



# PKP POLSKIE LINIE KOLEJOWE S.A.

Zarządca narodowej sieci linii kolejowych



# 2015

Annual Report



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**Ireneusz Merchel, President of the Management Board of PKP Polskie Linie Kolejowe S.A.**

*To whom it may concern,*

*We provide our partners and all those interested in railway infrastructure with another Annual Report of PKP Polskie Linie Kolejowe S.A., the manager of the national railway network. This report substantively presents all aspects of the Company's activities. We believe that, as in previous years, this publication will be an important message and provide information for substantive dialog. Furthermore, it will allow to supplement knowledge regarding the condition, maintenance, modernization upgrading and development perspectives of railway infrastructure in Poland.*

*Year 2015 saw subsequent measures being introduced with the aim to ensure that the national railway network remains an important component of the transport system in Poland and fits in well within the European railway routes. PKP Polskie Linie Kolejowe S.A. wishes to provide railway operators with the highest quality services in order to ensure high levels of satisfaction among passengers, consignors and consignees.*

*In 2015, the Company focused on utilizing the funds under the financial framework 2007-2013, whereas currently it needs to face another challenge consisting in the implementation of the National Railway Program, which amounts to more than PLN 66 billion.*

*In the past year, passengers were presented with additional travel routes, more comfortable conditions – modernized stations and stops, railway lines and railway structures ensuring faster travel times of passenger and freight trains. PLK improves cooperation with operators and develops modern tools to ensure that passengers are serviced efficiently and provided with comfortable conditions. The modernization of infrastructure through the installation of modern control command and signalling (CCS) equipment, level crossing security measures and monitoring systems on the railway network also contributed to a higher level of security. At PKP Polskie Linie Kolejowe S.A., this area of responsibility is under special supervision and covers actions related to the personnel, organizational and technical area. Through the development of the safety culture, year 2015 was yet another safest year in the several years since the organization has begun its operation.*

*The national railway manager faces another important year and the implementation of tasks under the financial framework 2014-2020. Apart from supplementing good, attractive connections on passenger routes, we also focus on developing the freight transport infrastructure by preparing good routes from Silesia to the Baltic Sea and from the East to the West. PKP Polskie Linie Kolejowe S.A. can also see the need to develop railway lines in agglomerations, therefore – using funds from regional operating programs – we cooperate with individual voivodeships to ensure that regional railway networks are consistent and well integrated with national connections.*

*Having regard to substantial modernization covering thousands of kilometers of tracks, we remember that the primary task of PKP Polskie Linie Kolejowe S.A. is to efficiently manage railway traffic according to the timetable agreed with railroad undertakings. Therefore, when preparing investments and implementing tasks, we plan passenger and freight transport routes in advance, so as to find the best possible solutions for our clients. With each passing year, the effects of our actions will become more visible and will bring benefits to both our clients and the economy with even better results.*

*We wish you a good reading.*

*Ireneusz Merchel*

*President of the Management Board of PKP Polskie Linie Kolejowe S.A.*

# Members of the Management Board and the Supervisory Board

## Management Board:

1. **Ireneusz Merchel**  
President of the Management Board
2. **Vacant**  
Vice President of the Management Board – Director for Operational Affairs
3. **Radosław Celiński**  
Member of the Management Board – Director for Financial and Economic Affairs
4. **Antoni Jasiński**  
Member of the Management Board – Director for Infrastructure Maintenance
5. **Włodzimierz Żmuda**  
Member of the Management Board – Director for Quality Management and Operational Risk
6. **Arnold Bresch**  
Member of the Management Board - Director for Investment Implementation

## Supervisory Board:

1. **Mariusz Andrzejewski** - Chairman of the Supervisory Board
2. **Artur Kawaler** - Secretary of the Supervisory Board
3. **Piotr Gebel** - Member of the Supervisory Board
4. **Wiesław Pełka** - Member of the Supervisory Board
5. **Jan Piechel** - Member of the Supervisory Board
6. **Jakub Kapturzak** - Member of the Supervisory Board
7. **Ryszard Stopa** - Member of the Supervisory Board

(as of November 22, 2016)

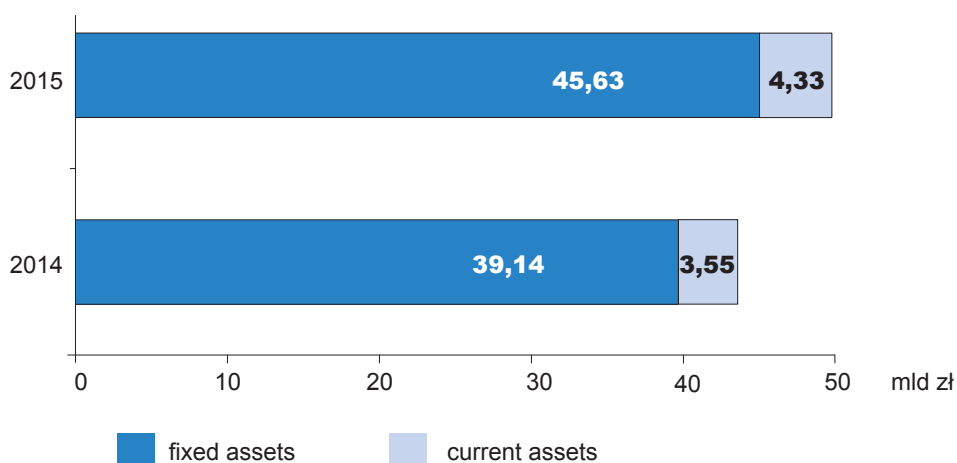
## Financial result

The Company's economic and financial situation was assessed based on financial reports representing the status as of December 31, 2015.

### Company assets

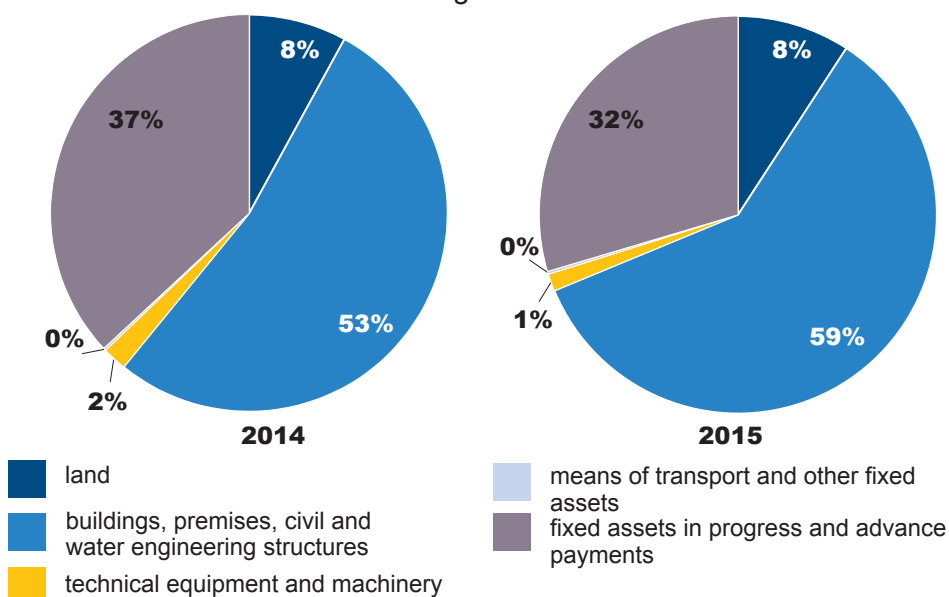
The book value of the assets owned by PKP Polskie Linie Kolejowe S.A. as of December 31, 2015 amounted to PLN 49,958.3 million and was 17% higher than in 2014.

The assets of PKP Polskie Linie Kolejowe S.A. in 2014-2015



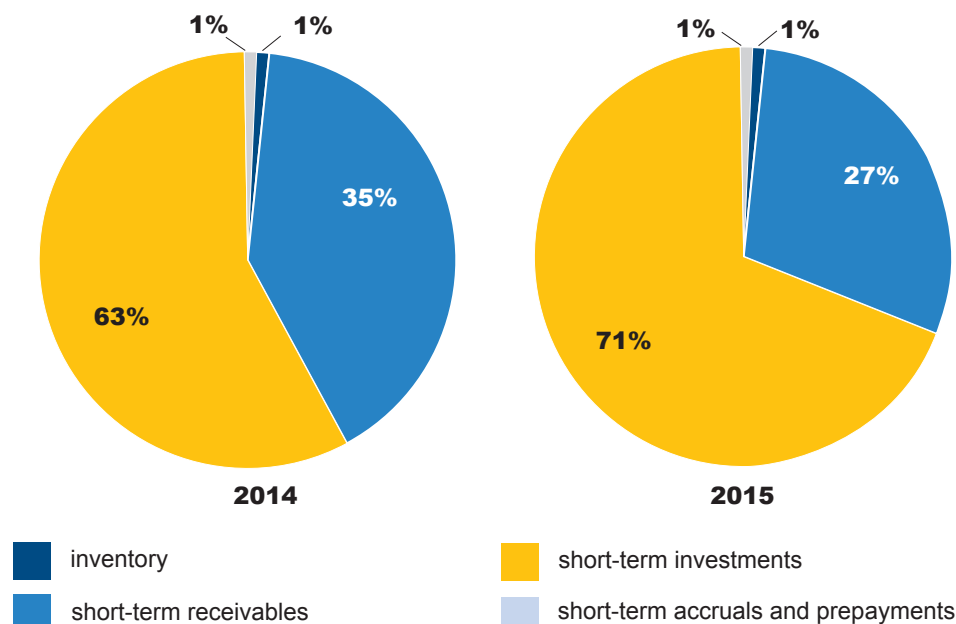
The structure of what the Company owns is asset-based, which is typical for railway infrastructure managers. It mostly comprises buildings, premises, civil and water engineering structures. In 2015, the Company's fixed assets comprised more than 91% of its total assets. Over the financial year, fixed assets grew by approx. 17%, mainly due infrastructure modernization works, i.e. investments that have been completed and commissioned on railway lines.

The structure of tangible assets in 2014-2015



The current assets of PKP Polskie Linie Kolejowe S.A. in 2015 amounted to 9% of all assets. Their book value grew by 22% when compared to the year 2014. This growth has been primarily the result of an increase in funds, resulting mainly from funds obtained from the European Union for investment projects, including for the implementation of the Operational Programme Infrastructure and Environment (OPI&E), loans granted by the European Investment Bank (EIB) for financing and pre-financing railway line modernization and bonds for pre-financing investment projects.

Structure of current assets in 2014-2015



In 2015, PKP Polskie Linie Kolejowe S.A. held shares reported as long-term investments in the following subsidiaries:

1. Przedsiębiorstwo Napraw i Utrzymania Infrastruktury Kolejowej w Krakowie Sp. z o.o. (100% of shares in share capital);
2. Dolnośląskie Przedsiębiorstwo Napraw Infrastruktury Komunikacyjnej DOLKOM Sp. z o.o. we Wrocławiu (100% of shares in share capital);
3. Zakład Robót Komunikacyjnych - DOM w Poznaniu Sp. z o.o. (100% of shares in share capital);
4. Pomorskie Przedsiębiorstwo Mechaniczno-Torowe Sp. z o.o. with its registered office in Gdańsk (100% of shares in share capital);

The balance value of the assets in question as of December 31, 2015 was PLN 124.6 million.

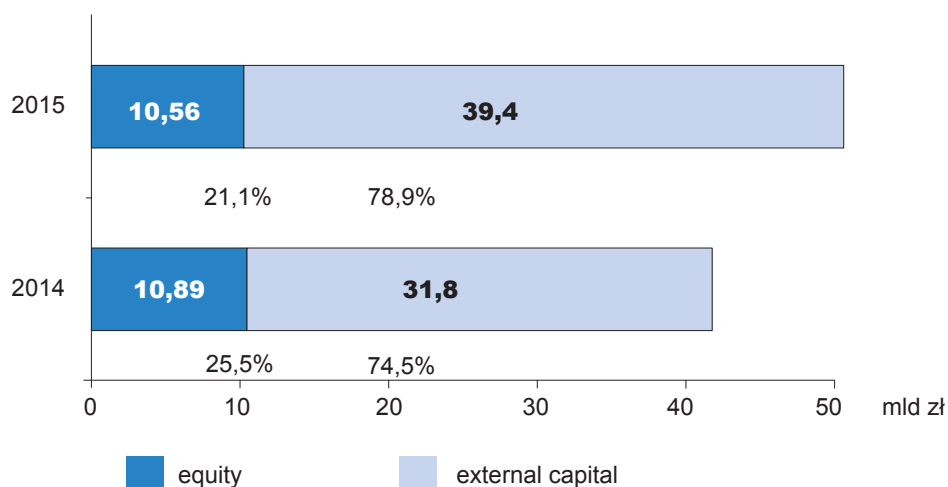
The maintenance and repair companies are the necessary potential of PKP Polskie Linie Kolejowe S.A. that is used to:

1. maintain the required technical parameters of tracks;
2. perform modernization and replacement investments on railway stations and railway routes;
3. respond rapidly to the need to carry out construction work in emergency situations.

In addition, pursuant to the agreement on holding shares in usufruct signed in 2014 with PKP S.A., PKP Polskie Linie Kolejowe S.A. hold 171 622 shares of PKP Utrzymanie sp. z o.o., established as a result of the division of TK Telekom Sp. z o.o.

## Source of assets financing

The source of financing assets of PKP Polskie Linie Kolejowe S.A. in 2014-2015

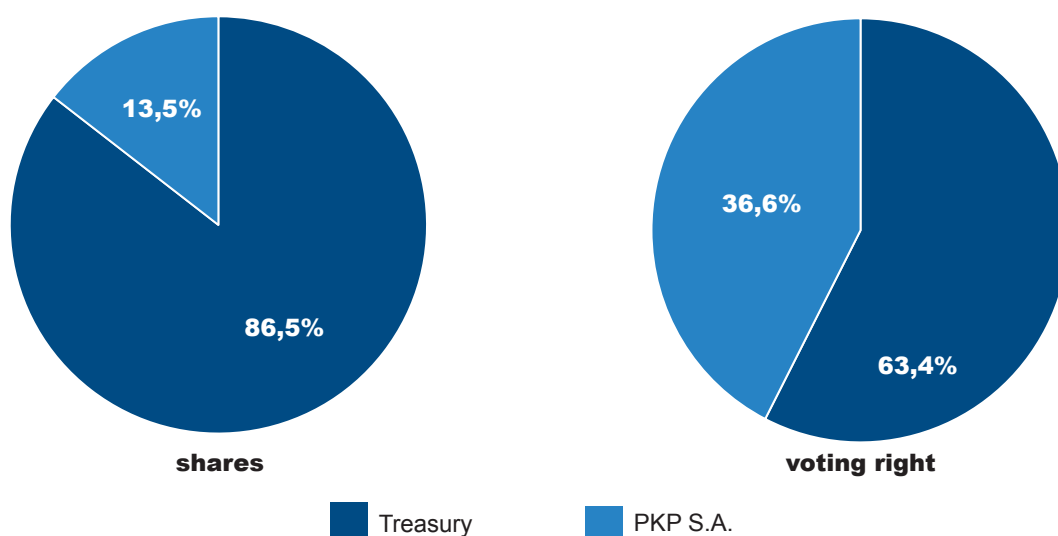


## Equity

In 2015, the Company's equity made up approx. 21% of its assets; in comparison to 2014, it grew by almost 4%.

In 2015, the share capital has been increased by an amount equivalent to state budget expenditures for 2013 and 2014, earmarked for financing railway lines of state importance, and by the in-kind contribution made by PKP S.A., comprising the right of perpetual usufruct of land and the title to the buildings and structures thereon; the increased share capital amounted to PLN 16,684.8 million.

