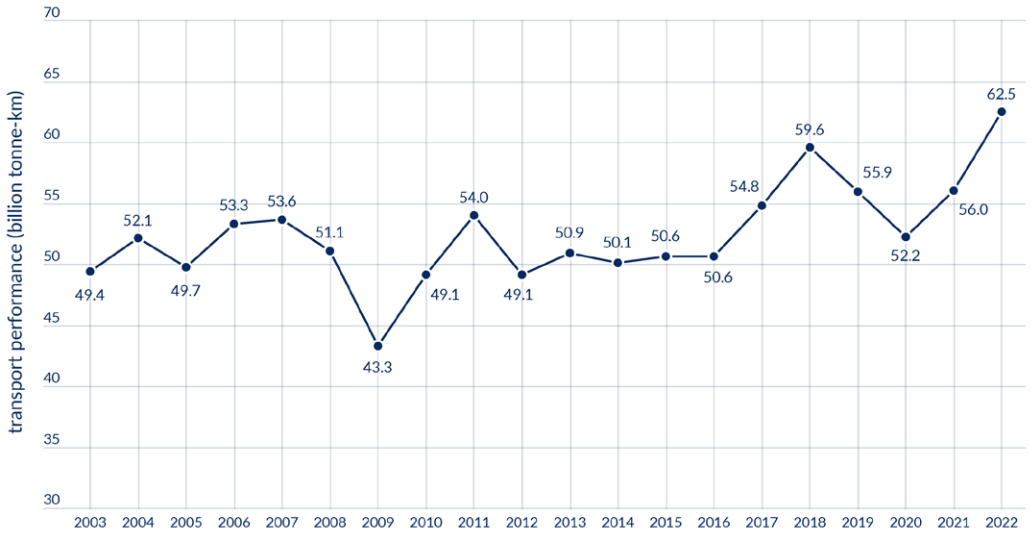
◀ Fig. 176 Number of passengers in public service operation (PSO), commercial operation and commercialisation rate (share of commercial passengers in total passengers) from 2003 to 2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
PSO	274,848	264,199	250,554	255,852	269,899	282,586	274,405	238,271	241,965	263,330	261,556	259,785	270,520	284,676	296,608	302,968	327,699	205,658	239,348	333,732
commercial	7,632	6,995	7,020	6,793	7,656	7,556	8,608	23,259	21,876	10,543	8,836	9,323	9,789	7,873	6,947	7,316	8,202	3,740	5,712	8,497
commercialisation rate	2.70%	2.58%	2.73%	2.59%	2.76%	2.60%	3.04%	8.89%	8.29%	3.85%	3.27%	3.46%	3.49%	2.69%	2.29%	2.36%	2.44%	1.79%	2.33%	2.48%



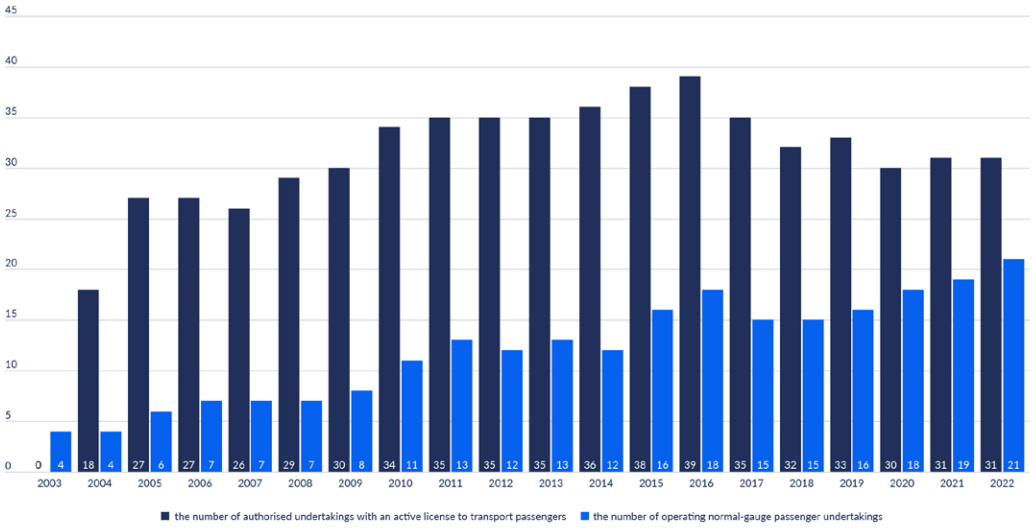
◀ Fig. 177 Weight of cargo in rail freight transport in 2003–2022 (million tonnes)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
mass	241.5	283.0	269.4	290.3	293.0	269.8	241.3	257.7	249.3	231.3	233.2	228.9	224.8	222.2	239.9	250.3	236.4	223.2	243.6	248.5



◀ Fig. 178 Transport performance in rail freight transport in 2003–2023 (billion tonne-km)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
transport performance	49.4	52.1	49.7	53.3	53.6	51.1	43.3	49.1	54.0	49.1	50.9	50.1	50.6	50.6	54.8	59.6	55.9	52.2	56.0	62.5



◀ Fig. 179 Number of authorised railway undertakings with an active passenger transport licence and number of operating normal-gauge passenger railway undertakings between 2003 and 2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of authorised entities	0	18	27	27	26	29	30	34	35	35	35	36	38	39	35	32	33	30	31	31
number of functioning entities	4	4	6	7	7	7	8	11	13	12	13	12	16	18	15	15	16	18	19	21

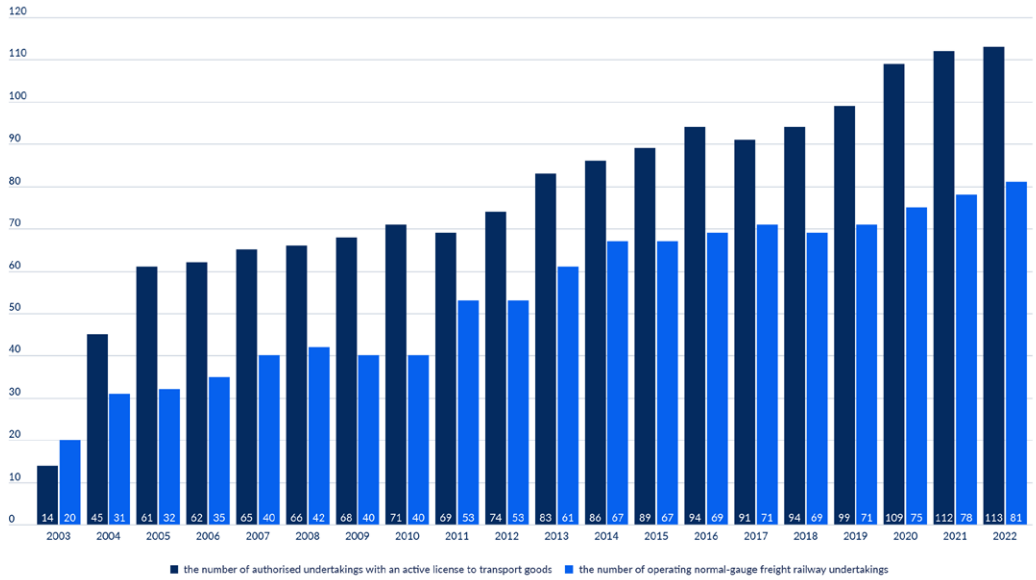
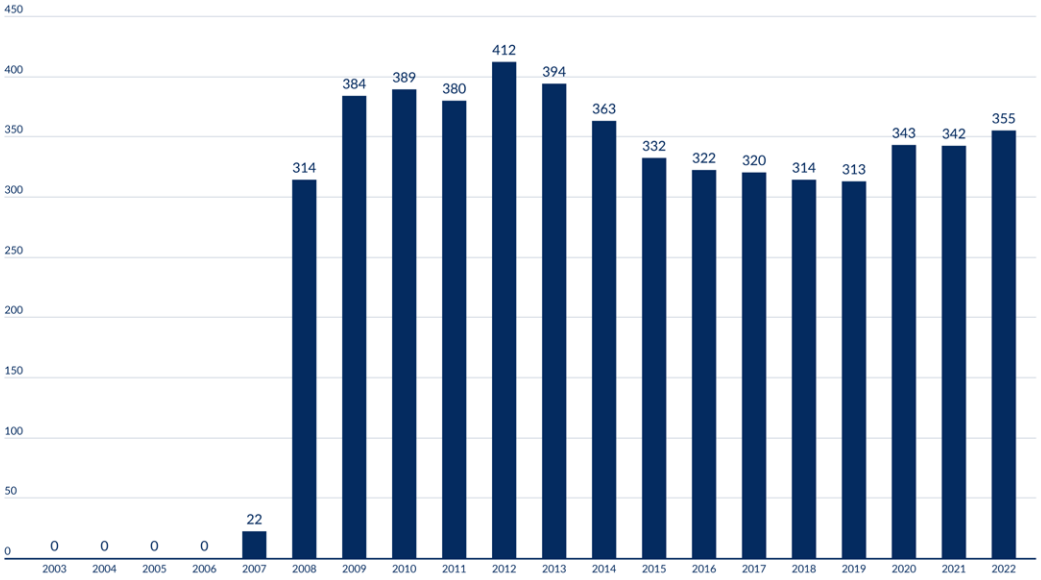


Fig. 180 Number of authorised undertakings with an active license for the carriage of goods and the number of operating normal-gauge freight railway undertakings in the years 2003–2022

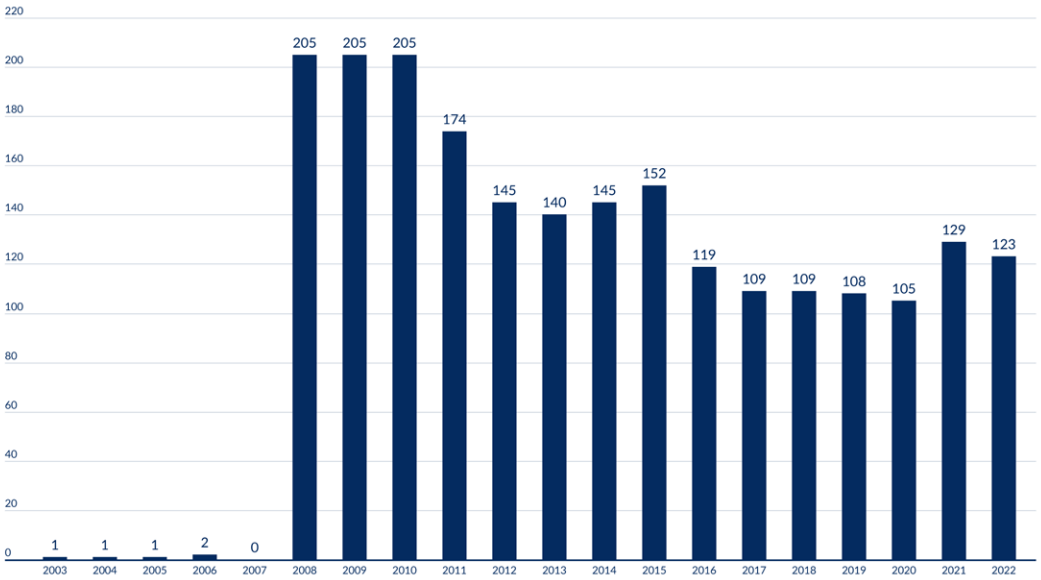
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of authorised entities	14	45	61	62	65	66	68	71	69	74	83	86	89	94	91	94	99	109	112	113
number of functioning entities	20	31	32	35	40	42	40	40	53	53	61	67	67	69	71	69	71	75	78	81



◀ Fig. 181 Number of electric locomotives at the disposal of passenger railway undertakings in 2003–2022[47]

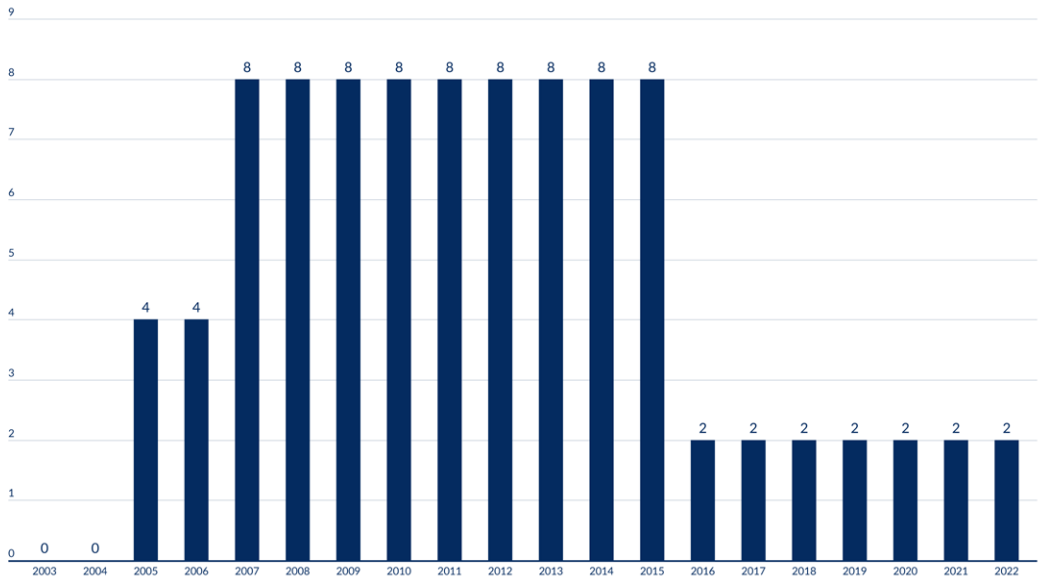
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of locomotives	0	0	0	0	22	314	384	389	380	412	394	363	332	322	320	314	313	343	342	355

47 The discrepancy in the structure of traction vehicles in 2003-2007 in relation to subsequent years is related to the provision of traction rolling stock with drivers by PKP Cargo for the transport activities of PKP Intercity. The traction rolling stock used for passenger transport was transferred to PKP Intercity in 2008. Operated by PKP Cargo, it was not exclusively assigned to passenger transport; locomotives and drivers could make a run with a passenger train and then a freight train during the working day.



◀ Fig. 182 Number of diesel locomotives at the disposal of passenger railway undertakings in 2003–2022[48]

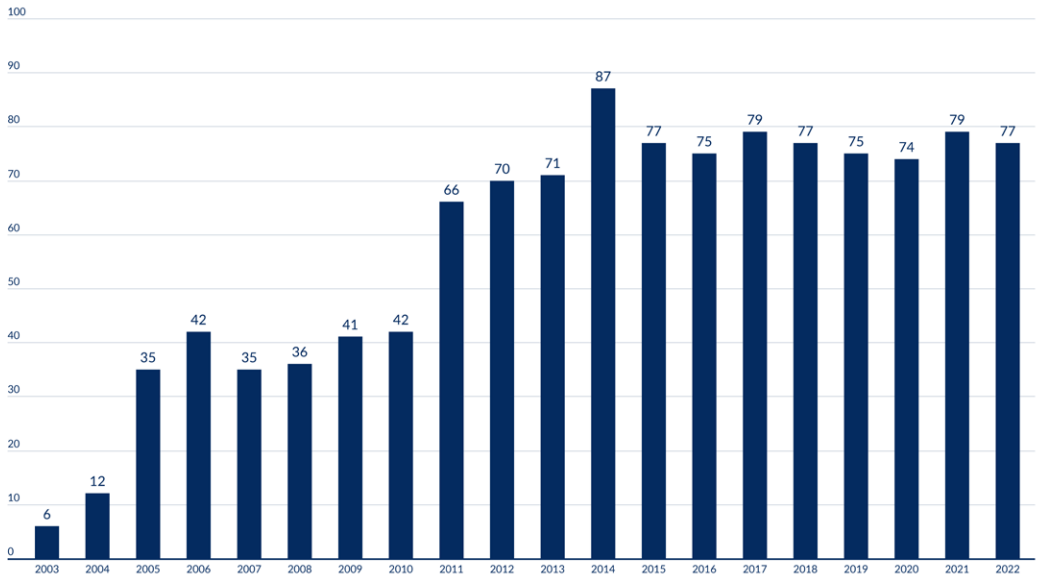
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of locomotives	1	1	1	2	0	205	205	205	174	145	140	145	152	119	109	109	108	105	129	123



◀ Fig. 183 Number of electric railcars at the disposal of passenger railway undertakings in 2003–2022

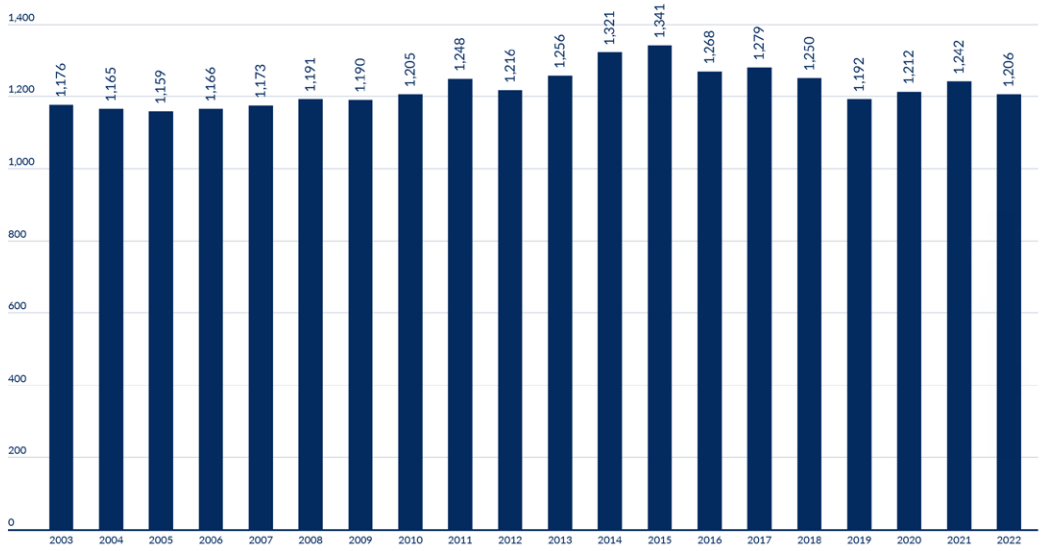
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of electric railcars	0	0	4	4	8	8	8	8	8	8	8	8	8	2	2	2	2	2	2	2

48 The discrepancy in the structure of traction vehicles in 2003-2007 in relation to subsequent years is related to the provision of traction rolling stock with drivers by PKP Cargo for the transport activities of PKP Intercity. The traction rolling stock used for passenger transport was transferred to PKP Intercity in 2008. Operated by PKP Cargo, it was not exclusively assigned to passenger transport; locomotives and drivers could make a run with a passenger train and then a freight train during the working day.