Shareholder structure as of December 31, 2015 (shares vs. votes)

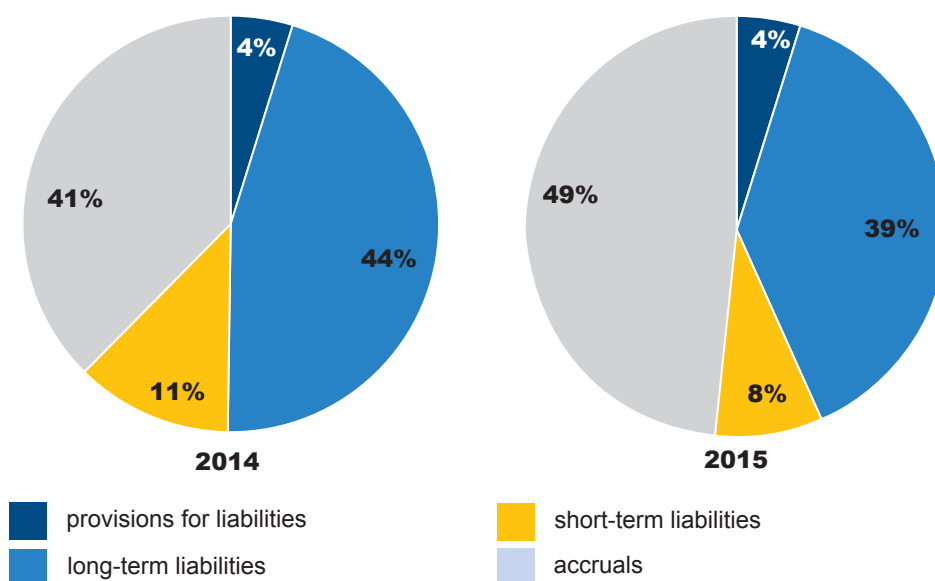




## External capital

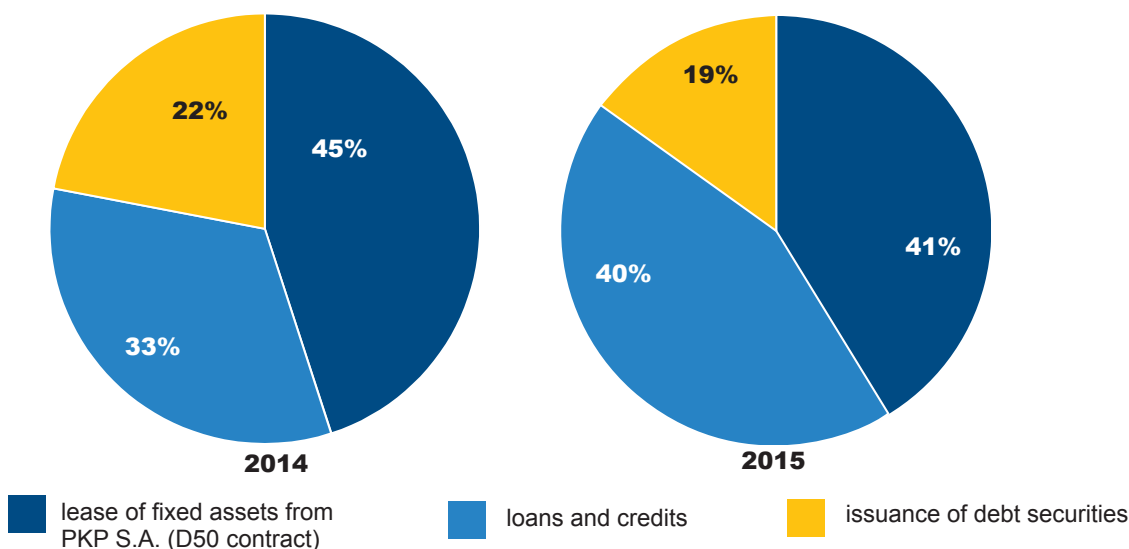
In 2015 external capital was the main source of financing assets of PKP Polskie Linie Kolejowe S.A. just like in previous years. The share of external capital in financing the Company's assets increased in 2015 (when compared to 2014) by over 4 percentage points (p.p.) as a result of higher long-term prepayments and accruals in respect of funds obtained from the European Union, the Railway Fund and subsidies for financing the modernization of railway infrastructure. In addition, an increase has been recorded in long-term liabilities in relation to investment loans taken to co-finance and pre-finance the modernization of railway lines and due to an increase in the value of tangible fixed assets acquired for use from PKP S.A. against payment.

Structure of external capital in 2014-2015



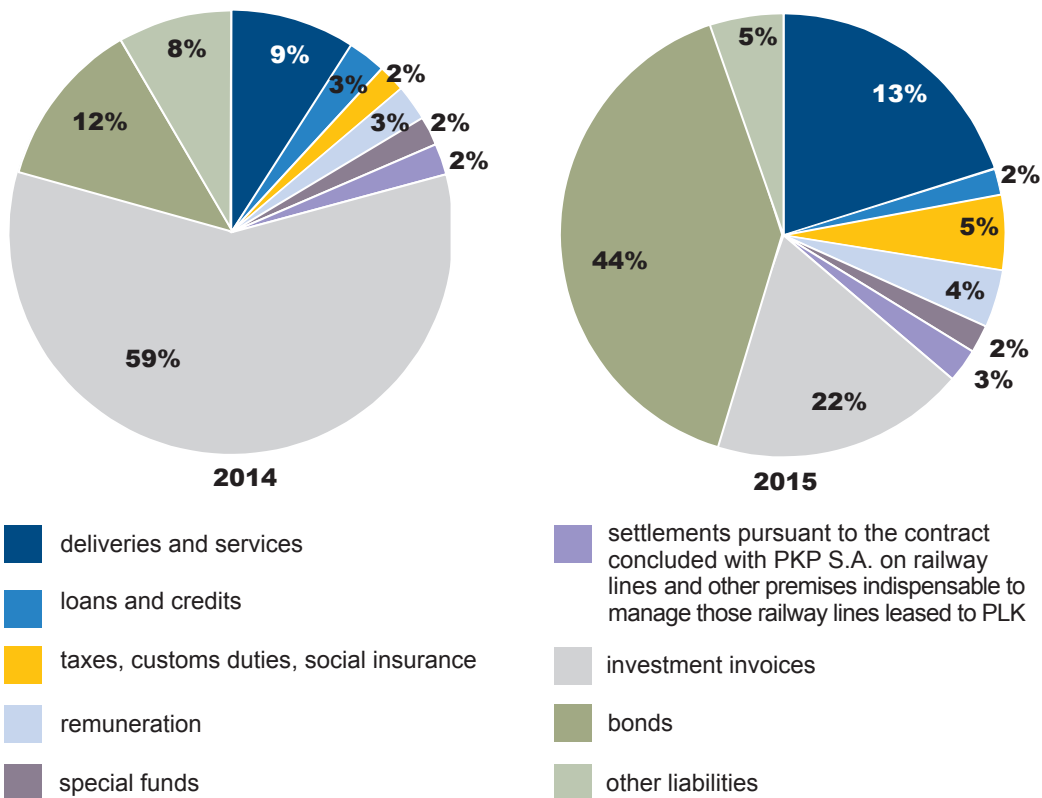
As of December 31, 2015, the long-term liabilities amounted to PLN 15,426.8 million. Approximately 41% of these liabilities comprised the liabilities from the contract concluded with PKP S.A. in 2001 for the lease of railway lines for use against payment along with other real property required to manage these railway lines (contract D50-KN-1L/01). The loans extended by the EIB for co-funding and pre-financing the modernization of railway lines amounted to 40% of the liabilities, while the bonds issued for investment purposes amounted to 19% of the liabilities.

Structure of long-term liabilities in 2014-2015



Short-term liabilities as at the end of 2015 amounted to PLN 3,206.9 million and were lower than in the preceding year by approx. 13%. The recorded increase in short-term liabilities resulted from the payment of invoices for investment works related to the modernization of railway infrastructure (covered mainly by EU and state budget funds and from EIB loan instalments disbursed), settled works and services, non-invoices fixed assets in construction as well as settlements in respect of tender securities and guarantee deposits.

Structure of short-term liabilities in 2014-2015



## Economic-financial results

Financial results of the economic activity of PKP Polskie Linie Kolejowe S.A., in mln PLN.

No.	Item	2014	2015	Difference	
				Value	%
1.	Revenues from sales and equivalent	4 897,2	4 754,6	-142,6	-2,9
2.	Operating costs	5 144	5 528,1	384,1	7,5
3.	<b>Result on sales</b>	<b>-246,8</b>	<b>-773,5</b>	<b>-526,7</b>	<b>-213,4</b>
4.	Other operating revenue	516,7	876	359,3	69,5
5.	Other operating costs	349,3	446,2	96,9	27,7
6.	<b>Result on other operating activity</b>	<b>167,4</b>	<b>429,8</b>	<b>262,4</b>	<b>156,8</b>
7.	<b>Result on operating activity</b>	<b>-79,4</b>	<b>-343,7</b>	<b>-264,3</b>	<b>-332,9</b>
8.	Financial revenue	69,7	97,2	27,5	39,5
9.	Financial costs	137,8	105,2	-32,6	-23,7
10.	<b>Result on financial operations</b>	<b>-68,1</b>	<b>-8</b>	<b>60,1</b>	<b>88,3</b>
11.	<b>Gross/net profit (loss)</b>	<b>-147,5</b>	<b>-351,7</b>	<b>-204,2</b>	<b>-138,4</b>
12.	<b>Result excluding depreciation and amortization</b>	<b>848</b>	<b>755,5</b>	<b>-92,5</b>	<b>-10,9</b>

The financial result achieved in 2015 was lower than the one achieved in 2014 by PLN 204.2 million, i.e. 38.4%. The main reason for the financial loss was the decrease in state budget subsidy for PKP Polskie Linie Kolejowe S.A. and an increase in provisions established to cover claims of contractors responsible for the performance of investment works.

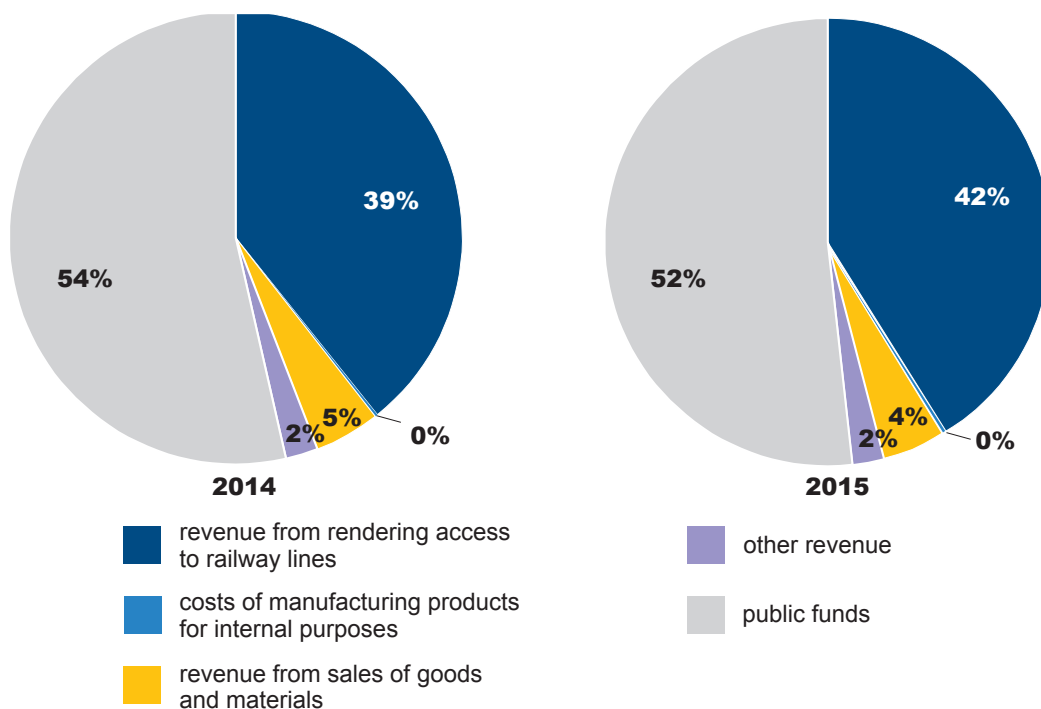
Taking into account the high value of the fixed assets and the related depreciation costs, the financial result on operating activity – if this cost was deducted – would be positive, amounting to PLN 756 million.

In 2015, the Company's income from business activity amounted to PLN 5,727.8 million covered more than 94% of the costs it had incurred. The highest position in total income is held by sales revenue and equivalent, including public funds and revenue from rendering access to railway lines to licensed passenger and freight operators.

The obtained value of public funds was 3% lower compared to the value obtained in 2014 due to a decrease of the state budget subsidy by the ministry competent for transport and due to the transfer of a portion of funds from the subsidy for the purposes of Agencja Rozwoju Przemysłu S.A. with the aim to support the process of restructuring "Przewozy Regionalne" Sp. z o.o. Funds obtained under the state budget subsidy have been earmarked for financing management costs, including for the implementation of maintenance and renovation tasks, thus contributing inter alia to the improvement of operating safety, increase in train speeds, maintenance of proper traffic flow on railway lines, and enhancement of their appearance.

Revenue from leasing the railway lines amounted to PLN 1,997.7 million in 2015 and was approx. 4% higher than in 2014. The recorded increase resulted from higher operating performance of passenger operators – by 6.6% – due to putting the modernized Warsaw – Gdańsk section into operation.

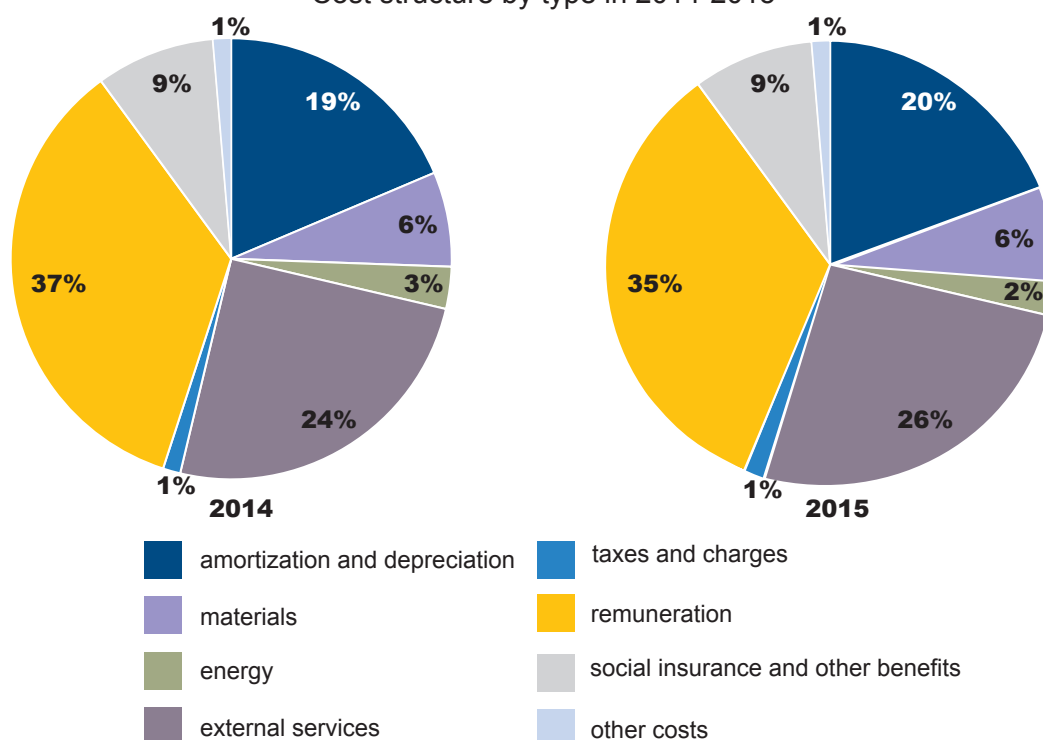
Sales revenue and equivalent in 2014-2015



At the same time, in the financial year 2015 the Company's other operating revenue was approx. 70% higher than in 2014 as a result of the release of write-offs of receivables from "Przewozy Regionalne" Sp. z o.o. in relation to the repayment of outstanding claims, the settlement of subsidies obtained for financing the constructions of fixed assets, written-off concurrently with write-offs on these funds, and as a result of obtaining funds from bank guarantees in relation to the improper performance of agreements by contractors responsible for investment works.