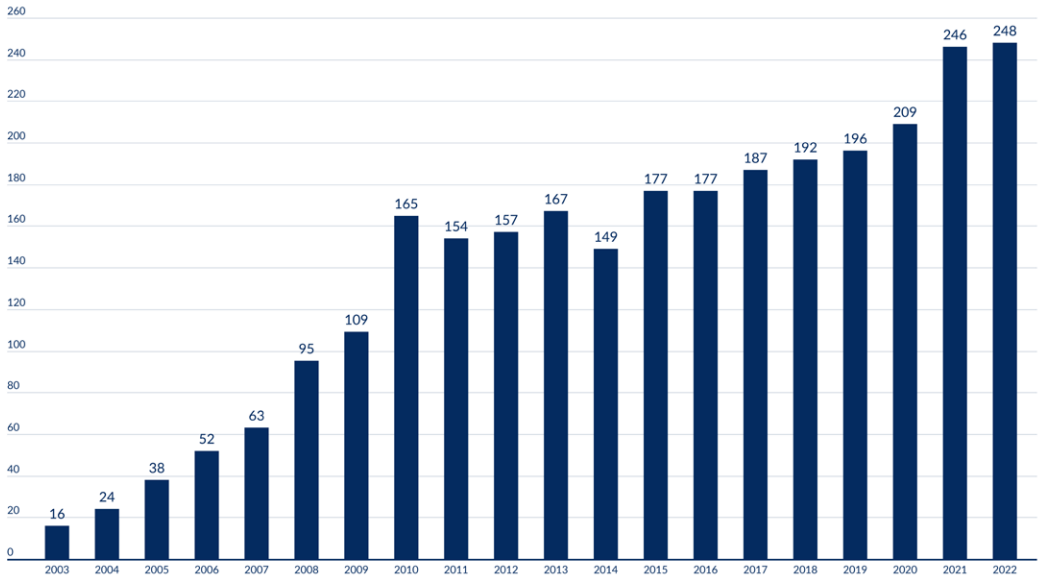
◀ Fig. 184 Number of diesel railcars at the disposal of passenger railway undertakings in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of diesel railcars	6	12	35	42	35	36	41	42	66	70	71	87	77	75	79	77	75	74	79	77



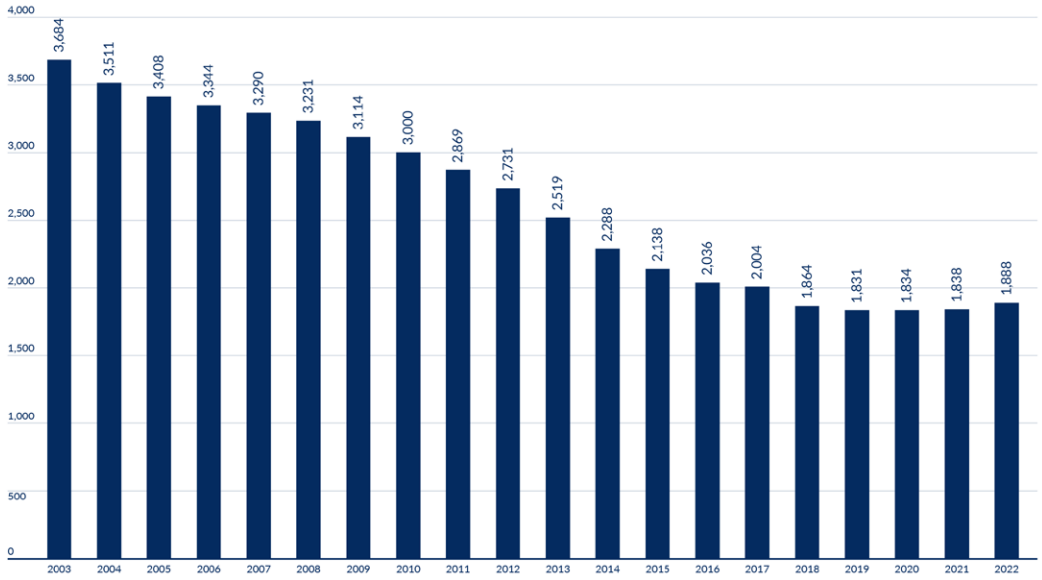
◀ Fig. 185 Number of electric multiple units at the disposal of passenger railway undertakings in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of multiple units	1,176	1,165	1,159	1,166	1,173	1,191	1,190	1,205	1,248	1,216	1,256	1,321	1,341	1,268	1,279	1,250	1,192	1,212	1,242	1,206



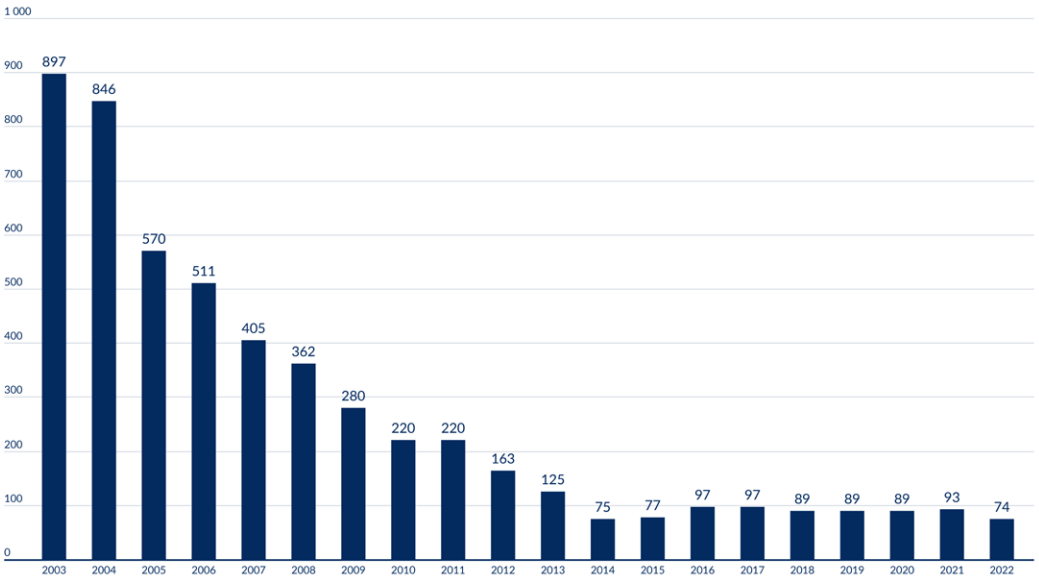
◀ Fig. 186 Number of diesel multiple units at the disposal of passenger railway undertakings in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of multiple units	16	24	38	52	63	95	109	165	154	157	167	149	177	177	187	192	196	209	246	248



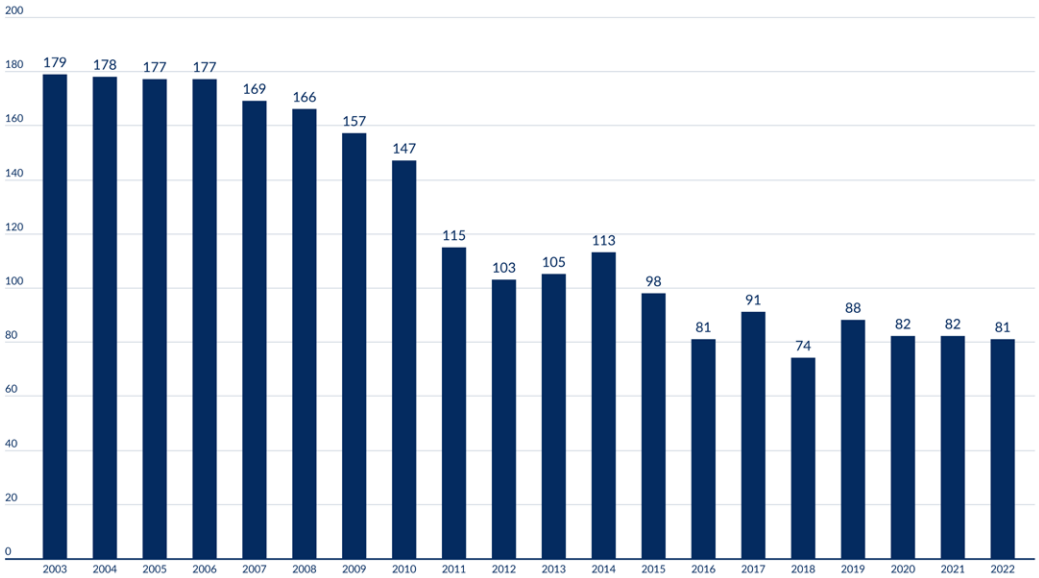
◀ Fig. 187 Number of cars with seats at the disposal of passenger undertakings between 2003 and 2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of wagons	3,684	3,511	3,408	3,344	3,290	3,231	3,114	3,000	2,869	2,731	2,519	2,288	2,138	2,036	2,004	1,864	1,831	1,834	1,838	1,888



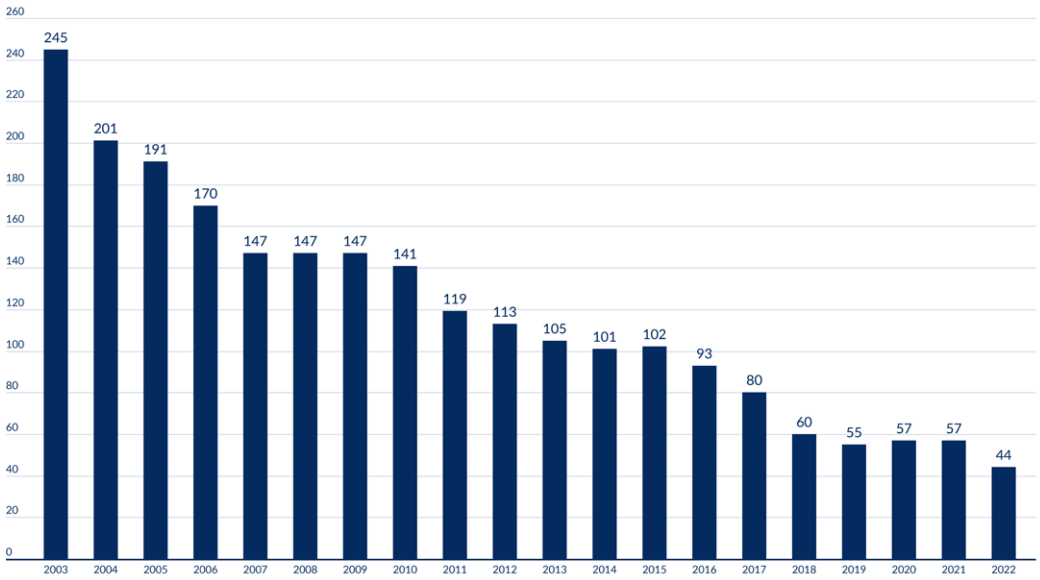
◀ Fig. 188 Number of double-deck cars with seats at the disposal of passenger undertakings in the years 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of wagons	897	846	570	511	405	362	280	220	220	163	125	75	77	97	97	89	89	89	93	74