As result of its business activity, in 2015 the Company incurred costs amounting to PLN 6,079.5 million, which were 8% higher than in the previous year. Labor costs represented more than 40% of these costs.

Cost structure by type in 2014-2015



The increase in operating costs in 2015, as compared to 2014, can be observed for such items as:

1. depreciation – due to higher deductions from expenses on fixed assets settled in 2015;
2. materials and external services – in relation to the implementation of a more extensive scope of maintenance and repair works, such as: replacement of tracks, level crossings, turnouts, repair of engineering structure used to ensure the proper level of safety and elimination of speed restrictions on railway lines, and in relation to a higher number of court proceedings concerning investments implemented by PKP Polskie Linie Kolejowe S.A.;
3. labor costs – in consequence of raises in remuneration and a higher level of employment.

On the basis of the index analysis, it was found that in 2015 the Company complied with its commercial obligations, paid remunerations on time as well as met other public law obligations. It successfully sought its claims, as a result of which the period for the recovery of receivables in respect of deliveries and services has been reduced to 9 days. The Company's financial liquidity has also improved, which stems from the repayment of liabilities by the largest debtor, timely payments made by counterparties for use of railway infrastructure and subsidies obtained from public funds. In addition, PKP Linie Kolejowe S.A. did not have any difficulties in servicing instalments and interest, as evidenced by the debt servicing index being 2.7 p.p. higher than in 2014.

# Train path sales

## Timetable as the Company's primary product

PKP Polskie Linie Kolejowe S.A. is the manager of the national railway infrastructure to which it renders access based on unbiased agreements signed with licensed railway operators. Access is granted subject to the principles established in the Act on Railway Transport as well as in the regulation of the Minister competent for transport on the conditions of access to and use of railway infrastructure.

The basic product of PKP Polskie Linie Kolejowe S.A. is the timetable sold as train routes arranged upon the order of a railway operator. In 2015, a total of 2,354,171 train rides were performed, including on the basis of:

1. the Annual Timetable prepared on the basis of applications made by operators. It was updated during its validity period on pre-arranged dates – 1,576,249 train rides;
2. Individual Timetables developed by PKP Polskie Linie Kolejowe S.A. when there is some throughput available, upon request made by individual operators for train routes allocation – 777,922 train rides.

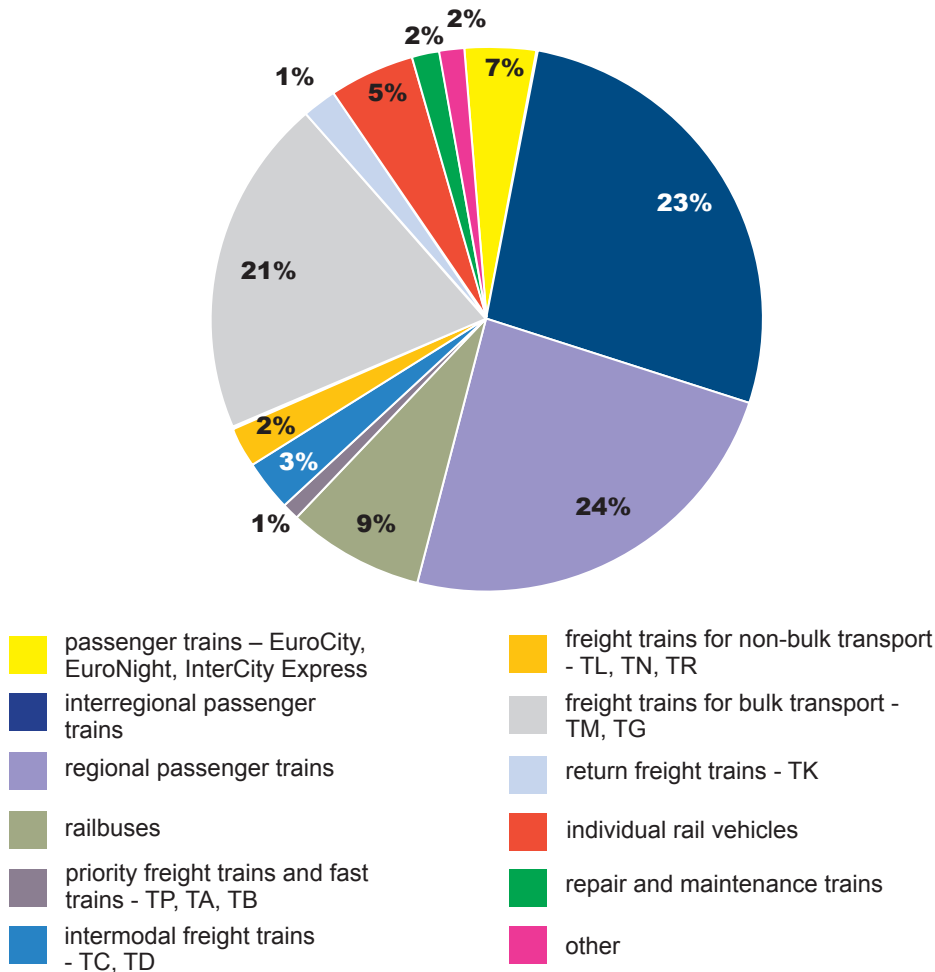
In 2015, the Company made its railway lines available to 84 operators, including 15 lines for passenger services, 65 lines for freight services and 4 for passenger & freight services. 5 new clients launched their business activity on the network managed by PKP Polskie Linie Kolejowe S.A.

The basic reference value in terms of measuring access to railway lines is operating performance expressed in train-kilometres [train-km]. In 2015, 211.57 million train-km were achieved, including 140.33 million train-km in passenger services and 71.24 million train-km in freight services.

In 2015, the Company recorded:

1. a 4.24% increase in total operating performance of its clients as compared to 2014 (freight services segment witnessed a decrease of 0.18%, while the passenger service segment – an increase of 6.64%);
2. a stable upward trend in transport services rendered by freight operators from outside the PKP Group, whose share in the entire freight transport segment grew from 37.21% in 2014 to 39.67% in 2015.

Structure of operating performance per train types in 2015



## Data concerning completed international carriages

As part of the Individual Timetables, 39,354 rides of international trains were organized (of which across the Czech border – 16,680, German border – 13,855, Belorussian border – 5,767, Slovakian border – 1,757, Ukrainian border – 620, Russian border – 506, Lithuanian border – 260), which is 15,5% more than in 2014 (34,063 runs). Within 24 hours, PKP Polskie Linie Kolejowe S.A. accepts and performs on average 138 orders for international trains as part of Individual Timetables. Most rides take place between Poland and Germany/ Czech Republic.

International transport services in cross-border traffic in 2015 were performed by 32 operators, who in most cases used the following border crossings: Rzepin - Oderbrücke (Poland - Germany), Zebrzydowice - Petrovice U Karvine (Poland - Czech Republic), Chałupki - Bohumin Vrbice (Poland - Czech Republic), Gubin - Guben (Poland - Germany), Szczecin Gumieńce - Tantow (Poland - Germany) and Międzyzylesie - Lichkov (Poland - Czech Republic).

To make it easier for the operators to use international train routes, the One Stop Shop (OSS) unit at PKP Polskie Linie Kolejowe S.A., which is part of the international OSS network within the association of European railway infrastructure managers RailNetEurope (RNE), offers comprehensive information about the conditions that need to be met to obtain access to the RNE members' infrastructure as well as to the services and products they have on offer. A client who is interested in an international train ride may turn to one of the OSS, which will then take over the process of allocation along the entire train route.

PKP Polskie Linie Kolejowe S.A. cooperates with neighbouring railway infrastructure managers in terms of annual and individual timetables in both passenger and freight traffic. Cooperation with RŽD (Russia), LG (Lithuania), BC (Belarus) and UZ (Ukraine) railways is based on bilateral agreements, while with DB Netz (Germany), SŽDC (the Czech Republic) and ŽSR (Slovakia) – on bilateral agreements and regulations of international organizations. Trains rides under Individual Timetables are arranged in a separate way:

1. between PKP Polskie Linie Kolejowe S.A. and DB Netz AG, SŽDC and ŽSR – they are based on a common procedure (24h/day, through agencies of the Railway Traffic Management Centre being coordinated in Warsaw);
2. for the remaining infrastructure managers – through the One Stop-Shop unit at the Railway Traffic Management Centre in Warsaw.

## Operation systems

The primary system used at the Railway Traffic Management Centre is the Operating Performance Registration System (SEPE). It cooperates with approx. 30 systems used by PKP Polskie Linie Kolejowe S.A. and systems owned by railway operators.

The source of data for the system is data concerning the performance of the timetable obtained from the following sources:

1. The Train Dispatcher Support System (SWDR) in which train dispatchers record times at which trains pass through their posts within an average time of approx. 3 minutes after the train has passed through;
2. GPS transmitters installed on traction vehicles of railway operators;
3. data from Local Control Command and Signalling Centres (LCS, the so-called “track signal”);
4. data registered in SEPE by line dispatchers based on information from train dispatchers.

Apart from data on the current location of trains, SEPE also registers data on reasons for delays along with an indication of the entity responsible for the delay, events occurring on the network managed by the Company, planned and emergency track closures.

Data collected in SEPE is used in the exploitation process on an ongoing basis. It is also used for analytical purposes and as basis for settlements with operators for using railway infrastructure and for the quality of services provided.

Information on the current location of trains, delays and reasons for such delays as well as events occurring on the railway network are presented in the Crisis Management Centre Map (CMC Map) application constituting the primary tool in crisis situations. The CMC Map is also used in the exploitation process on an ongoing basis.

The application used to monitor international train traffic is the Train Information System (TIS), which collects and presents data on trains running on railway networks in most EU Member States.

Thanks to the involvement of the employees of PKP Polskie Linie Kolejowe S.A. and cooperation with representatives of European Traffic Management Centres under RNE, an additional functionality of TIS in the form of the TCCCom module has been developed. This module, operating as a communicator, allows for an electronic exchange of information on train traffic and operation between European Traffic Management Centres.



Applications described above (apart from TIS) have been developed by PKP Polskie Linie Kolejowe S.A. using own means, which significantly facilitated the software development and implementation process.

In 2015, a project entitled "Development of a design, performance and implementation of an IT solution titled SEPEII – Operating Performance Registration System v. II" has been launched; the new system is planned to replace the SEPE system currently in use.

# Infrastructure

## Rail roads

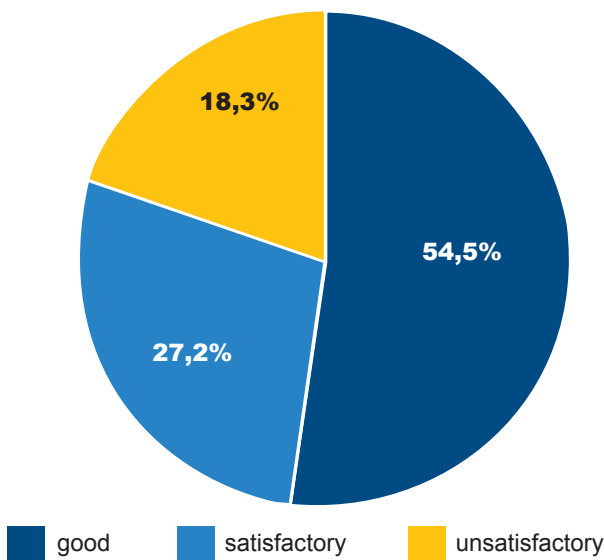
In 2015, the length of railway lines in use changed compared to data for the previous year. The modification was a result of the need to adapt infrastructure to the changing transport needs.

List of railway infrastructure in use, managed by PKP Polskie Linie Kolejowe S.A. (as at 31 December 2015):

1. 18,510 km of railway lines (36,218 km of tracks), including:
  - 27,115 km of route tracks and main principal tracks at stations;
  - 9,103 km of station tracks.
2. 39,988 turnouts, including:
  - 17,894 turnouts in route tracks and main principal tracks;
  - 22,094 turnouts in station tracks.
3. 14,889 level crossings, including on active railway lines: a total of 12,744, including level crossings of cat.:
  - A - 2,458 items;
  - B - 1,045 items;
  - C - 1 371 items;
  - D - 6,801 items;
  - F - 584 items;
  - pedestrian crossings of cat. E - 485 items.
4. 25,303 engineering structures, including 6,400 bridges and viaducts;
5. 6,160 buildings;
6. 13,129 structures.

## Road infrastructure technical condition

As a result of the maintenance and repair work as well as investment tasks performed in 2015, the length of railway line tracks graded as good in terms of technical condition (as at 31 December 2015) represented 54.5% of the total track length, which is a 2.5% increase in comparison to the status as at 31 December 2014. 52% of tracks was graded as being in good technical condition in 2014.