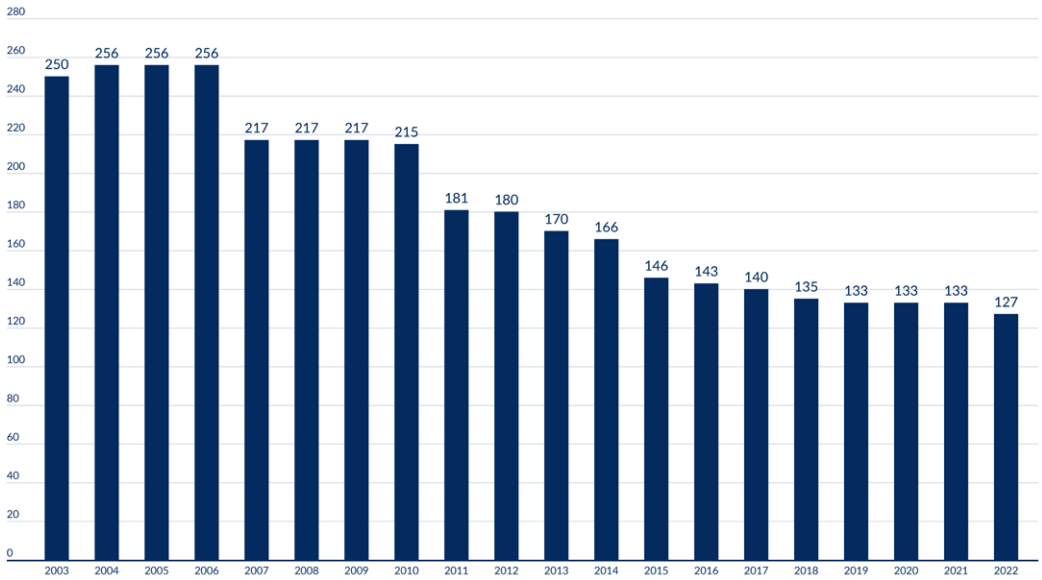
◀ Fig. 189 Number of dining cars at the disposal of passenger undertakings between 2003 and 2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of wagons	179	178	177	177	169	166	157	147	115	103	105	113	98	81	91	74	88	82	82	81



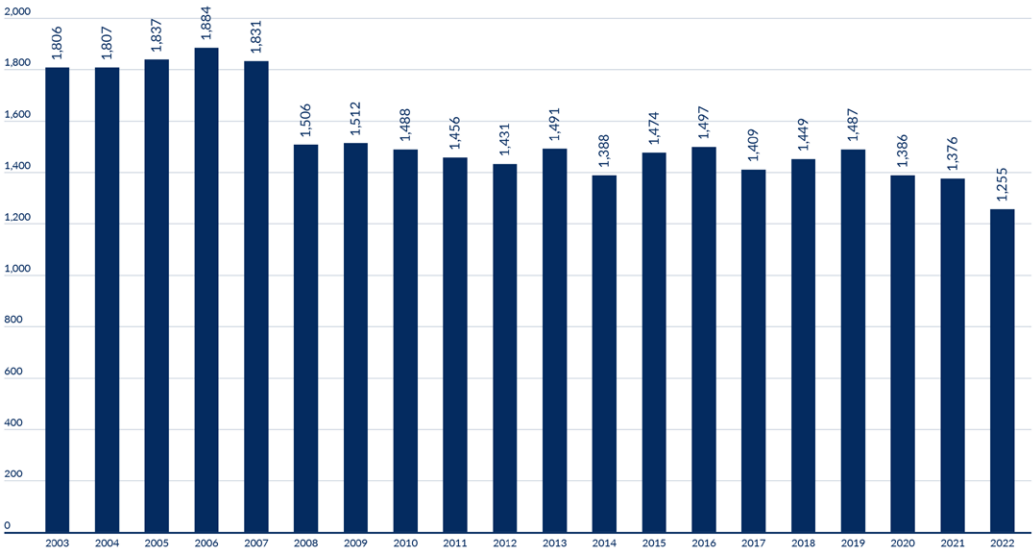
◀ Fig. 190 Number of wagons with lying spaces at the disposal of passenger undertakings between 2003 and 2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of wagons	245	201	191	170	147	147	147	141	119	113	105	101	102	93	80	60	55	57	57	44



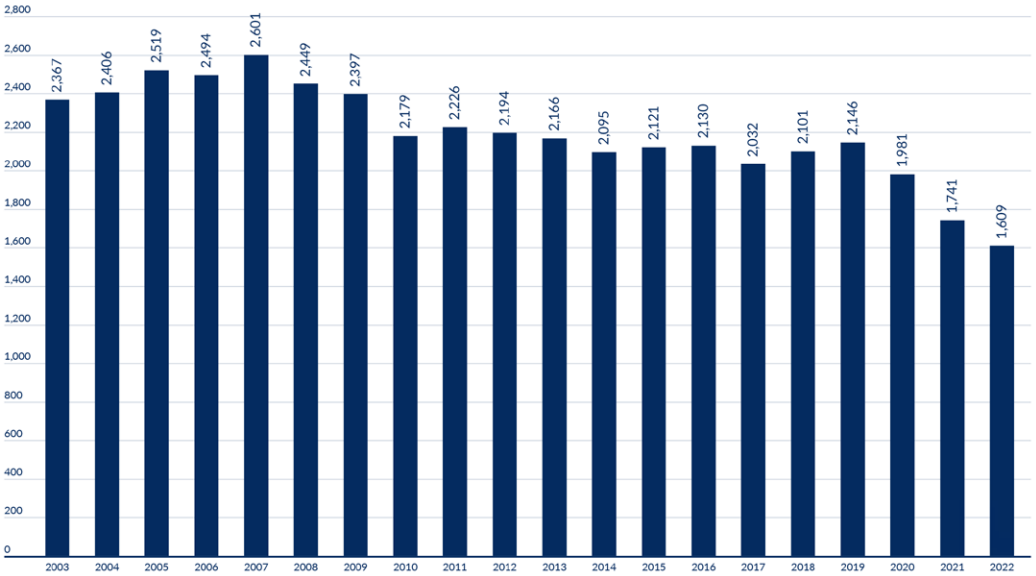
◀ Fig. 191 Number of sleeping cars at the disposal of passenger railway undertakings in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of wagons	250	256	256	256	217	217	217	215	181	180	170	166	146	143	140	135	133	133	133	127



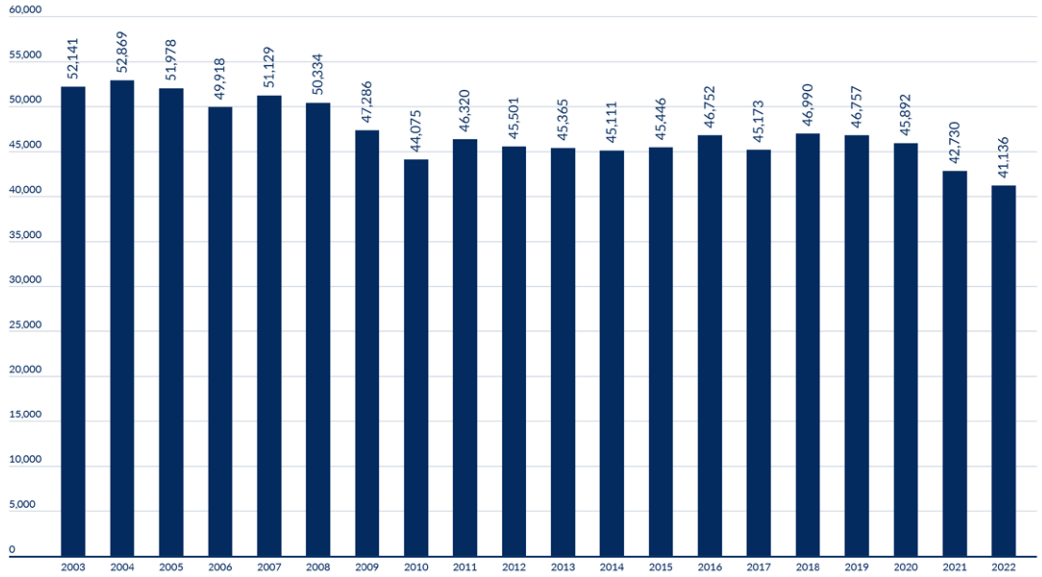
◀ Fig. 192 Number of electric locomotives at the disposal of freight railway undertakings in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of locomotives	1 806	1 807	1 837	1 884	1 831	1 506	1 512	1 488	1 456	1 431	1 491	1 388	1 474	1 497	1 409	1 449	1 487	1 386	1 376	1 255



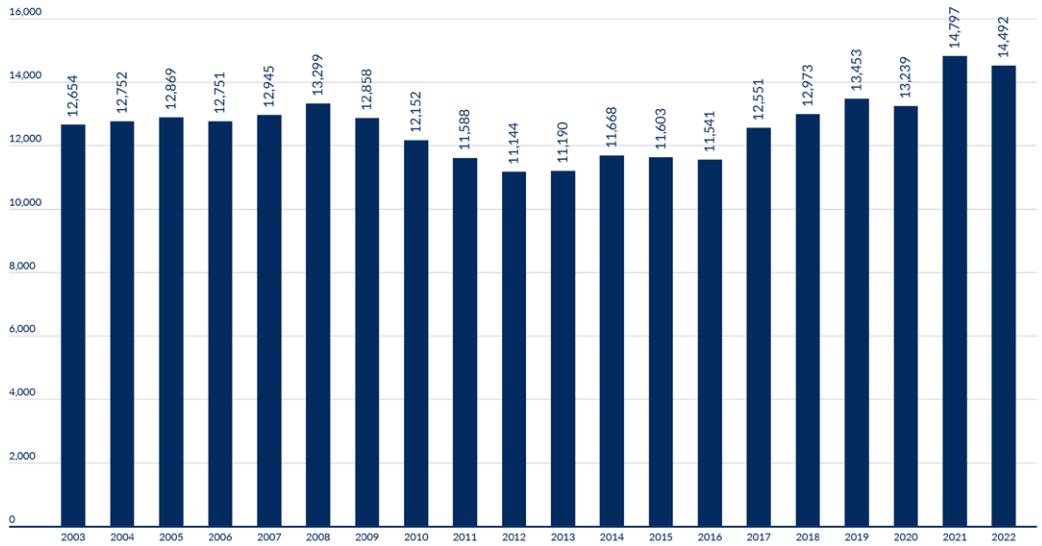
◀ Fig. 193 Number of diesel locomotives at the disposal of freight railway undertakings in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of locomotives	2 367	2 406	2 519	2 494	2 601	2 449	2 397	2 179	2 226	2 194	2 166	2 095	2 121	2 130	2 032	2 101	2 146	1 981	1 741	1 609



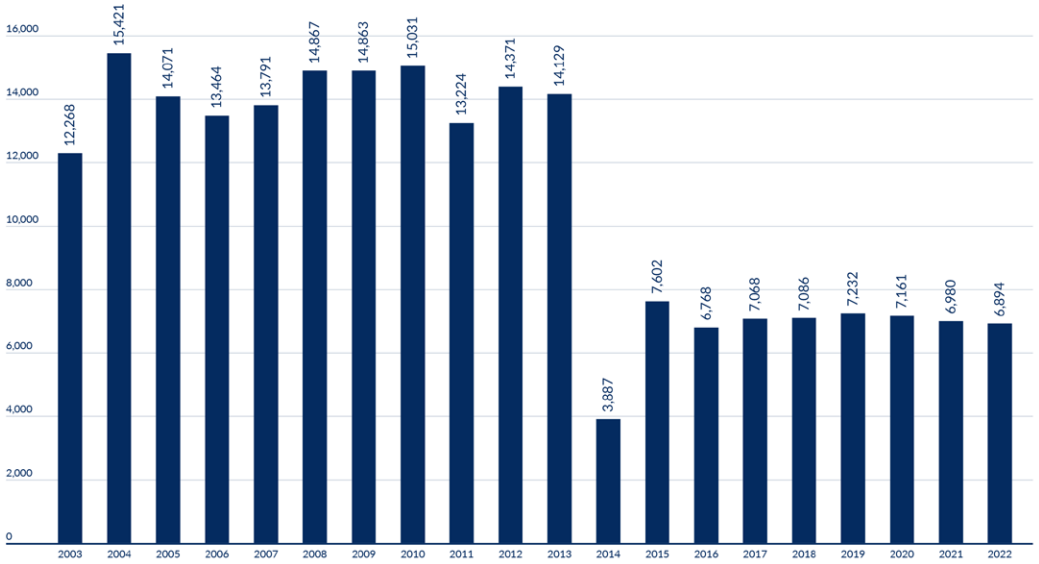
◀ Fig. 194 Number of normal construction coal wagons at the disposal of freight undertakings in the years 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of coal wagons	52,141	52,869	51,978	49,918	51,129	50,334	47,286	44,075	46,320	45,501	45,365	45,111	45,446	46,752	45,173	46,990	46,757	45,892	42,730	41,136



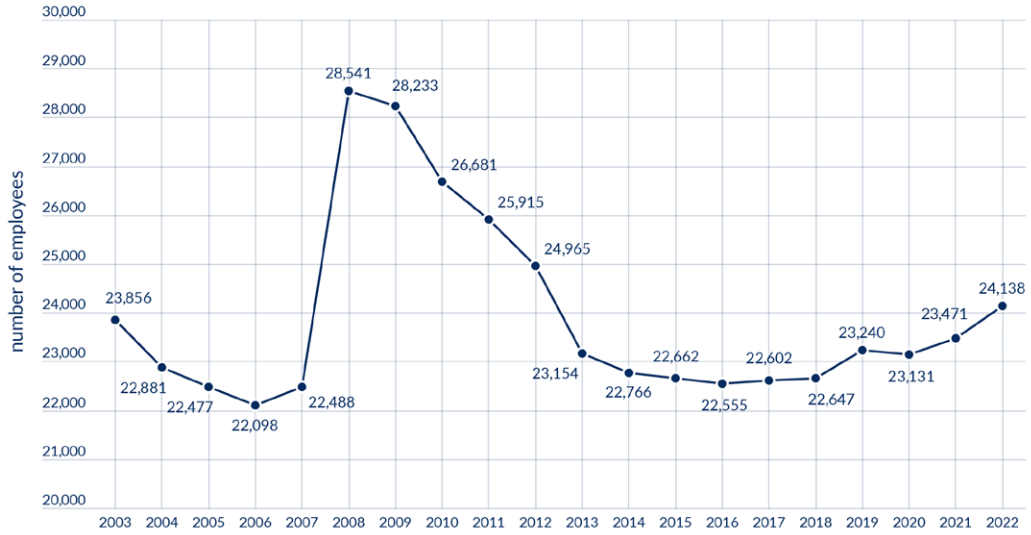
◀ Fig. 195 Number of flat wagons at the disposal of freight railway undertakings in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of platforms	12,654	12,752	12,869	12,751	12,945	13,299	12,858	12,152	11,588	11,144	11,190	11,668	11,603	11,541	12,551	12,973	13,453	13,239	14,797	14,492



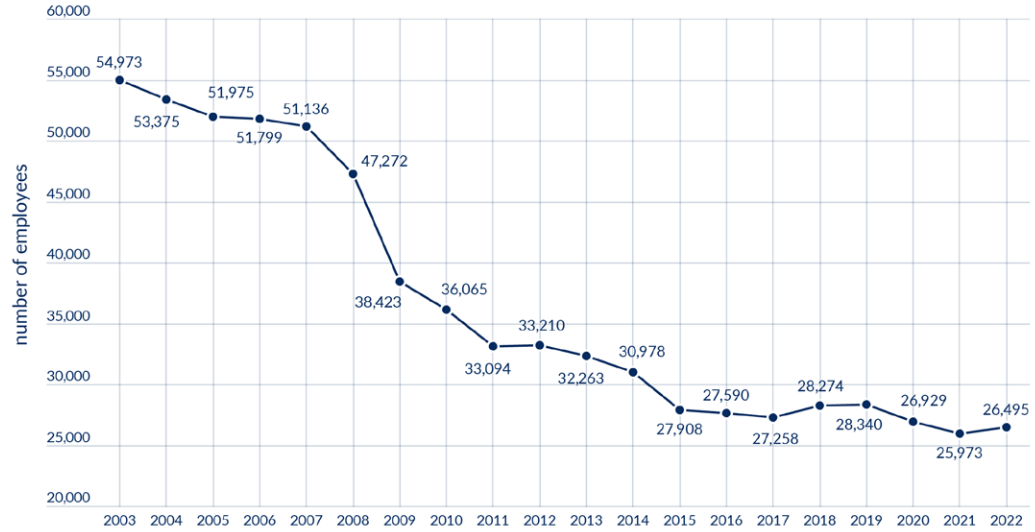
◀ Fig. 196 Number of tank wagons at the disposal of freight railway undertakings in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
number of tank wagons	12,268	15,421	14,071	13,464	13,791	14,867	14,863	15,031	13,224	14,371	14,129	3,887	7,602	6,768	7,068	7,086	7,232	7,161	6,980	6,894



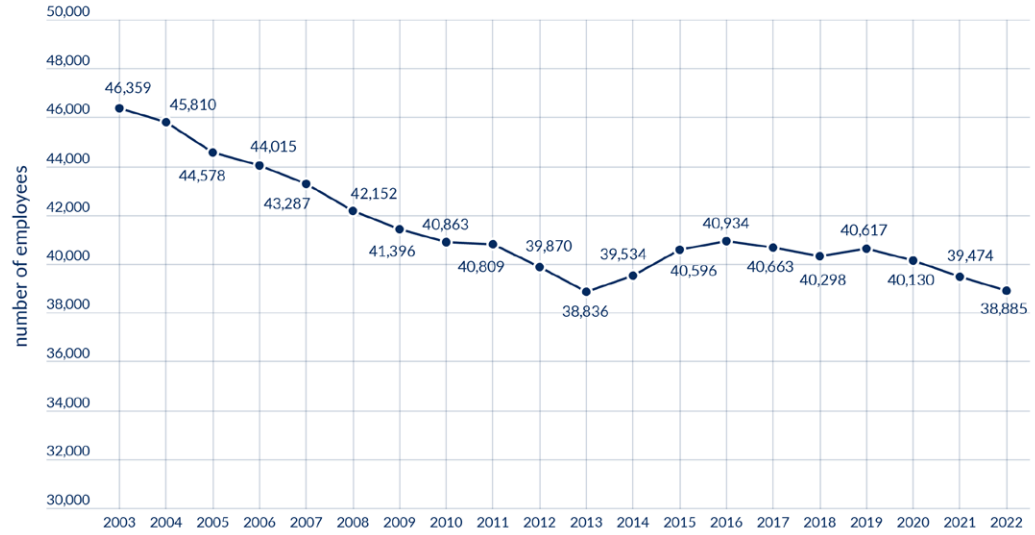
◀ Fig. 197 Employment in the passenger transport sector in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
employment	23,856	22,881	22,477	22,098	22,488	28,541	28,233	26,681	25,915	24,965	23,154	22,766	22,662	22,555	22,602	22,647	23,240	23,131	23,471	24,138