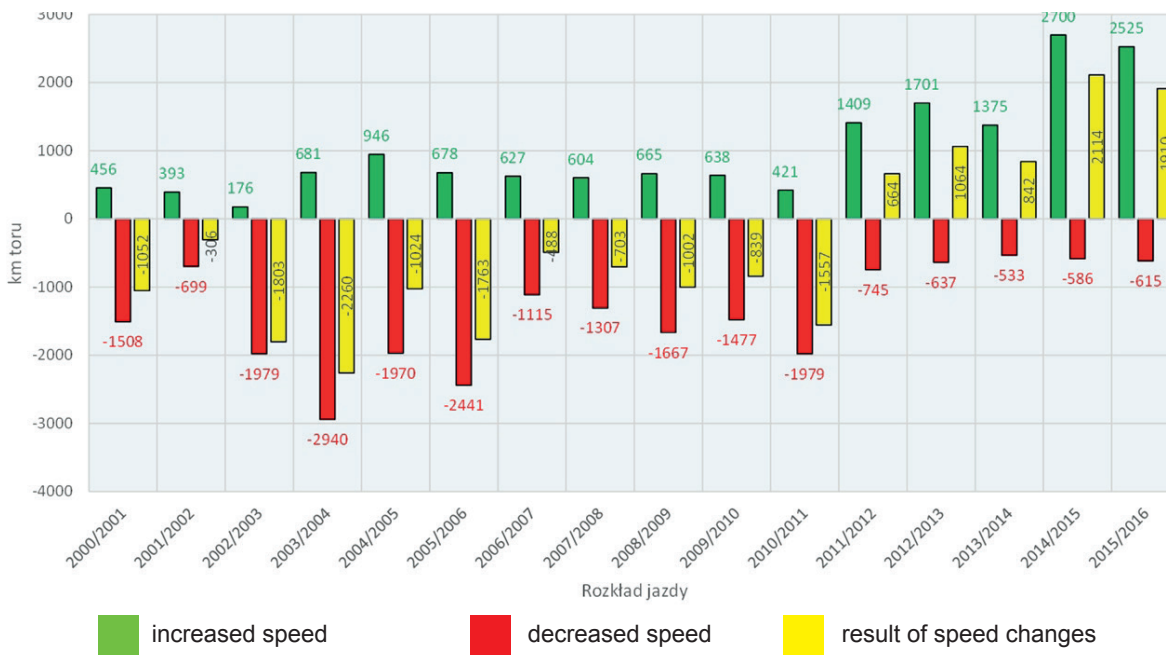


The diagram above was developed based on the following criteria:

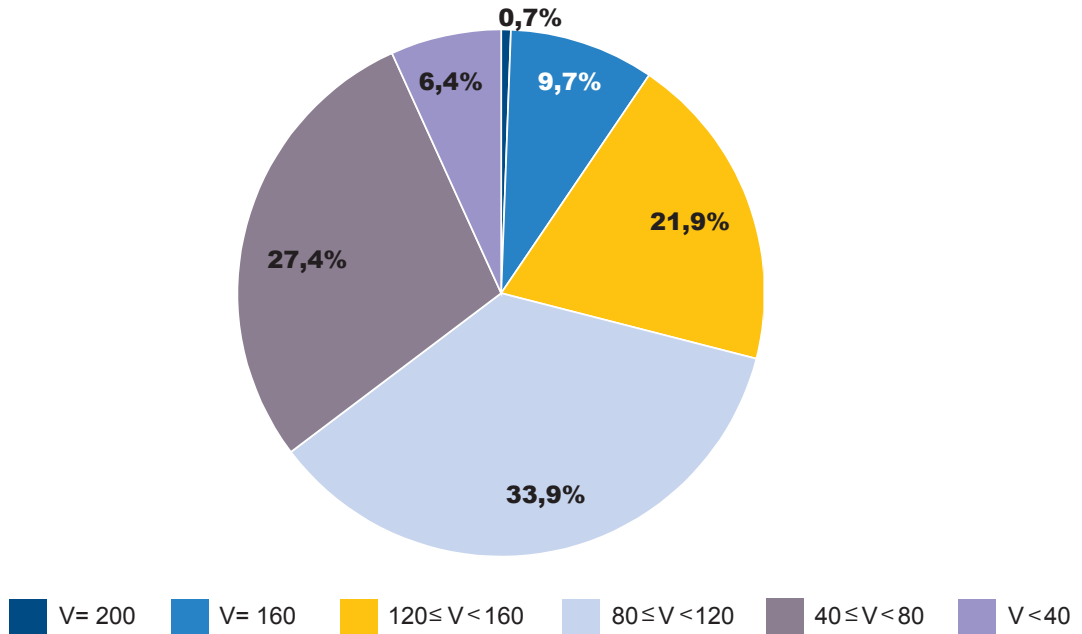
1. good - railway lines operated in line with the assumed parameters, only maintenance work is required;
2. satisfactory - railway lines with lower operation parameters (reduced top timetable speed, local speed limits); to restore the maximum operational parameters, in addition to maintenance work, ongoing repairs are required comprising replacement of faulty track elements;
3. unsatisfactory - railway lines of significantly lower operation parameters (low timetable speeds, large number of local speed limits, lower permissible loads), which qualify railway tracks for comprehensive replacement.

The effect of improved technical condition of tracks was the higher top timetable speed in the Train Timetable 2015/2016 for passenger trains on 2,525 km of tracks, and decreased speed on 615 km of tracks.

The length of operated railway line tracks managed by PKP Polskie Linie Kolejowe S.A. where top timetable speeds were changed (as at day when the Train Timetable became effective)



Percentage structure of top timetable speeds as at the day when the Train Timetable 2015/16 became effective



The Company's successes also include the continuing stable growth in the length of tracks with a top timetable speed of  $V \geq 160$  km/h. As at the end of 2015, the length of such tracks amounted to 2,813 km, compared to 2,568 km as at the end of 2014. As of December 2015, pursuant to the Train Timetable 2015/16, passenger trains on railway line No. 4, Grodzisk Mazowiecki - Zawiecie (central trunk line), travel regularly with the timetable speed of  $V = 200$  km/h.

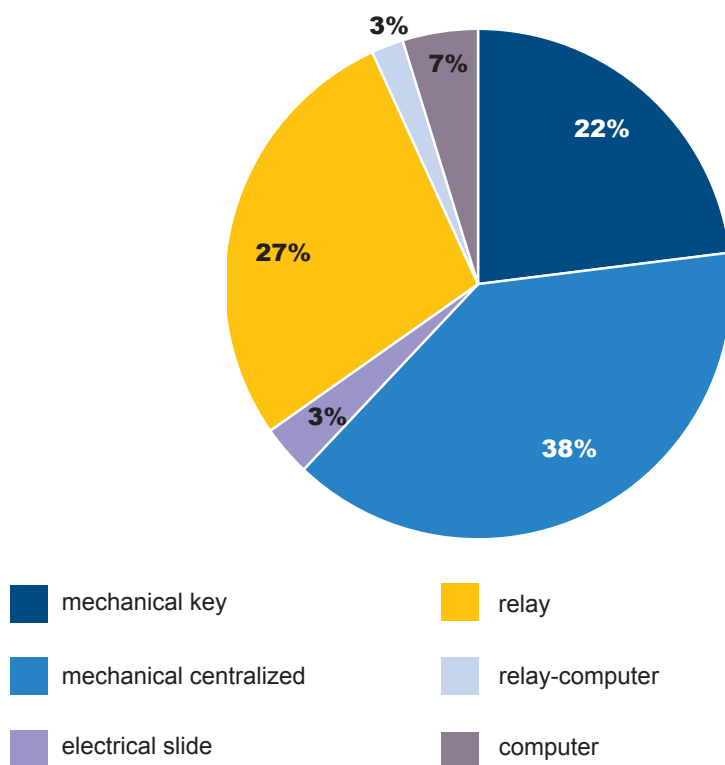
## Automatics and Telecommunication

Control command and signalling (CCS) systems can be divided into three basic functional groups:

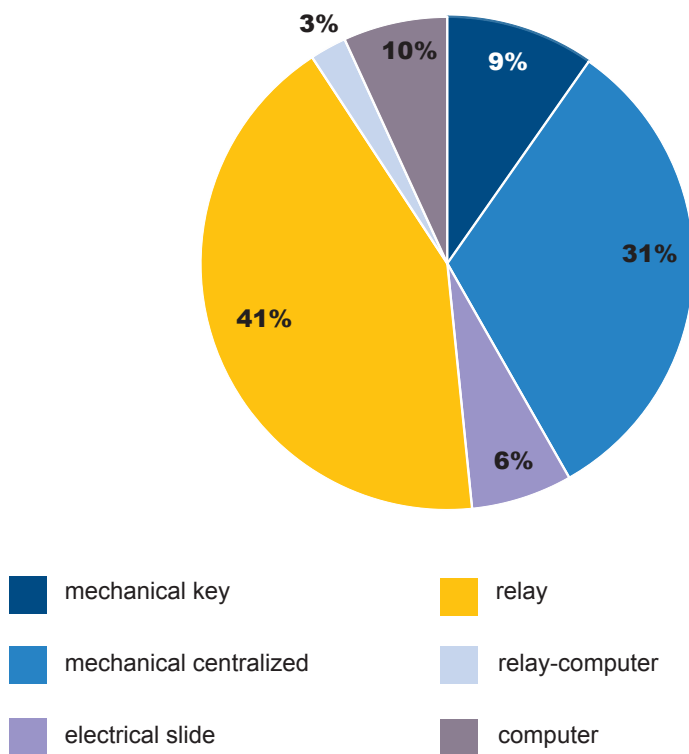
1. station equipment installed at operating control points;
2. wayside equipment controlling train traffic on railway routes;
3. traffic safety equipment at railway crossings.

The above-mentioned systems still predominantly use relay and mechanical equipment. However, the dynamic development of IT technology has resulted in its vast application in CCS and automatic control systems. The latest generation of CCS equipment comprises computer systems and relay-computer (hybrid) systems which combine cutting-edge features, reliability and extended functionality in addition to ensuring a high level of traffic safety. Computer systems responsible for CCS are installed in 215 signal box control areas and they control 4,829 switches and 5,772 light signals. Remote control devices cover 1,126 km of railway lines and 109 railway stations, on which safe train rides are monitored by 31 local control command and signalling centres.

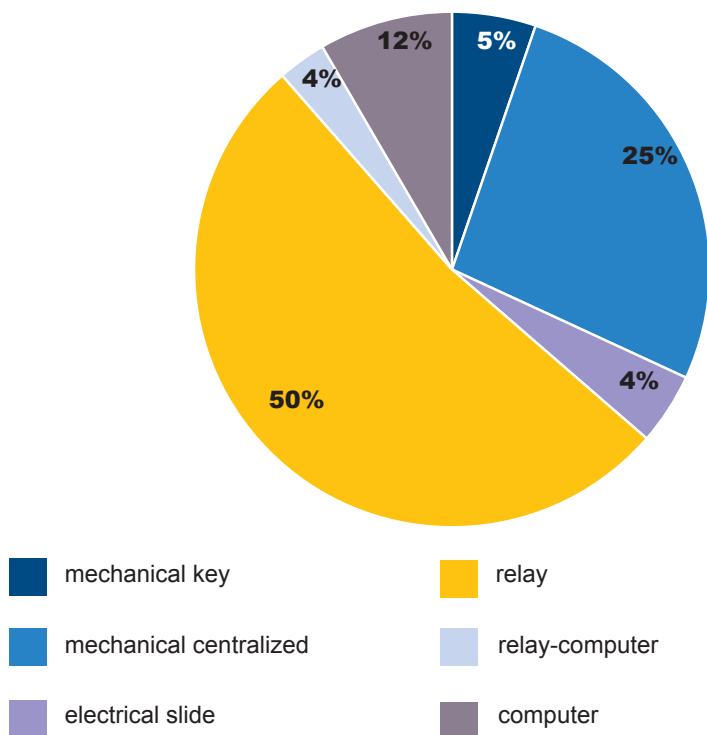
The signal box control areas are equipped in various types of station traffic control command and signalling equipment



Switches in various types of station traffic control command and signalling equipment



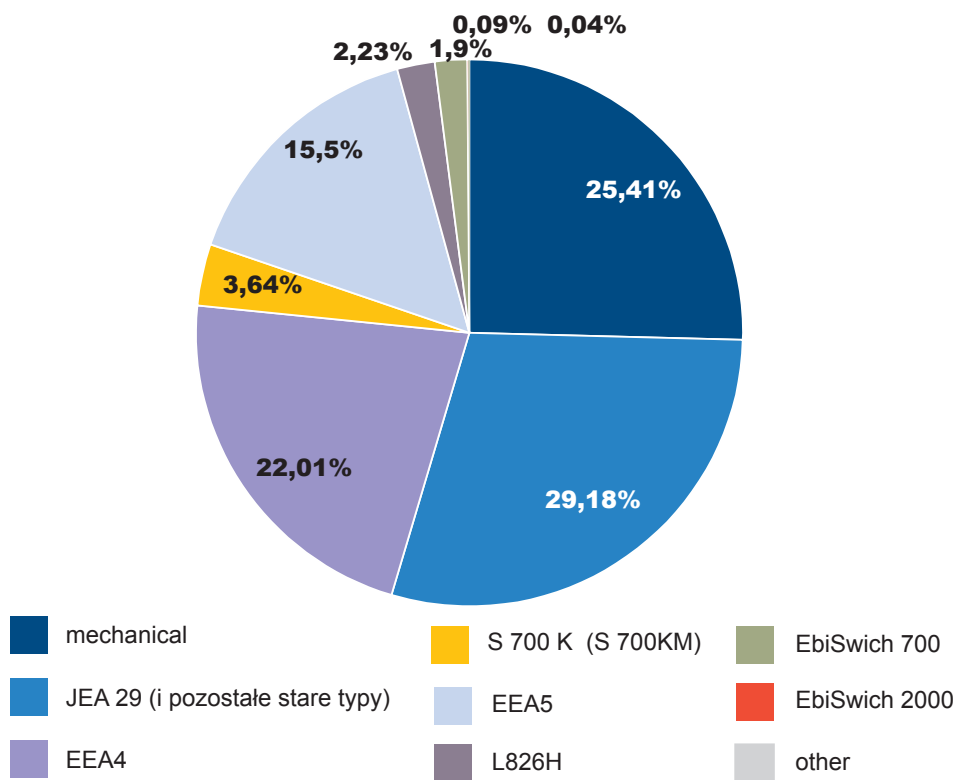
Light signals in various types of station traffic control devices



Point machines also play an important role in safe and efficient rail traffic management. In 2015, comprehensive repair has been completed on 100 point machines.

As at 31 December 2015, a total of 39,356 mechanical and electrical point machines (of which 74.6% represents electrical point machines and 25.4% represents mechanical point machines) have been used on the railway line network managed by PKP Polskie Linie Kolejowe S.A. The share of individual types of point machines in the total number of point machines has been presented in the chart below.

Types of point machines used

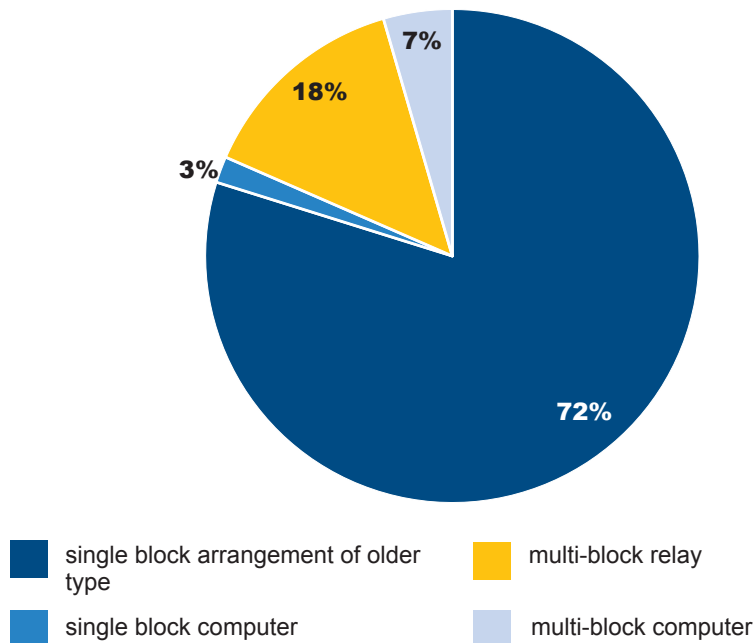


Groups of railway traffic control devices in numbers

No.	Station equipment	As at 31 December 2015		
		Signalling centre control area	Switch	Signalling device
1.	Mechanical key	666	4 401	2 339
2.	Mechanical centralized	1 116	14 427	11 615
3.	Electrical slide	91	2 898	1 948
4.	Relay	802	19 179	23 112
5.	Relay-computer	76	1 239	1 720
6.	Computer	215	4 829	5 772
7.	In Total	2 966	46 973	46 506

The safety of train rides between operating control points is ensured by block signalling systems – single block and multi block – which have been installed on 15,880 km of railway lines. Single-block systems are predominant on railway lines managed by PKP Polskie Linie Kolejowe S.A. – 12,708 km of railway lines have them, while 618 km have systems utilizing latest computer-controlled technologies. Multi-block systems have been installed on 3,172 km of railway lines, of which 1,245 are computer-based blocks, featuring integrated remote diagnosis systems, controlling and recording technical and operational parameters of the system.