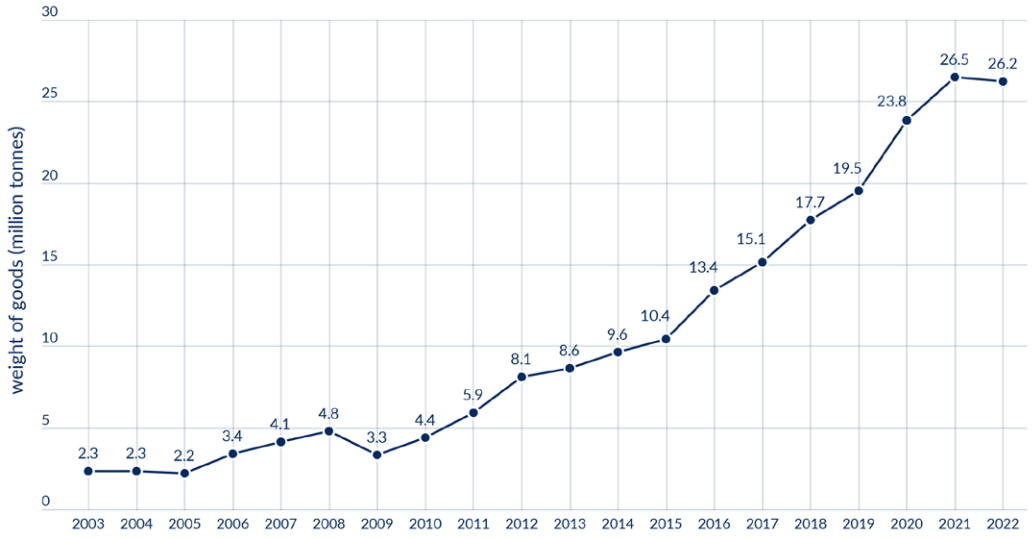
◀ Fig. 198 Employment in the freight transport sector in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
employment	54,973	53,375	51,975	51,799	51,136	47,272	38,423	36,065	33,094	33,210	32,263	30,978	27,908	27,590	27,258	28,274	28,340	26,929	25,973	26,495



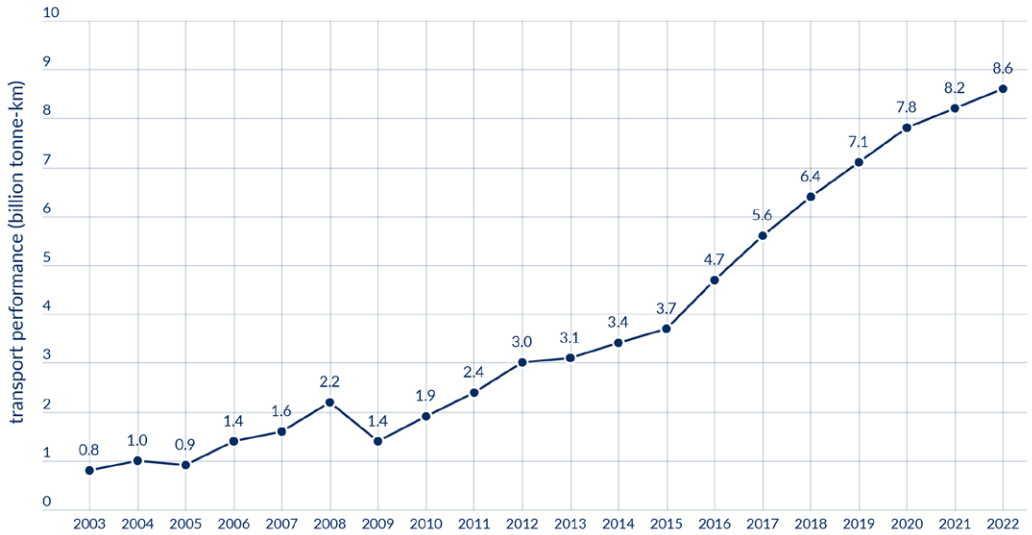
◀ Fig. 199 Employment in the sector of infrastructure managers in 2003–2022

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
employment	46,359	45,810	44,578	44,015	43,287	42,152	41,396	40,863	40,809	39,870	38,836	39,534	40,596	40,934	40,663	40,298	40,617	40,130	39,474	38,885



◀ Fig. 200 Weight of goods in intermodal transport in 2003–2022 (million tonnes)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
mass of goods	2.3	2.3	2.2	3.4	4.1	4.8	3.3	4.4	5.9	8.1	8.6	9.6	10.4	13.4	15.1	17.7	19.5	23.8	26.5	26.2



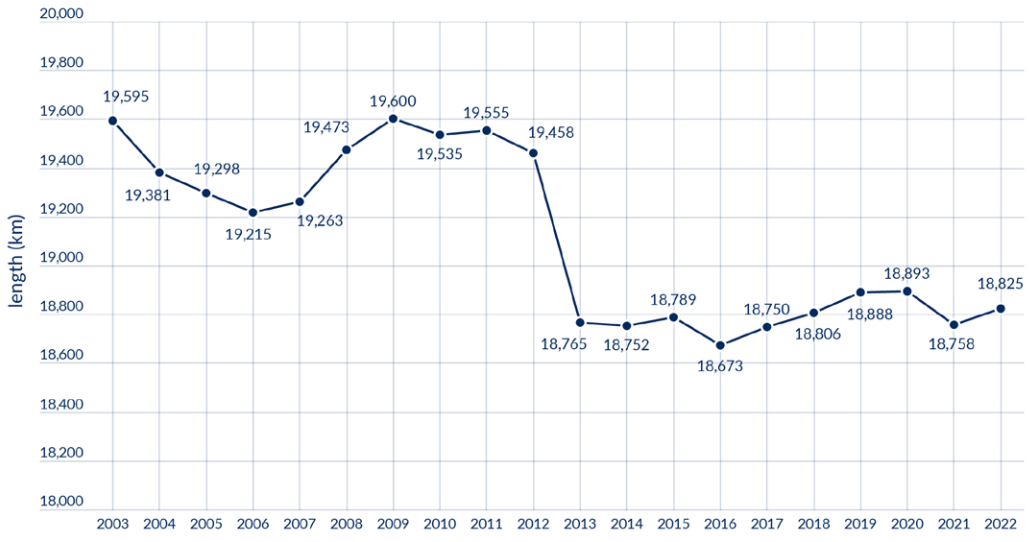
◀ Fig. 201 Transport performance in intermodal transport in 2003–2022 (billion tonne-km)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
transport performance	0.8	1.0	0.9	1.4	1.6	2.2	1.4	1.9	2.4	3.0	3.1	3.4	3.7	4.7	5.6	6.4	7.1	7.8	8.2	8.6

▼ Tab. 147 Undertakings performing intermodal transport in 2003–2022

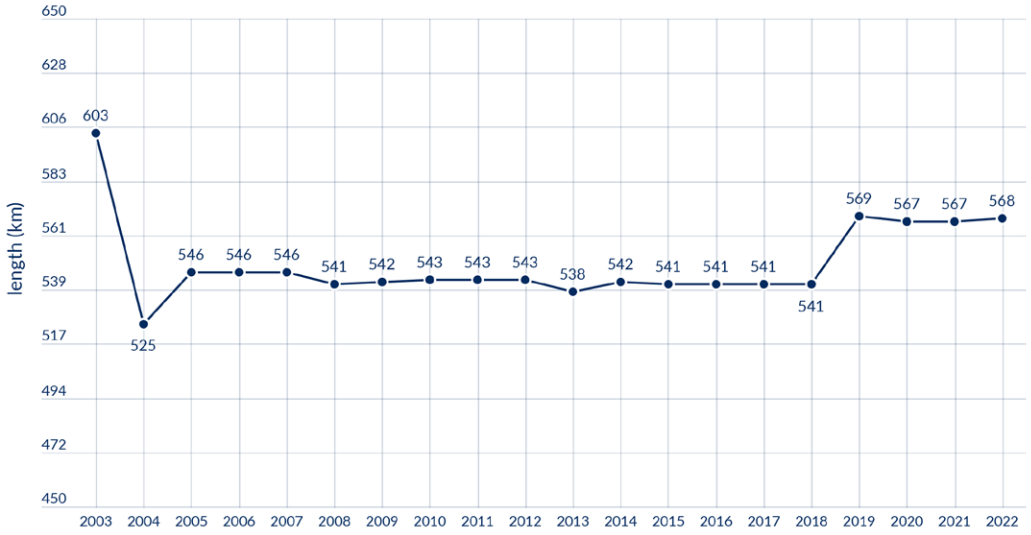
undertaking	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
PKP Cargo	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PKP LHS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DB Cargo Polska	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DB Kolchem	○	○	○	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○
CTL Rail	○	○	○	○	●	●	○	○	○	○	●	●	●	○	○	○	○	○	○	○
CTL Logistics	○	○	○	○	●	○	●	○	●	●	●	●	●	●	●	●	●	●	●	●
CTL Express	○	○	○	○	○	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○
Lotos Kolej	○	○	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●
STK	○	○	○	○	○	○	○	○	●	●	●	○	○	●	○	●	●	○	○	○
Majkoltrans	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○
Rail Polska	○	○	○	○	○	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●
Captrain Polska	○	○	○	○	○	○	○	○	○	○	●	○	●	●	●	●	●	●	●	●
Ecco Rail	○	○	○	○	○	○	○	○	○	○	●	●	●	●	●	●	●	●	●	●
Eurotrans	○	○	○	○	○	○	○	○	○	○	○	●	●	●	●	●	●	●	●	●
Freightliner PL	○	○	○	○	○	○	○	○	○	○	○	●	●	●	●	○	○	●	●	●
Karpiel	○	○	○	○	○	○	○	○	○	○	○	●	○	○	●	●	●	●	○	○
Metrans Rail	○	○	○	○	○	○	○	○	○	○	○	●	●	●	●	●	●	●	●	●
CD Cargo Poland	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	●	●	●	●	●
LTE Polska	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	●	●	●	●
Kolej Bałtycka	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○
PCC Intermodal	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	●	●	●	●
Pol-Miedź Trans	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○	○	●	●
Eurasian Railway Carrier	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	●	●	●
Inter Cargo	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	●	○
Transchem	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○	○	○
ZIK Sandomierz	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	●	○	●