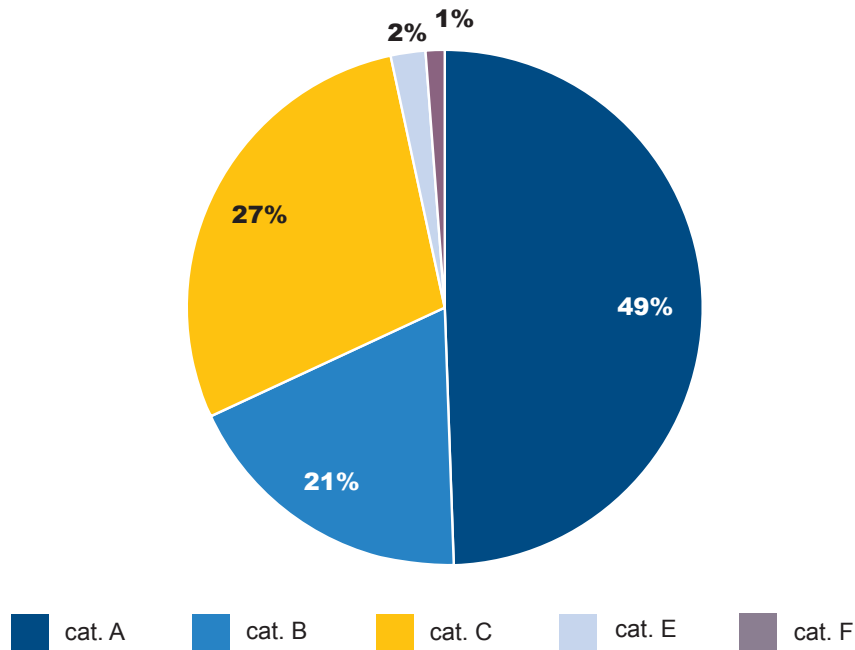
Types of signalling block systems



The railway line network managed by PKP Polskie Linie Kolejowe S.A. features 12,900 level crossings, with 5,127 crossings equipped in traffic safety equipment, which represents 39.7% of all level crossings.

The computer technology is also used in traffic safety equipment installed on level crossings. The new generation of equipment used at crossings is controlled by microchips and feature auto-diagnostic systems, systems that register all operation events as well as solutions controlling the operation of the entire system. The intersections of railway lines managed by PKP Polskie Linie Kolejowe S.A. and public roads are equipped with 1,558 sets of such modern technical solutions, installed on category A, B, C and E crossings, which represents 30.4% of all types of crossing equipment used.

Division of level crossings equipped in traffic safety equipment by individual categories



In order to ensure a high level of operating safety, the modernized railway lines were equipped with defect detectors. These systems, depending on their diagnostic configuration, can detect (while the train is in motion):

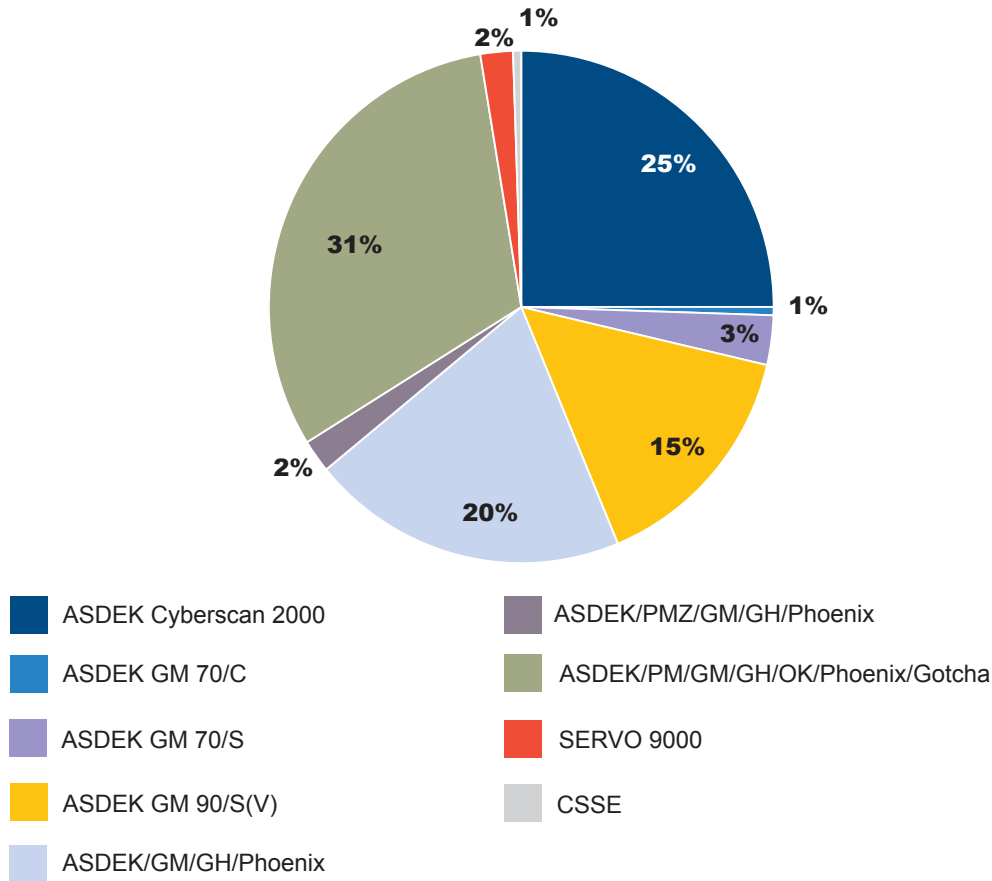
1. failure of axle bearings (GM function);
2. failure of block and disc brakes (GH function);
3. deformation of wheel rims (PM function);
4. dynamic overload (PD function);
5. excessive axle and line loads (OK function).

In 2015, in relation to the modernization works carried out by the Company, 5 new defect detectors (dSAT) have been constructed, thus increasing the total number of these detectors operating on the network from 187 in 2014 to 192 at the end of 2015. The above actions contribute to a higher level of railway infrastructure safety on key railway lines.

A new technical standard applicable to the operation of defect detectors has also been introduced, enabling to raise the level of safety and quality of managing a rolling stock with registered defects; the standard is titled "Guidelines for drawing up rules of procedure applicable to the operation of the terminal of equipment used for rolling stock defect detection in motion le-31".



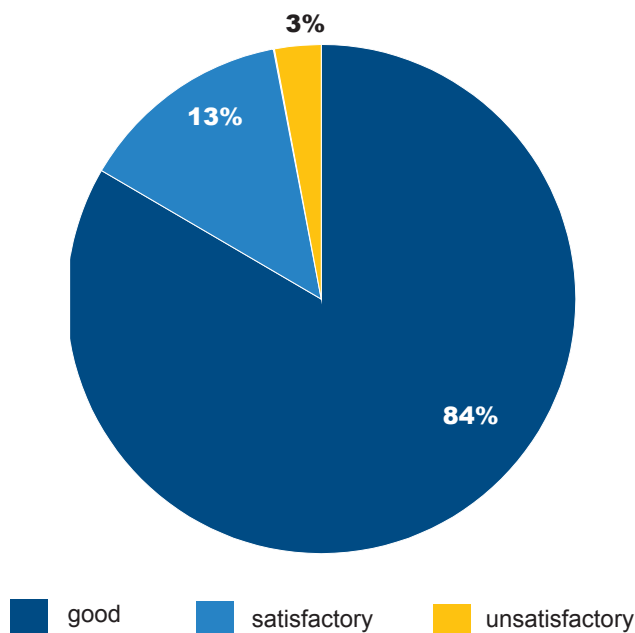
Percentage share of types of defect detectors used



New rules governing the maintenance of relays used in CCS equipment, based on the Safety Management System (SMS) introduced at the Company, have become effective in 2015. In accordance with procedure SMS-PW-01, the technical servicing of relays is carried out by Relay Maintenance (RM) units certified by PKP Polskie Linie Kolejowe S.A., whereas certifications of RM unit employees issued by relay manufacturers have been replaced with qualification certificates issued by PKP Polskie Linie Kolejowe S.A.

The certification of RM units has replaced the authorization of such units by relay manufacturers. In effect, the Company became independent in terms of relay maintenance from the monopoly established by relay manufacturers, while also raising the quality of maintenance. Own units within the Company’s organizational structure as well as external units applying for the possibility of providing RM services on commission basis have also been subjected to certification. At present, RM certificates have been issued to 26 units within the Company’s structure and 7 units owned by external entities. This system ensures a uniform high standard of maintenance performed on relays used by PKP Polskie Linie Kolejowe S.A.

Technical conditions of defect detectors used



In 2015, the Company continued its actions aimed at the technical development of railway traffic control command and signaling equipment and systems through the implementation of modern techniques and technologies, including those which have not yet been applied in the railway infrastructure. Pursuant to procedure SMS-PW-17, MINIMEL Lynx and MINIMEL 95 automatic warning systems, W19 TEL-1, W20 TEL-1, W21 TEL-1, W26a TEL-1 and W26b TEL-1 non-switched electronic display indicators produced using non-incandescent sources of LED light, special plug-in CCS fuses (B2S and BT), fuse blocks and railway signal lights have been allowed for use on railway lines managed by PKP Polskie Linie Kolejowe S.A. The ISKRA CCS computer system and the RBUT-PL-A level crossing traffic safety system were granted the indefinite authorization to be put into service. In 2015, 5 research testing grounds where the operation of CCS systems and equipment is tested have been made available.

The “BAZKART – Shunting and Result Sheet Database” IT system has been introduced on another 9 shunting humps. This system is used to support actions related to the gravity shunting of classification of freight trains on humps.

In 2015, four new le series manuals have been developed and put into force:

1. “Terms and conditions for safe installation and operation of control command and signaling equipment on railway lines managed by PKP Polskie Linie Kolejowe S.A. le-100a”;
2. “Requirements for the system of information exchange between operating control point workers participating in the operation of a level crossing and a worker operating a level crossing le-113”;
3. “Requirements for point machines used on the railway line network managed by PKP Polskie Linie Kolejowe S.A. le-114”;
4. “Requirements concerning permissible disruption levels and parameters for occupancy control equipment used on railway lines managed by PKP Polskie Linie Kolejowe S.A. le-115”.

In 2015, the 3-year contract for the purchase and replacement of 450 train signalling control panels (signalling control panels for train dispatchers) has been completed. Control panels that were previously in use have been replaced with a newer generation equipment that features more functionalities.

In terms of radio-communication, the Company also purchased 100 base transceivers installed at category A level crossing gatehouses, which enable crossing keepers to transmit a Radio-Stop signal in the event of a collision hazard at a crossing or other hazard to railway traffic. This will make it possible to reduce the risk of railway events, thus contributing to a higher level of railway traffic safety on the network managed by the Company.

As part of the Railway Traffic Safety Improvement Programme (RTSIP), a CCS equipment and communications (CCSEC) simulator has been put into operation. The simulator is used to carry out training and professional development as well as to verify manual skills and psychological and physical predispositions of train dispatchers during activities performed at the workstation in situations when CCS equipment is operating properly and when it becomes defective. The simulator allows to significantly improve the competencies of train dispatchers, which directly increases the safety of railway traffic management. It mimics computer-based CCS and communications equipment at the Mińsk Mazowiecki Local Control Command and Signalling Centre, including necessary workstation equipment, in terms of its operation and handling.

PKP Polskie Linie Kolejowe S.A. is an entity responsible for the implementation of ERTMS (the European Rail Traffic Management System) in Poland, therefore the Company continues the process of implementing projects related to the deployment of ETCS (the European Train Control System) and GSM-R (the Global System for Mobile Communications – Railways), co-financed by the European Union under the Operational Programme Infrastructure and Environment (OPI&E) and the European Transport Network (TEN-T) programme.

As part of actions related to the exploitation of the ETCS level 1 system on the Central Trunk Line, Olszawowice - Zawiercie section, which allows for train operation at the maximum speed of 200 km/h, the Company collects its first experiences in relation to the implementation of maintenance and repair agreements: "Purchase of spare parts to ensure the operating reserve for the ETCS level 1 system on the Central Trunk Line" (completed agreement), "Commissioning the maintenance and repair of the ETCS level 1 system on the Central Trunk Line, Grodzisk Mazowiecki - Zawiercie section, for the years 2016-2019" (the procedure has been initiated in the second half of August 2015).

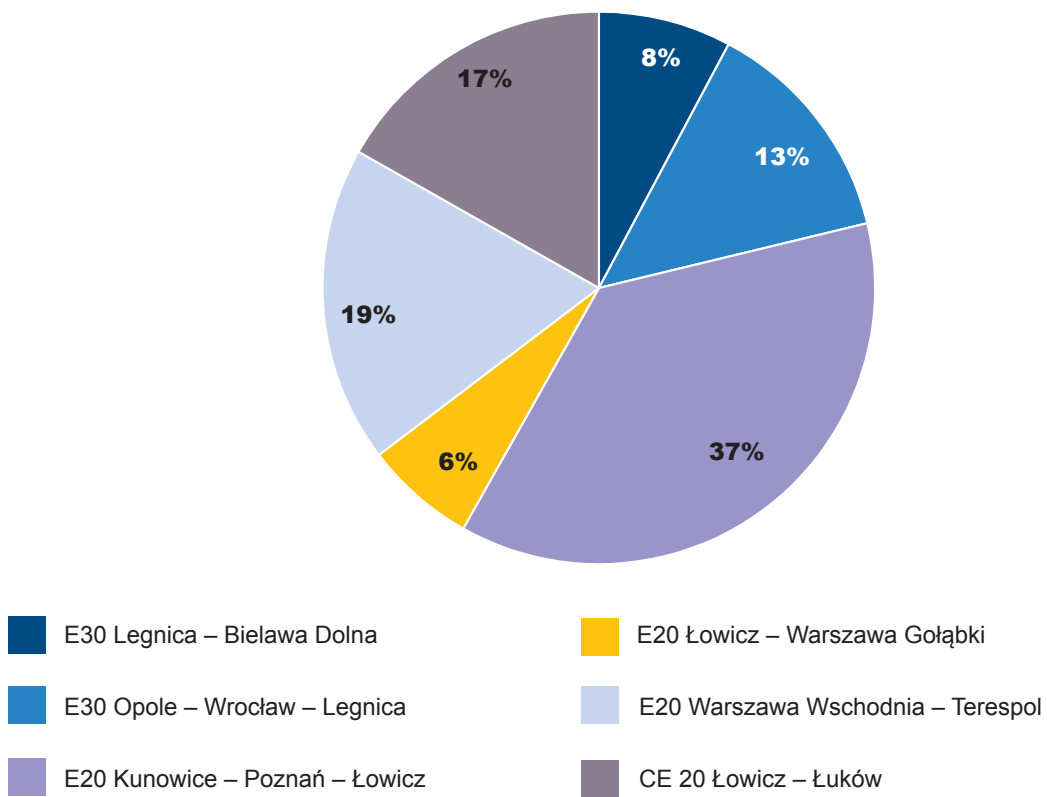
PKP Polskie Linie Kolejowe S.A. continues its work related to the installation of the ERTMS/ETCS level 1 Limited Supervision system on line No. 356, Poznań Wschód - Wągrowiec section, as part of implementation of the task entitled "Design and installation of the ETCS level 1 Limited Supervision system on railway line No. 356., Poznań Wschód - Wągrowiec section".

Tests and technical acceptance of the ETCS level 2 system equipment installed under the task entitled "Modernization of railway line E30, Stage II. Pilot implementation of ERTMS/ETCS and ERTMS/GSM-R in Poland on the Legnica - Węglińiec - Bielawa Dolna section" have been conducted. The perspective of operating a new system, i.e. the ETCS level 2 system, on the network managed by PKP Polskie Linie Kolejowe S.A. has resulted in the need to develop new internal regulations. The most important regulations developed include "Temporary manual for handling centralized ERTMS/ETCS level 2 system equipment le-32" and "Procedure for the management of cryptographic keys in the ERTMS/ETCS system".

Year 2015 saw the completion of three investment projects related to the construction of the GSM-R network, the construction of GSM-R network components installed on railway lines E30, Legnica - Wrocław - Opole section, and E20/CE20, Kunowice - Terespol section, and their integration with the existing system. The construction of the GSM-R system has also been continued as part of the modernization of the Warsaw - Łódź and modernization of railway line E 65/C–E 65 on the Warsaw – Gdynia section.

As at 31 December 2015, the GSM-R radio-communication network has been installed and operated on 1,078 km of railway lines and its percentage breakdown by length of railway lines is presented on the chart below.

GSM-R network operated on railway lines



## Electrical power devices

### Material situation

Electrical power devices managed by PKP Polskie Linie Kolejowe S.A. in 2015.

No.	Item	Unit	Year	
			2014	2015
<b>Traction network devices:</b>				
1.	Length of electrified railway lines	km	11 744	11 795
	Length of traction network	tkm	24 858	24 744
	Traction network disconnectors:	items	20 013	20 183
	including controlled	items	13 205	13 264
<b>Direct current devices 3 kV (leased by PKP Energetyka S.A.):</b>				
2.	Traction substations/sectional cabins	items	11	11
	Modernized traction substations/sectional cabins	items	26	26
<b>Electric heating of turnouts (eor):</b>				
3.	Single turnouts, including locking devices	items	30 230	29 673
<b>Points of external lighting:</b>				
4.	Points of external lighting	items	200 050	195 262
	Installation points and internal lighting	items	193 740	196 754
<b>MV distribution lines:</b>				
5.	Non-traction lines (NTL)	km	511	710
<b>Electric power collection points:</b>				
6.	Number of collection points	items	16 118	16 139
	Contracted capacity	kW	329 726	340 944

### Assessment of the technical condition of electrical power devices

In order to better and more effectively manage electrical power devices used by PKP Polskie Linie Kolejowe S.A., a set of assessment criteria has been introduced to evaluate their condition. The four grade scale is based on how long the devices have been in service (the 30-year-long operation period of electrical power devices was adopted as the default value):

1. good condition - this grade is given to equipment that meets the following criteria:
  - current period for which equipment has been in operation does not exceed 50% of the anticipated operation period;
  - equipment that has the technical and operational parameters that are compliant with the standards and requirements established for such equipment;
  - equipment that does not require renovation, with the exception of renovation resulting from normal operational wear and tear (e.g. of the contact wire).
2. satisfactory condition - this grade is given to equipment that meets the following criteria:
  - current period for which equipment has been in operation has exceeded 50% of the anticipated operation period;

- equipment that has the technical and operational parameters that are compliant with the standards and requirements established for such equipment;
  - devices require replacement of worn elements as part of scheduled repair/renovation work (e.g. of the contact wire, isolators).
3. unsatisfactory condition – this grade is given to equipment that meets the following criteria:
    - the anticipated operation period has been exceeded;
    - the technical condition of equipment permits its safe operation;
    - equipment requires comprehensive modernization/renovation work.
  4. inadequate condition - this grade is given to equipment that meets the following criteria:
    - given the degree of its use, equipment fails to meet the required technical and operational parameters;
    - due to the risk of breakdown and safety risk, equipment should be put out of service.

#### Technical condition of electrical power devices

No.	Item	Technical condition	2014 %	2015 %	2014 vs 2015 %
1.	Traction network	Good	29,5	29,9	0,4
		Satisfactory	43,2	43,6	0,4
		Unsatisfactory	27,3	26,5	-0,8
		Inadequate	0	0	0
2.	Electrical heating of turnouts (eor)	Good	42,7	45,1	2,4
		Satisfactory	56,3	54,1	-2,2
		Unsatisfactory	0,7	0,8	0,1
		Inadequate	0,3	0	-0,3
3.	External lighting equipment	Good	49	49,8	0,8
		Satisfactory	48	48,6	0,6
		Unsatisfactory	2,5	1,6	-0,9
		Inadequate	0,5	0	-0,5

## Traction network

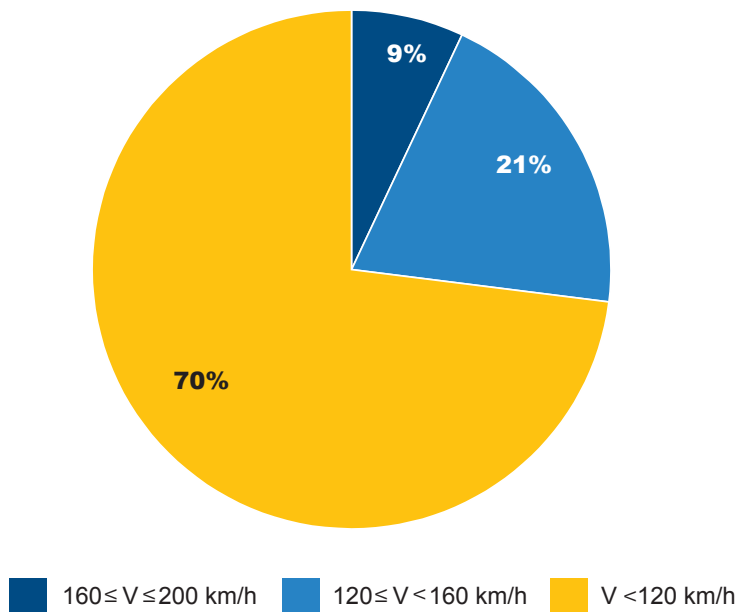
Technical characteristics of traction network devices

Traction network devices	Technical condition			
	Good (0-15 years)	Satisfactory (16-30 years)	Unsatisfactory (more than 30 years)	Inadequate
Number of tkm	7 399	10 788	6 557	0

The application of the age criterion is justified because the operation and quality of maintenance as well as materials and technologies used have a direct impact on the technical condition of infrastructure. Excessive overloading with operating current causes the degradation of messenger wires and electrical connections. In recent times, climate conditions have gained particular importance, as their high variability puts isolators at risk of high internal stress, thus exposing them to a higher risk of damage.

Out of the total number of 24,744 track-km (tkm) of the traction network, approx. 7,399 tkm has been in operation for less than 15 years, 10,788 tkm – for 16-30 years, and 6,557 tkm – longer than 30 years.

Traction network broken down by speed



The breakdown of the traction network based on operating speed is related to the intensity with which traction network infrastructure is used. Lines that allow trains to achieve higher speeds are used more frequently, thus placing a dynamic load on the traction network.

### Non-traction electrical power devices

Electrical heating of turnouts (eor) is being systematically equipped with weather stations, which streamline their proper utilisation. This results in significant reduction of energy consumption. At present, 65% of electrical heating of turnouts (eor) is controlled automatically, whereas the rest is controlled manually.

Another way to raise the efficiency and reliability of electrical heating of turnouts (eor) is to replace old transformer boxes which due to the high rate of separating transformer thefts had to be regenerated or welded on multiple occasions. However, reconstruction does not fully restore their tightness and durability, therefore they have to be replaced with new, sealed boxes made from composite and equipped with an installation that signals when the cover is opened.

The year 2015 witnessed the continuation of the programme consisting in the replacement of external lighting fixtures and poles. As part of renovation work and the programme aimed to improve energy efficiency, 1,112 fixtures were replaced with power efficient units along with 299 light poles. In addition, 614 light sources (58W linear lamps) have been replaced with 22W LED light sources. These measures contribute to better lighting of railway areas as well as help reduce power consumption by approx. 620 GWh/year.

## Power consumption and energy costs

As part of its core activities, PKP Polskie Linie Kolejowe S.A. purchases energy throughout the entire country. In 2015, the purchase of electric power for structures and equipment has been carried out through 16,139 electric power connections for which more than 340,944 kW of electric power has been ordered; therefore, mean electric power consumption for the years 2002-2015 amounted to approx. 261,500 kWh (261.5 GWh).

The Company experiences a high number of changes to the number of electric power collection points under its management and the volume of power consumption. In 2015, the number of electric power collection points under the Company's management, covered by the agreement for the supply of electric power for the years 2014-2015, has increased by 21 points (compared to 2014). The above-mentioned change resulted from 742 electric power collection points put into service as part of modernized infrastructure and 509 points shut down in 2015. The difference between the number of electric power collection points covered by the agreement for the supply of electric power for the years 2014-2015 (233) and the number of points newly-established in 2015 (21) results from the fact that 212 points established as part of modernization work were not put into service as at 31 December 2015 (they have not yet been launched).

At the same time, it is necessary to point out that the contracted capacity has increased by approx. 11,000 kW in relation to the modernized infrastructure put into service (contractual capacity has increased by 11,218.3 kW, from 329,725.8 kW as at the end of 2014 to 340,944.1 kW as at the end of 2015). Due to the significant increase in contracted capacity of power connections under the Company's management, in subsequent years PKP Polskie Linie Kolejowe S.A. anticipates power consumption and, therefore, the cost of electricity to increase.

PKP Polskie Linie Kolejowe S.A. is taking numerous measures to improve the Company's energy efficiency. Main directions of measures undertaken by the Company:

1. in 2015, as part of continuing the "free market purchase of electricity" (TPA), a second procedure concerning the purchase of electricity based on the TPA principles for the purposes of PKP Polskie Linie Kolejowe S.A. has been conducted within the purchasing group, with the participation of subsidiaries. Another change of the supplier of electricity for the Company in 2015 has been carried out on the basis of the Resolution of the Management Board No. 200/2015 of 17 March 2015 concerning the entry into a commitment for the supply of electricity in the years 2016-2017 for the purposes of PKP Polskie Linie Kolejowe S.A. Pursuant to the provisions laid down in this Resolution, Agreement No. 60/010/0014/15/Z/O of 17 September 2015 for the supply of electricity in the years 2016-2017 for the purposes of PKP Polskie Linie Kolejowe S.A. has been concluded. The unit price for the purchase of electricity, obtained under the tendering procedure, amounted to PLN 210.9/MWh;



2. as part of the Programme for the improvement of energy efficiency adopted by the Management Board of the Company on 9 September 2014, measures are being implemented to improve;
3. energy efficiency in all possible areas of activity, so as to reduce power consumption and energy costs. In 2015, a total of PLN 3,350 thousand has been allocated for measures undertaken under the Programme for the improvement of the Company's energy efficiency.

From the foregoing, the following has been implemented:

- the installation of equipment to compensate for reactive power - 164 structures;
- the installation of energy efficient equipment (LED light sources) - 614 items;
- the installation of energy efficient equipment (LED fixtures, including accessories) - 517 items;
- the installation of equipment to regulate the light stream of discharge lamps - 50 items;
- the thermal modernization of buildings - 3 structures;
- training course in the field of auditing structures and equipment - with 39 participants;
- the installation of photovoltaic installations (PV) - 3 structures;
- the installation of solar installations -1 structure.

As part of standardization, research and development of the energy industry, the following has been done in 2015:

1. the implementation of the project concerning the reinforcement of traction network feeding systems under the so-called Horizontal Project until 2023 has commenced. It includes the implementation of a tendering procedure for the performance of Feasibility Studies in this area on selected railway line sections;
2. manual let-3 "Manual for the operation of equipment providing external lighting for railway areas" has been updated in order to optimize maintenance processes and implement a group replacement of light sources as part of maintenance;
3. guidelines let-5 "Guidelines for designing electrical heating of turnouts (eor)" have been updated so as to unify designed/implemented types of eor equipment and systems and unify communication protocols used in eor equipment to ensure local and remote communication;
4. "Guidelines for energy infrastructure diagnosis let-9" have been developed; the document implements alternating maintenance cycles, specifies operation periods for sensitive infrastructure components and lays down the conditions for their extension;
5. "Manual for the operation and maintenance of power receiving systems in buildings and building structures comprising railway line infrastructure" - let-8;
6. works have commenced on the development of guidelines concerning the performance of audits in energy facilities and equipment. These guidelines are to establish procedures allowing to gain appropriate knowledge about the profile of current energy consumption by buildings and equipment comprising components of railway line infrastructure. They are also to determine the method for analysing the energy consumption of buildings and equipment comprising railway line infrastructure, and specify measures aimed to improve the energy efficiency of railway line infrastructure.

7. Structured Query Language (SQL) databases and algorithms to assess the technical condition of the traction network and external lighting equipment have been developed and the input of data into databases, to enable the assessment of technical condition, has been initiated;
8. “Compendium of basic information concerning the interaction of the pantograph with the traction network” has been developed; the document contains: information on the design of pantographs, information on characteristic damage to pantographs and information concerning the involvement of Company employees in the work of the railway committee regarding the search for causes of damage in points where pantographs connect to the traction network;
9. 28 testing grounds for testing new equipment before it is put into service on railway lines managed by PKP Polskie Linie Kolejowe S.A. have been established and 31 technical approval certificates (for 64 products) have been issued for new equipment.

## Track Machinery Plant

### Operation of high-performance track machinery, restoration of rails and machine repairs

The Track Machinery Plant in Kraków is a specialised organisational unit of PKP Polskie Linie Kolejowe S.A. which carries out tasks comprising ongoing repairs, maintenance of railway lines and engineering structures as well as investments.

The plant has specialist machinery and equipment as well as process lines for restoring and welding rails into up to 210 m long sections. The maintenance of railway lines and engineering structures along with investment tasks are implemented using high performance specialist machinery for track and track bed work. What is crucial in the case of machinery groups is that repairs are carried out in a single take, without the need to disassemble the railway track; this significantly reduces the repair time and helps maintain uniformly high railway track parameters. This is especially important in the context of environmental protection and impact on areas adjacent to railway lines: there is no need to disturb the structure of the areas adjacent to the section under repair, to destroy access roads or to establish haul roads for transporting materials and spoil.

Rails are restored at a specialist unit – the Rail Welding Section in Bydgoszcz.

For several years now, the workshop of the Track Machinery Plant in Kraków has been participating in the repair of rail-grinding trains for the Swiss Company SPENO and performing repairs of own high-performance track machines.

Track machines and welding machines are operated by a highly experienced and qualified team of workers, which ensures that the quality of performed work meets the most stringent expectations of clients. To confirm the quality of services provided, the Plant has obtained the ISO 9001:2008 certificate.

Operation of track machines from the Track Machinery Plant in Kraków in 2015

No.	Machine	Quantity	Unit of measure
1.	AHM 800 R	24 897	mb
2.	P-93 i P-95	246 872	mb
3.	OT-800 i RM 80	171 833	mb
4.	CSM 09	245 505	mb
5.	ZTU 300	318 795	mb
6.	DGS 62 N	313 505	mb
7.	UNIMAT [j.r.]	1 004	j.r.
8.	UNIMAT [m.b.]	31 610	mb
9.	USP [m.b.]	144 175	mb

## Diagnosics

Diagnostic measurements and tests are the basis for assessing the technical condition of railway infrastructure and planning maintenance and repair processes.

During these processes current technical parameters of infrastructure components are determined to analyse their compliance with prescriptive standards and established safety tolerances.

Diagnosics and assessment of the technical condition of railway infrastructure are handled by:

1. diagnosticians employed at Railway Lines District Units who – using portable tools and devices – make measurements and tests of subgrade, track superstructure, engineering structures, railway buildings and structures as well as power and railway traffic control command and signalling equipment and networks;
2. Diagnostics Centre in Warszawa – a specialist unit carrying out measurements and diagnostic tests using specialised equipment on bogies, rail vehicles and rail-road vehicles.