undertaking	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Alza Cargo	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	●	●
Rail Cargo Carrier	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	●	●
Cargo Master	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○
EP Cargo	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○
Orion Rail Logistics	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○
Cedrob	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○
Silva LS	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●
IRT	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
LTG Cargo	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
TKP Silesia	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●



◀ Fig. 202 Length of normal-gauge railway lines in operation in 2003–2022 (in km)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
length	19,595	19,381	19,298	19,215	19,263	19,473	19,600	19,535	19,555	19,458	18,765	18,752	18,789	18,673	18,750	18,806	18,888	18,893	18,758	18,825



◀ Fig. 203 Length of the wide-gauge railway lines in operation in 2003–2022 (km)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
length	603	525	546	546	546	541	542	543	543	543	538	542	541	541	541	541	569	567	567	568

8. List of abbreviations and terms

Railway undertakings, companies

1.	Agnieszka Dolata	Agnieszka Dolata running a business under the name 'Żwirownia DOLATA' 'Beton DOLATA' Agnieszka Dolata
2.	Alusta	Alusta S.A.
3.	Alza Cargo	Alza Cargo sp. z o.o.
4.	ArcelorMittal Distribution Solutions	ArcelorMittal Distribution Solutions Poland sp. z o.o.
5.	Arriva RP lub Arriva	ARRIVA RP sp. z o.o.
6.	Barter	Barter S.A.
7.	Bartex Plus	Bartex Plus sp. z o.o.
8.	BCT	Bałtycki Terminal Kontenerowy sp. z o.o.
9.	B.R.S.	B.R.S. sp. z o.o.
10.	Budimex Kolejnictwo	Budimex Kolejnictwo S.A.
11.	Captrain Polska	Captrain Polska sp. z o.o.
12.	Cargo Master	Cargo Master sp. z o.o.
13.	Cargo PTT	CARGO Przewozy Towarowe, Transport sp. z o.o. spółka komandytowa
14.	CARGOTOR	CARGOTOR sp. z o.o.
15.	Cedrob	Cedrob Cargo sp. z o.o.
16.	CEMET	CEMET S.A.
17.	Ciech Cargo	CIECH Cargo sp. z o.o.
18.	CD Cargo Poland	CD Cargo Poland sp. z o.o.
19.	CL Łososna	Centrum Logistyczne w Łososnej sp. z o.o.
20.	Colas Rail	Colas Rail Polska sp. z o.o.
21.	CTL Express	CTL Express sp. z o.o.
22.	CTL Logistics	CTL Logistics sp. z o.o.
23.	CTL Maczki-Bór	CTL Maczki – Bór S.A.
24.	CTL Północ	CTL Północ sp. z o.o.
25.	CTL Rail	CTL Rail sp. z o.o.
26.	CTL Train	CTL Train sp. z o.o.
27.	Ceske Drahy lub České dráhy	České dráhy a.s.
28.	DB	Deutsche Bahn
29.	DB Cargo Polska	DB Cargo Polska S. A.
30.	DB Cargo Spedkol	DB Cargo Spedkol sp. z o.o.
31.	DB Kolchem	DB Kolchem sp. z o.o.
32.	DCT	DCT Gdańsk S.A.
33.	Depol	Przedsiębiorstwo Obrotu Surowcami Wtórnymi „Depol" sp. z o.o.

34.	DLA	„Dolnośląskie Linie Autobusowe” Sp. z o.o.
35.	DSDiK	Dolnośląska Służba Dróg i Kolei we Wrocławiu
36.	Ecco Rail	ECCO Rail sp. z o.o.
37.	EP Cargo	EP Cargo a.s.
38.	Eurasian Railway Carrier	Eurasian Railway Carrier sp. z o.o.
39.	Euroterminal Sławków	„Euroterminal Sławków” sp. z o.o.
40.	Eurotrans	EUROTRANS sp. z o.o.
41.	Damian Żur	FDM-REW Damian Żur
42.	FPS	H. Cegielski – Fabryka Pojazdów Szynowych Sp. z o.o.
43.	Freightliner PL	Freightliner PL sp. z o .o.
44.	Grupa Azoty „Koltar”	Grupa Azoty „Koltar” sp. z o.o.
45.	HSL Polska	HSL Polska sp. z o.o.
46.	IGL	IGL sp. z o.o. sp. k.
47.	Infra SILESIA	Infra SILESIA S.A.
48.	Inter Cargo	Inter Cargo sp. z o.o.
49.	IRT	IRT sp. z o.o.
50.	Jaxan Rail	Jaxan Rail sp. z o.o. (formerly: G&K Rail Transport sp. z o .o.)
51.	JSK	Jastrzębska Spółka Kolejowa sp. z o.o.
52.	JSW Logistics	currently JSW Logistics sp. z o.o., formerly: Zakład Przewozów i Spedycji ‘SPEDKOKS’ sp. z o.o.
53.	Karpiel	„Karpiel” sp. z o.o.
54.	Kolej Bałtycka	„Kolej Bałtycka” S.A.
55.	Koleje Dolnośląskie	Koleje Dolnośląskie S.A.
56.	Koleje Małopolskie	„Koleje Małopolskie” sp. z o.o.
57.	Koleje Mazowieckie	„Koleje Mazowieckie – KM” sp. z o.o.
58.	Koleje Śląskie	Koleje Śląskie sp. z o.o.
59.	Koleje Wielkopolskie	Koleje Wielkopolskie sp. z o.o.
60.	KP Kotlarnia	Kopalnia Piasku ,,Kotlarnia” S.A.
61.	KP Kotlarnia Linie Kolejowe	„Kopalnia Piasku Kotlarnia – Linie Kolejowe” sp. z o.o.
62.	Leo Express Global	Leo Express Global a.s.
63.	Leo Express	Leo Express s.r.o.
64.	LTC	Logistics&Transport Company sp. z o.o.
65.	Lotos Kolej	„Lotos Kolej” sp. z o.o.
66.	LTE Polska	LTE Polska sp. z o.o.
67.	LTG Cargo	LTG Cargo Sp. z o.o.
68.	LW Bogdanka	Lubelski Węgiel „Bogdanka” S.A.

69.	ŁKA lub Łódzka Kolej Aglomeracyjna	„Łódzka Kolej Aglomeracyjna" sp. z o.o.
70.	Majkoltrans	„MAJKOLTRANS" sp. z o.o.
71.	Metrans Rail	Metrans Rail sp. z o.o. (formerly: Metrans (Polonia) sp. z o.o.)
72.	Mobil Lok	Mobil Lok Servis sp. z o.o.
73.	Moris	MORIS sp. z o.o.
74.	Newag	„Newag" S.A.
75.	NKN	NKN Usługi Kolejowe Spółka Z Ograniczoną Odpowiedzialnością
76.	ODEG Ostdeutsche	Ostdeutsche Eisenbahn GmbH
77.	Olavion	Olavion sp. z o.o.
78.	Omniloko	OMNILOKO sp. z o.o.
79.	Orion Rail Logistics	Orion Rail Logistics sp. z o.o. spółka komandytowa
80.	Orlen Koltrans	ORLEN KolTrans sp. z o.o.
81.	OT Port Świnoujście	OT Port Świnoujście S.A.
82.	Parowozownia Wolsztyn	Parowozownia Wolsztyn Instytucja Kultury Województwa Wielkopolskiego
83.	PCC Intermodal	PCC Intermodal S.A.
84.	PGE Energia Ciepła o. Lublin Wrotków	PGE Energia Ciepła S.A. Oddział Elektrociepłownia w Lublinie Wrotków
85.	PKM	Pomorska Kolej Metropolitalna S.A.
86.	PKP Cargo	PKP CARGO S.A.
87.	PKP Cargo International	PKP Cargo International a.s.
88.	PKP Cargo Service	PKP CARGO SERVICE sp. z o.o.
89.	PGE Energetyka Kolejowa	PGE Energetyka Kolejowa S.A. (formerly: PKP Energetyka S.A.)
90.	PKP Intercity lub PKP IC	„PKP INTERCITY" S.A.
91.	PKP LHS	PKP Linia Hutnicza Szerokotorowa sp. z o.o.
92.	PKP PLK	PKP Polskie Linie Kolejowe S.A.
93.	PKP S.A.	Polskie Koleje Państwowe S.A.
94.	PKP SKM lub PKP SKM w Trójmieście	PKP Szybka Kolej Miejska w Trójmieście sp. z o.o.
95.	PMT Linie Kolejowe	„PMT Linie Kolejowe" sp. z o.o.
96.	PESA Bydgoszcz	Pojazdy Szynowe PESA Bydgoszcz S.A.
97.	PKM	Pomorska Kolej Metropolitalna S.A.
98.	Pol-Miedź Trans	Pol–Miedź Trans sp. z o.o.
99.	PPMT	Pomorskie Przedsiębiorstwo Mechaniczno – Torowe sp. z o.o.
100.	PTS Betrans	Przedsiębiorstwo Transportowo-Sprzętowe Betrans sp. z o.o.
101.	POLREGIO	POLREGIO S.A. (formerly: 'Przewozy Regionalne' sp. z o.o.)
102.	PUK Kolprem	Przedsiębiorstwo Usług Kolejowych KOLPREM sp. z o.o.
103.	Rail Cargo Carrier	Rail Cargo Carrier – Poland sp. z o.o. (formerly Rail Time Polska sp. z o.o.)

Railway undertakings, companies

104.	Railpolonia	Railpolonia sp. z o.o.
105.	Rail Polska	Rail Polska sp. z o.o.
106.	Rail STM	Rail STM sp. z o.o. (formerly Cityline sp. z o.o.)
107.	Railtrans	Railtrans Poland sp. z o.o., sp. k.
109.	RegioJet	RegioJet a.s.
110.	Silva LS	Silva LS sp. z o. o.
111.	SKM Warszawa lub SKM w Warszawie	Szybka Kolej Miejska sp. z o.o.
112.	SKPL Cargo	SKPL Cargo sp. z o.o.
113.	Stadler Polska	Stadler Polska sp. z o.o.
114.	Stanisław Głowacz	Stanisław Głowacz F.H.U. JMS
115.	STK	STK S.A.
116.	Swietelsky Rail Polska	Swietelsky Rail Polska sp. z o.o.
117.	T&C	T&C Sp. z o.o.
118.	Tabor Rail	Tabor Rail sp. z o.o.
119.	TeKol	TeKol Sp. z o.o.
120.	TKP Silesia	TKP Silesia sp. k.
121.	Torpol	Torpol S.A.
123	Track Tec Rail	Track Tec Rail sp. z o.o.
124	Track Tec	Track Tec S.A.
125	Trakcja PRKiI	Trakcja PRKiI S.A.
126	Transchem	Transchem sp. z o.o.
127	UBB	Usedomer Bäderbahn GmbH
128	UBB Polska	UBB Polska sp. z o.o.
129	WKD	Warszawska Kolej Dojazdowa sp. z o.o.
130	ZIK Sandomierz	Zakład Inżynierii Kolejowej sp. z o.o.
131	ZUE	ZUE S.A.
132	Grupa CTL	Spółki CTL Logistics sp. z o.o., CTL Północ sp. z .o. i CTL Train sp. z o.o.
133	Grupa DB	Spółki DB Cargo Polska S.A. i DB Cargo Spedkol sp. z o.o.
134	Grupa PKP	Spółki PKP Cargo S.A., PKP Cargo Service sp. z o.o., PKP Linia Hutnicza Szerokotorowa sp. z o.o.

Institutions and organisations

1.	CPK	CPK stands for Centralny Port Komunikacyjny – which will be a multimodal central hub (a Polish investment under construction)
2.	CUPT	Centre for EU Transport Projects
3.	ERA or EUAR	European Union Agency for Railways
4.	Statistics Poland	Central Statistical Office of Poland
5.	IRG-Rail	Independent Regulators' Group – Rail
6.	President of UTK	President of the Office of Rail Transport
7.	CJEU	Court of Justice of the European Union
8.	UTK	Office of Rail Transport

Legal regulations and strategic documents

1.	AGC	EUROPEAN AGREEMENT on Main International Railway Lines (AGC), done at Geneva on 31 May 1985
2.	directive 2012/34/EU	Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area.
3.	directive 2016/797/EU	Directive (EU) 2016/797 of the European Parliament and of the Council of 11 May 2016 on the interoperability of the rail system within the European Union
4.	NST classification	Commission Regulation (EC) No. 1304/2007 of 7 November 2007 amending Council Directive 95/64/EC, Council Regulation (EC) No. 1172/98, Regulations (EC) No. 91/2003 and (EC) No. 1365/2006 of the European Parliament and of the Council with respect to the establishment of NST 2007 as the unique classification for transported goods in certain transport modes
5.	Implementing Regulation (EU) 2017/6	Commission Implementing Regulation (EU) 2017/6 of 5 January 2017 on the European Deployment Plan for the European Rail Traffic Management System
6.	TSI	Technical Specifications for Interoperability.
7.	Noise TSI	TSI NOI 2011 - Commission Decision of 4 April 2011 concerning the technical specifications of interoperability relating to the subsystem 'rolling stock – noise' of the trans-European conventional rail system (OJ L 99 of 13 April 2011, p. 1); TSI NOI 2014 - Commission Regulation (EU) No. 1304/2014 of 26 November 2014 on the technical specification for interoperability relating to the subsystem 'rolling stock – noise' amending Decision 2008/232/EC and repealing Decision 2011/229/EU OJ EU L 356 of 12 December 2014, p. 421).

8.	TSI CCS	TSI CCS 2006 – Commission Decision of 7 November 2006 concerning a technical specification for interoperability relating to the control-command and signalling subsystem of the trans-European high speed rail system and modifying Annex A to Decision 2006/679/EC of 28 March 2006 concerning the technical specification for interoperability relating to the control-command and signalling subsystem of the trans-European conventional rail system (OJ L 342 of 7 December 2006, as amended); TSI CCS 2012 - Commission Decision of 25 January 2012 on the technical specification for interoperability relating to the control-command and signalling subsystems of the trans-European rail system (OJ L 51 of 23 February 2012, as amended); TSI CCS 2016 – Commission Decision 2016/919 of 27 May 2016 on the technical specification for interoperability relating to the control-command and signalling subsystems of the trans-European rail system (OJ EU L 158 of 15 June 2016).
9.	TSI WAG	TSI WAG 2006 – Commission Decision of 28 July 2006 concerning the technical specifications of interoperability relating to the subsystem 'rolling stock – noise' of the trans-European conventional rail system (OJ EU L 344 of 8 December 2006); TSI WAG 2013 – Commission Regulation (EU) No 321/2013 of 13 March 2013 concerning the technical specification for interoperability relating to the subsystem 'rolling stock – freight wagons' of the rail system in the European Union and repealing Decision 2006/861/EC (OJ U. UE L 104 of 12 April 2013).
10.	TSI PRM	Commission Regulation (EU) No. 1300/2014 of 18 November 2014 on the technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility (OJ L 356 of 12 December 2014);
11.	Regulation on core network corridors	Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU (OJ L 348 of 20 December 2013).
12.	Sustainable Transport Development Strategy until 2030	Strategy for Sustainable Development of Transport until 2030
13.	Strategy for ERTMS deployment at the European level	Commission Implementing Regulation (EU) 2017/6 of 5 January 2017 on the European Rail Traffic Management System European deployment plan (OJ L 3 of 6 January 2017).
14.	Strategy for ERTMS deployment at the national level	National deployment plan for technical specification of interoperability related to the control-command and signalling of June 2017, with supplements.
15.	Public Transport Act	the Act of 16 December 2010 on public collective transport (Journal of Laws of 2017, item 2136, as amended).
16.	Rail Transport Act	the Act of 28 March 2003 on Public Collective Transport (Journal of Laws of 2017, item 2117, as amended).
17.	Regulation on providing access to railway infrastructure	Regulation of the Minister of Infrastructure and Construction of 7 April 2017 on providing access to railway infrastructure (Journal of Laws of 2017, item 755).
18.	Regulation on rail undertaking insurance	Regulation of the Minister of Development and Finance of 25 May 2017 on insurance of a railway undertaking (OJ Laws of 2017, item 1033 of 25 May 2017).

Other terms

1.	CEF	Connecting Europe Facility
2.	*change request*	change request
3.	ECM	entities in charge of rolling stock maintenance
4.	ERTMS	European Rail Traffic Management System
5.	SEPE, e-SEPE	Electronic System for Recording Operational Performance
6.	ESC	ETCS system compatibility
7.	ETCS	European Train Control System
8.	ETCS L1 LS	ETCS Level 1 Limited Supervision
9.	EMU	electric multiple unit
10.	GSM-R	GSM for Railways
11.	KKZ	Rail Replacement Services
12.	KPW	National Implementation Plan
13.	License	an entity's authorisation to perform the function of a railway undertaking in the Republic of Poland and other EU Member States or member states of the European Free Trade Association (EFTA) – parties to the agreement on the European Economic Area
14.	NVR	National Vehicle Register
15.	pas-km	passenger-kilometre
16.	PI2022	Investment Plan of PKP PLK S.A.
17.	train-km	train-kilometre
18.	OPI&E	Infrastructure and Environment Operational Programme
19.	RBC	radio control system
20.	RBC Handover	The passing from one RBC to an adjacent RBC operated under the ETCS
21.	RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
22.	timetable	train timetable
23.	RSC	radio system compatibility
24.	SZT	diesel multiple unit
25.	TEU	an equivalent of a 20-foot unit; 1 TEU means 1 container with a length of 20 feet
26.	tonne-km	tonne-kilometre
27.	RES	Renewable energy sources

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