The Diagnostics Centre in Warszawa ensures railway traffic safety of the network managed by PKP Polskie Linie Kolejowe S.A. by making measurements and analysing the technical condition of railway infrastructure in six areas:

1. diagnostic measurements of track superstructure (track geometry) and rail road infrastructure components (clearance outline), measurements of longitudinal and vertical rail profiles (the so-called waviness) and other specialist measurements, e.g. coarseness or rigidity;
2. defect detection in steel elements of superstructure (looking for and revealing surface and internal flaws and defects in rails, elements of turnouts and in rail joints);
3. functional diagnostics of defect detectors by simulating rolling stock emergency conditions using special apparatus installed on the track geometry car;
4. welding of rails and turnouts – supervision, control and assessment of performed rail joints as well as field and lab tests of the quality of joints;
5. acceptance of railway track elements of required quality to be used in railway infrastructure;
6. relay maintenance (RM) for relays used in CCS equipment.

In 2015, 240 employees of the Diagnostics Centre performed – as part of their primary business – among others:

No.	Task	Quantity	Unit of measure	
1.	Measurement of horizontal and longitudinal track geometry in plan and profile, using two EM 120 measuring vehicles and the UPS-80 special vehicle	35 462	track km	
2.	Inspection of internal rail structure in a track using a track defect detection wagon	13 643	track km	
3.	Inspection of internal rail structure in a track using a track defect detection bogie	42 207	track km	
4.	Defect detection test on railway track elements	Welds	3 189	items
		Padding welds	72	items
		Turnouts	1 768	items
	Specialist test on railway track elements	Point turnout	4	items
		Rail profiles	507	items
			1 700	metres
		Running surface coarseness	483	items
Rigidity of rails and crossings	485	items		
5.	Rail waviness test	40,797	km of rails	
6.	Control of operation of axle welding sensors using defect detection wagon (dSAT) which simulates an axle-box breakdown	296	devices	
7.	Participation in bridge structure inspections using a specialist Volvo - SRS Svabo vehicle, for the purposes of inspectors from Railway Lines District Units	139	structures	
8.	Lab and field tests of rail welding joints	20	items	
		Lab - 150 Field - 174	items samples	
9.	Training and courses in rail welding and welding supervision	84	people	
		12	courses	
10.	Periodic and certification exams in rail welding	644	people	
11.	Instruction and issuing of competence certificates, identification cards for welding supervision	640	items	
12.	Gauge measure calibration	676	items	
13.	Technical acceptance of railway track elements	Turnouts	983	sets
		Various components for turnout production	180	items
14.	Technical acceptance of railway track elements in the field (e.g. with a digital rod)	Thermite welds and welds	1 642	items
15.	Relay maintenance	Own units	40 869	items
		External units	29 047	items

Gaining information about railway infrastructure parameters is the basic activity of the Diagnostics Centre; its tasks are planned on an annual basis in compliance with obligatory regulations and demand from the Company's maintenance units.

In 2015, numerous undertakings and initiatives related to the development of the Diagnostics Centre were continued to be implemented, taking into consideration the pursuit of technological progress in the field of railway infrastructure diagnostics in order to ensure technical safety for passenger and freight transport. These undertakings and initiatives included, among others:

1. the consultation and supervision of a contract with the Polish-Italian consortium for the construction, delivery and implementation of a multi-function, self-propelling rail measuring vehicle for measuring the geometry of tracks, rails, traction network as well as inspecting railway superstructure and track-side devices. It is planned to accept the vehicle and commence its operation in 2016; obtained results will expand the scope of currently performed diagnostic tests performed on infrastructure by measurements from the energy and railway automatic control industry;
2. the consultation and supervision of the agreement for the construction, delivery and implementation of a self-propelling diagnostic vehicle for rail defect detection. It is planned to accept the vehicle and commence its operation in the middle of 2017;
3. 8 contracts have been signed with external contractors for the performance of maintenance of 50,323 relays (different types) used in CCS equipment until 30 September 2016;
4. the EM-120 modernized measuring vehicle has been put into service after the installation of additional diagnostic systems (scanning and photogrammetric platform); the vehicle is tasked with measuring the loading gauge and codifying railway lines. The vehicle will begin to perform planned, successive measurements on the national railway network from the beginning of 2016;
5. EM-120 measuring vehicles have been equipped with train control system (ETCS) equipment in order to test track equipment comprising the ETCS level 2 system;
6. the Diagnostics Centre, as every year, was a promoter of modern methods and technologies by organizing a number of presentations of measurement equipment addressed to the representatives of Railway Lines District Units and maintenance companies.
7. the second edition of Rail Infrastructure Diagnostics Meetings has been organised; the Meetings have been attended by more than one hundred representatives of Polish and foreign managers of rail infrastructure used in railway, tram and underground communication.

For the management and personnel of the Diagnostics Centre, the year 2016 will also be intensive in terms of acquisition and implementation of new technologies, equipment, vehicles and measurement systems, completing and training crews, measurement teams and diagnostic equipment operators.

The technical and technological development of railway diagnostics, supported by the team of experts (industry diagnosticians), will help the Company plan modernization, refurbishment and maintenance needs of railway infrastructure in a more rational way – both at the level of organisational units and of the entire Company. It will also significantly increase the technical safety of railway traffic.

## Passenger Service Facilities

PKP Polskie Linie Kolejowe S.A., having regard to the need to ensure appropriate access to information by passengers, safe and comfortable conditions in which passengers may wait for the train to arrive as well as safe and comfortable travel conditions, undertakes a number of initiatives to ensure a high standard of passenger service facilities, understood as the platform area and platform access routes at stations and passenger stops that are open for passenger traffic.

These initiatives are undertaken mainly in the following areas:

1. passenger information;
2. platforms and platform access route equipment and improvement of the aesthetics of infrastructure with which passengers come into contact on a daily basis;
3. adaptation of passenger service facilities to meet the needs of disabled persons and persons with reduced mobility;
4. maintenance of order and cleanliness at stations and passengers stops;
5. services provided in order to raise the comfort of travel, including services related to the coordination of railway companies' actions taken to support passengers in situations caused by disruptions to railway traffic;
6. ensuring the safety of passengers present at stations and passenger stops managed by the Company.

Tasks implemented in relation to passenger service facilities



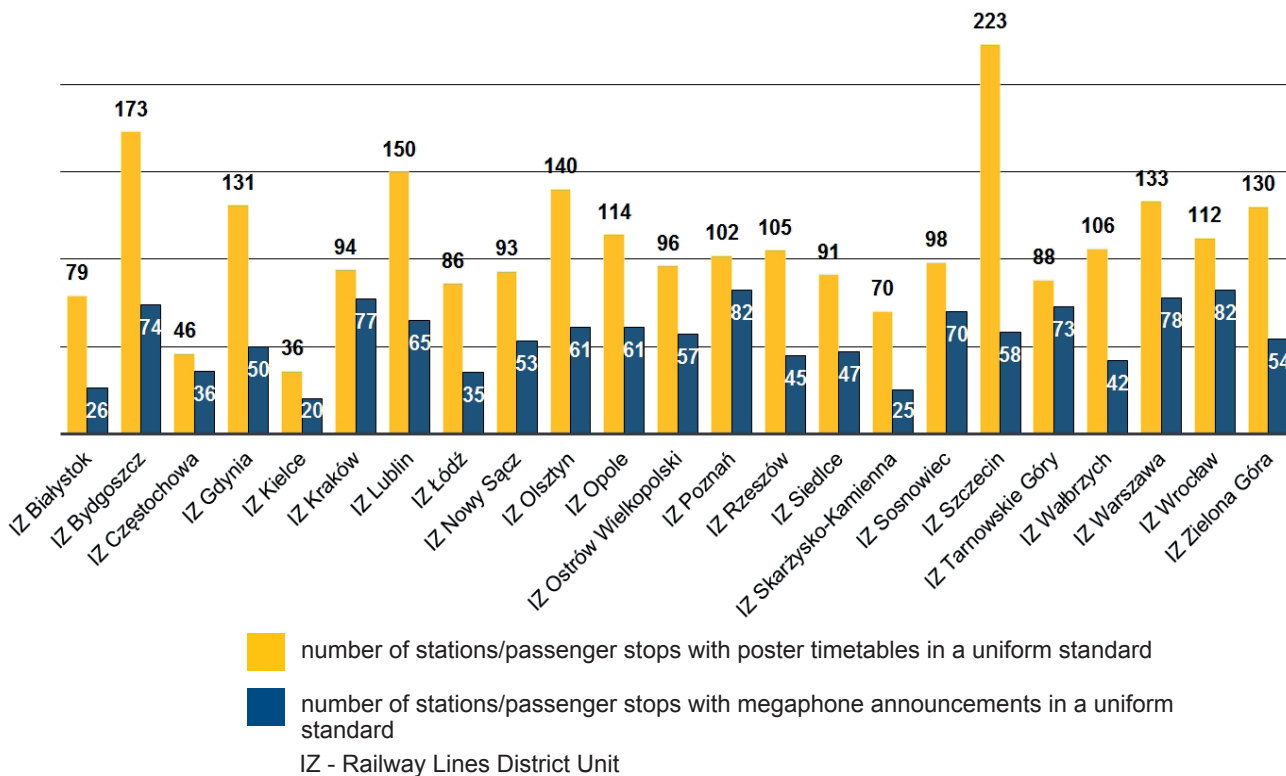
## Passenger information

The process of improving standards concerning the publication of train timetables has been continued in 2015, so as to develop a uniform method for presenting information on the timetable at all stations and passenger stops open to passenger traffic and ensure proper access to this information.

More than 360 information boards have been purchased and installed at approx. 200 locations, so as to ensure the best possible availability of information. The Company's task is also to implement a uniform visual standard.

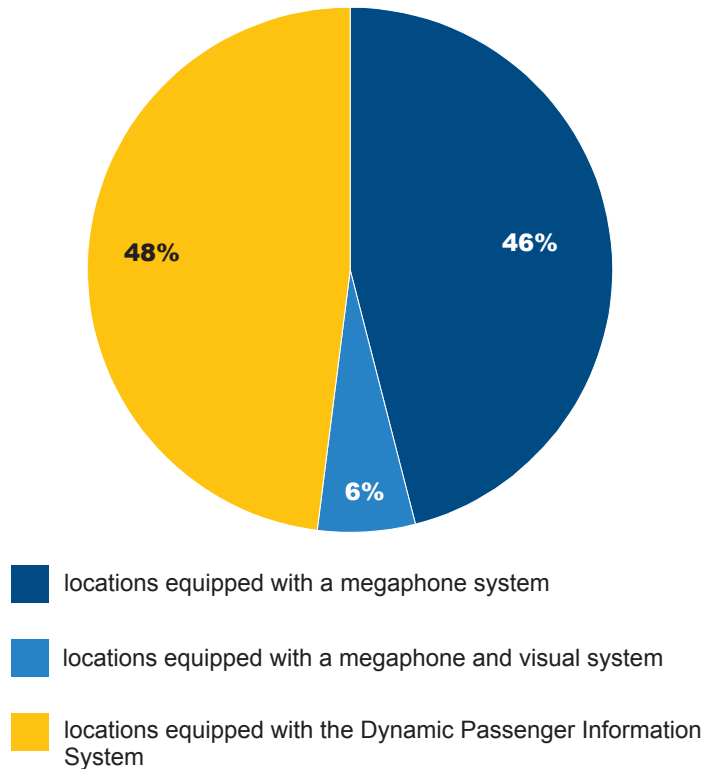
PKP Polskie Linie Kolejowe S.A. implements the process of standardizing static information for passengers to the standards adopted by the Company, consisting in the successive replacement of fixed markings: signs with station and passenger stop names, platform and track numbers, directional signs, pictograms. In 2015, new markings have been installed in more than 500 locations. Standards applicable to megaphone announcements made at nearly 1,300 stations and passenger stops have also been updated in order to ensure proper and uniform voice announcements on train traffic.

Stations and passenger stops managed by PKP Polskie Linie Kolejowe S.A. that were open to passenger traffic in 2015



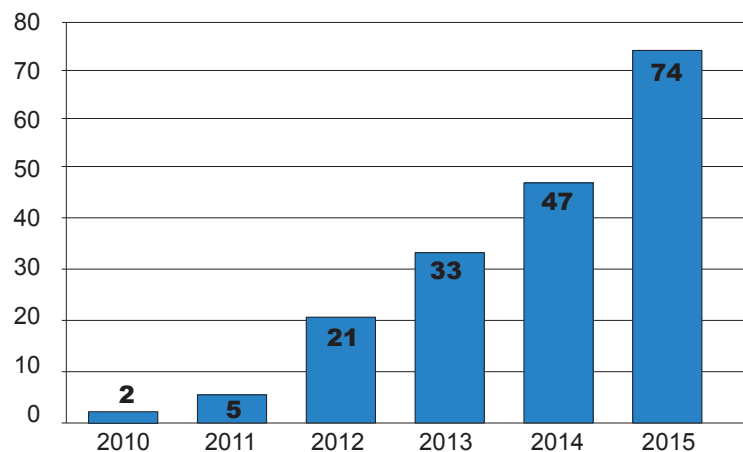
The dynamic voice announcement service (megaphone announcements) is provided at nearly 1,300 locations with more than 2,500 structures handling passenger traffic. In nearly 270 locations, megaphone announcements are made using automatic systems, whereas in the remaining locations with a broadcast system – directly by the train dispatcher or operator.

Dynamic Passenger Information System



More than 150 locations, apart from broadcast systems, is additionally equipped with systems for presenting dynamic visual information on train traffic, in 70 of which these are newer generation systems. It is planned to install another 23 systems by the end of 2016.

Number of stations and passenger stops equipped with newer generation Dynamic Passenger Information Systems



Having regard to the obligation to ensure a uniform high standard for the presentation of information and, in consequence, raise the quality of passenger service, the Company works on developing and implementing a central application controlling dynamic passenger information (CASDIP) which will allow to manage all planned dynamic passenger information systems (SDIP) at a level suited to growing passenger needs. Further on, works will be conducted on integrating dynamic passenger information systems that are currently in operation. One of the key components of CASDIP will be the central voice announcement



server which will make it possible to provide premade, high quality announcements in four languages to all megaphone-based broadcast systems through speech synthesis. At present, works are underway on the development of SOW and tendering documentation for the delivery of applications and voices that meet the Company's requirements. Improvements made in this area will allow to minimise the responsibilities of train dispatchers concerning voice announcements on small stations and passenger stops.

The installation of visual dynamic passenger information systems will make it possible to deliver visual information also to areas where previously only voice announcements were made, thus significantly facilitating travel:

1. for hearing-impaired passengers;
2. foreigners for whom it practically impossible to understand even a small part of the voice announcement made in a foreign language;
3. other passengers, due to the "transient" nature of voice announcements.

## Visual monitoring

In recent years, public transport has become exposed to various threats, such as: terrorism, theft, vandalism. The railway services sector faces a problem consisting in the need to ensure the safety of passengers, employees, goods, infrastructure and assets against possible threats. Facing this problem is a serious challenge due to the variety of areas subject to monitoring: platforms, underground passages, railway station buildings as well as parked wagons and locomotives.

The Company carries out actions aimed to ensure the safety of passengers at stations and passenger stops through visual monitoring systems and responding to emergency alerts made by passengers by ensuring communication between passengers and services responsible for maintaining order and cleanliness and providing support.

At present, 108 locations is equipped with the Visual Monitoring System, of which 96 is equipped with a visual monitoring systems owned by PKP Polskie Linie Kolejowe S.A. (which include: 881 cameras, 100 video recorders).

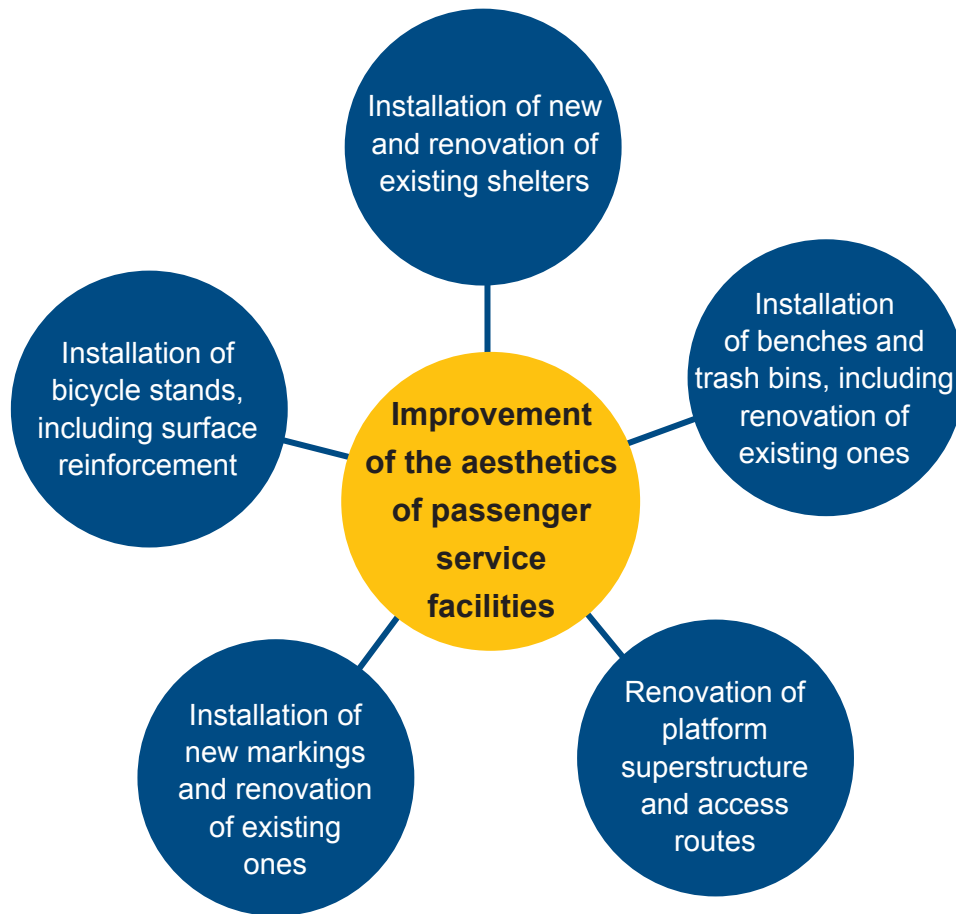
## Names of stations and passenger stops

In relation to the reorganisation of the passenger information area, the names of 65 stations and passenger stops have been corrected in accordance with the "List of official names of municipalities and parts thereof" and with internal regulations of the Company in this area. The List has been adopted by way of an Announcement of the Minister competent for administration on 4 August 2015.

Making sure that names of stations and passenger stops are consistent with the names of municipalities in which they are located is aimed at structuring public spaces through which passengers pass, which also facilitates the identification of the location of a given railway structure and improves the comfort of travel.

## Equipment of platforms and platform access routes

Tasks implemented as part of improving the aesthetics of passenger service facilities



PKP Polskie Linie Kolejowe S.A. implements standards in the area of planning, designing and constructing railway infrastructure used to manage passenger traffic by ensuring:

1. high functional and utility standards, including availability to persons with reduced mobility;
2. easy maintenance and repair of components comprising passenger service facilities;
3. aesthetic structures comprising passenger service facilities;
4. respect for the surrounding area, in particular cultural heritage sites;
5. high quality and durability of components comprising passenger service facilities;
6. respect for the natural environment;
7. solutions of a standardized and foreseeable nature, having regard to persons using rail transport.

Actions undertaken are aimed to ensure that passenger service facilities are characterised by high aesthetic, technical and functional standards.

In 2015, a number of measures have been implemented with the aim to improve the comfort of waiting for trains to arrive on stations and passenger stops:

1. more than 200 platform shelters have been purchased and installed in over 100 locations;
2. more than 150 shelters have been restored or renovated in over 70 locations;
3. approx. 870 trash bins have been purchased and installed in over 300 locations;
4. approx. 730 platform benches have been purchased and installed in over 200 locations.

In addition, in order to address the needs of arriving at stations and passenger stops by bicycle, in 2015 approx. 1,200 bicycle stands have been installed in over 300 locations.

### **Adaptation of passenger service facilities to meet the needs of disabled persons and persons with reduced mobility**

In 2015, PKP Polskie Linie Kolejowe S.A. have signed a contract with PKP S.A. concerning the provision of assistance to disabled person and persons with reduced mobility by security personnel employed by PKP S.A. at 60 stations within the country. Procedures for providing customer service to persons with reduced mobility have also been developed, so as to ensure a non-discriminatory access to railway services to persons with reduced mobility.

At the same time, the Company undertakes actions aimed to gradually eliminate architectural barriers at stations and passenger stops, so as to adapt them to meet the needs of disabled persons and persons with reduced mobility. Platforms and platform access routes modified in 2015 as part of railway line modernization have been equipped with wheelchair ramps as well as elevators and platform lifts. The Company continued to equip platforms with elements facilitating orientation and movement for blind persons.

In 2015, 22 platform lifts situated near stairs and 67 elevators have been installed. In addition, 100 ramps have also been constructed. More than 200 platforms have been equipped in tactile warning strips, 86 platforms have been equipped with guiding paths for blind persons, and 67 rail-level service passages have been adapted so as to allow a disabled person may pass through them on their own.

The Company's actions in this area are a response to the diversification of the needs of passengers and operators in terms of quality of access to railway transport.

### **Maintenance of order and cleanliness at stations and passengers stops**

In 2014, PKP Polskie Linie Kolejowe S.A. and PKP S.A. made a decision to carry out a common tendering procedure through which contractors have been selected to perform the service consisting in the maintenance of order and cleanliness at stations and passengers stops. This initiative resulted in cleaner passenger service facilities, commissioning the service in areas managed by both Companies to a single contractor, setting out a quality standard and standardization of procedures applicable for this area in both Companies. This approach constitutes a complete move away from the approach consisting in the maintenance of cleanliness using own resources.

The area managed by PKP Polskie Linie Kolejowe S.A. within the territory of Poland has been divided into 23 tasks, each of which corresponds in its scope to the area subordinate to each of Railway Lines District Units.

## **“Book of Standards for Maintaining Railway Stations and Stops Managed by PKP in Clean Order”**

The “Book of Standards for Maintaining Railway Stations and Stops Managed by PKP in Clean Order” has been adopted within the entire territory covered by the tendering procedure. The Book describes in detail the required standard of cleanliness for each element of passenger service facilities. It stipulates that the service must be performed in accordance with the SLA (Service Level Agreement) method, i.e. the agreed quality of services being provided must be maintained on a continuous basis and systematically improved. The performance of the service consisting in maintaining cleanliness includes, inter alia:

1. mechanical and manual washing of passenger service facilities;
2. sweeping and vacuuming flat surfaces and stairs, including handrails and guardrails;
3. washing benches and tables;
4. maintaining walls and information boards in clean order;
5. washing all windows and glazings;
6. removing graffiti, stickers, gums, trash, stains, waste, sand and dust;
7. keeping drainage grates unobstructed;
8. emptying trash bins;
9. maintaining tracks and intertrack space in clean order;
10. removing excrement;
11. clearing snow and removing slippery surfaces from platforms and access routes;
12. removing snow overhangs and icicles;
13. maintaining green areas, including mowing lawns.

In order to ensure the possibility of controlling the quality of provided services, an audit structure comprised of over 100 auditors of PKP Polskie Linie Kolejowe S.A., operating within the territory of the entire country, has been developed. In order to facilitate the audit process and subsequent reporting, auditors have been provided with equipment that gives them access to an Audit Application developed specifically for this project, which facilitates the assessment of the cleanliness of infrastructure based on pre-defined elements selected to be audited. It also makes it possible to control the proper performance of the service and view the results of audits performed with regard to the contractor as well as auditors of both Companies in real time, which allows for a quicker reaction to identified infringements.

In addition, the so-called audit generator has also been developed – it is an application that generates locations to be audited with a one day’s advance, therefore minimising the possibility that contractors will foresee the audit location.

The year 2015 saw the continuation of measures aimed to guarantee a high standard of cleanliness in passenger service facilities located on stations and passenger stops. The service consisting in the maintenance of cleanliness, commissioned to external entities, is provided in 2,626 locations managed by PKP Polskie Linie Kolejowe S.A. (and covers a total area of more than 21 million square meters).

Main measures implemented in 2015 include:

1. the provision of access to a new version of the application for conducting audits of cleanliness, including reporting modules, to contractors and employees of PKP Polskie Linie Kolejowe S.A. (employees of PKP Polskie Linie Kolejowe S.A. have conducted more than 74 thousand audits in 2015);

2. the intensification of quality control measures with regard to the service being provided in periods of higher passenger traffic flow, e.g. on stations and passenger stops of greatest significance during the winter holiday break;
3. the coordination of preparations for the winter period, including for the use of special measures to de-ice and clear snow from platforms.

In 2015, preparations have also begun to implement the project concerning the maintenance of cleanliness in the 2016-2018 perspective.

## Customer Support Centre (CSC)

Difficult winter conditions – low temperatures, strong winds and intensive snowfall have been causing major disruption to railway transport for a long time, resulting in delays, cancelled connections or train heating system malfunctions. As part of initiatives aimed to reduce the effects of such events, the CSC has been established in January 2014. The CSC comprises representatives of PKP S.A., PKP Intercity S.A. and PKP Polskie Linie Kolejowe S.A.

The main reason behind establishing the CSC was to ensure the high comfort of travel and provide the spokespersons for the Companies with up-to-date information on disruptions to train traffic during difficult winter conditions. The support given to passengers during this period consisted mainly in the efficient supply of hot beverages to passengers travelling on delayed trains and at the largest train stations in Poland.

In order to ensure the highest possible quality of services, the CSC operates round-the-clock. Employees constantly monitor the current situation on the railway network, in trains and at stations. They immediately react if there are any events that may lower the comfort of travel.

However, the CSC does more than just organise assistance in the event of delays. The close cooperation between the Companies makes it possible to address the needs of passengers on a continuous basis. The employees of PKP Intercity S.A. receive information on unplanned travel of disabled persons from train managers nearly each day – thanks to the cooperation with the representative of PKP S.A., it is possible to provide assistance at stations, whereas through contact with the Dispatching Centre of PKP Intercity S.A. – it is also possible to provide assistance in organising the best possible connection.

The CSC also provides support to passengers that require special care – pregnant women, children and seniors. In addition, CSC employees monitor the trips of organised groups of holiday camp participants or team supporters. They are provided with special care and observation by the CSC not only on the train, but also during the waiting period for its arrival. In exceptional situations, the CSC team provides passengers with assistance suited to their needs. However, if it is not possible to plan the necessary route, the CSC tries to organise appropriate conditions for the passenger to await the next train (including during night time) or transport by another mode of transport.

## Customer Satisfaction Patrols (CSP)

In April 2014, PKP Polskie Linie Kolejowe S.A. joined the project entitled “Customer Satisfaction Patrols – a study on quality parameters of services provided to customers of the PKP Group” (CSP), implement since September 2013 by PKP S.A. The main purpose of the project is to ensure the comfort of travel to passengers by improving the condition of infrastructure on platforms and platform access routes and raising the standards of services provided to passengers.

CSPs perform quality controls covering the full scope of factors that affect the comfort of travel and customer satisfaction with services provided by Companies from the PKP Gro-

up which participate in the project (PKP S.A., PKP Polskie Linie Kolejowe S.A. and PKP Intercity S.A.). In addition to internal audits, the CSP study constitutes another source of information on the quality of services provided to customers. It allows to identify problem areas that lower customer satisfaction and implement remedial measures.

Controls as part of the CSP study are conducted systematically by auditors engaged by the contractor. The main scope of the study is carried out using the “Mystery Customer” method. This approach allows to deliver diverse and comprehensive information while ensuring the highest level of objectivity and reliability. Controls carried out under the CSP study provide a possibility to view the entirety of services provided by the Companies participating in the project from the passengers’ perspective. The results are reported and communicated to the management staff of areas under audit, so as to improve the standards and quality of services.

The weekly frequency of obtaining information, adopted in the research methodology applied, also allows to expand the already developed model of cooperation between the Companies in areas related to passengers.

Since July 2015, the number of audited locations has increased from 23 to 251 (the most important locations from the passengers’ perspective).

The assessment encompasses a number of elements divided into the following thematic blocks:

1. cleanliness of stations and passenger stops, including associated infrastructure;
2. technical condition of stations and passenger stops, i.e. superstructure, accessory structures, structure markings;
3. consistency of passenger information, i.e. the consistency of voice announcements and information on information boards with the actual state;
4. sense of safety on the railway area, e.g. presence of security personnel.

Number of CSP controls in between August and September 2015		
Month	Primary	Additional
August	327	0
September	340	0
October	312	37
November	321	15
December	337	21
Summary	1 637	73
	<b>In Total</b>	<b>1 710</b>

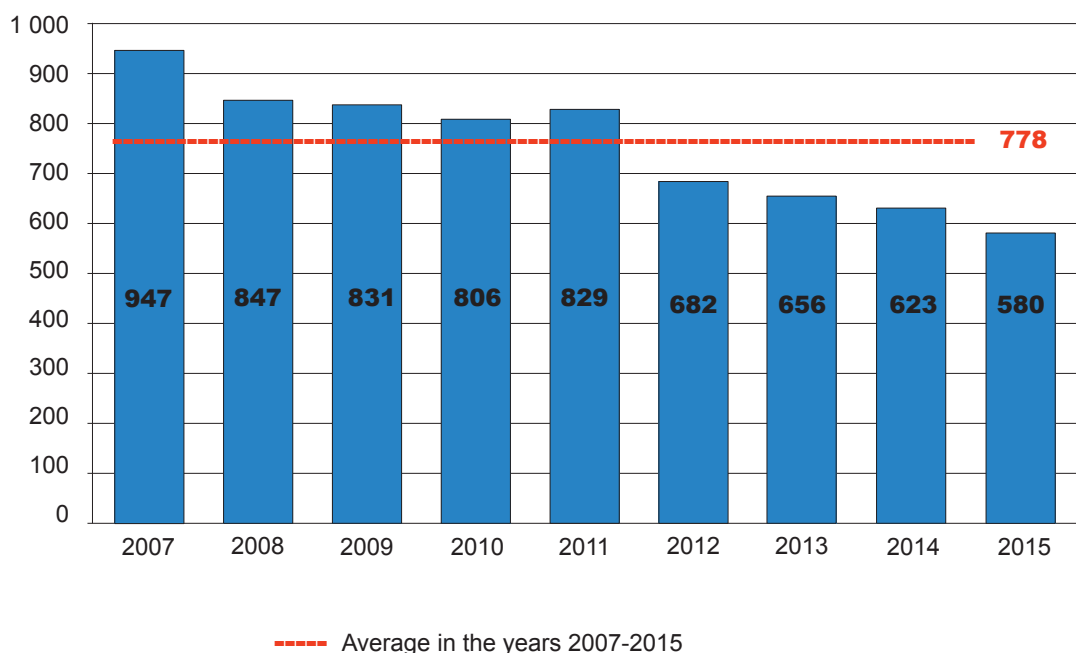
# Safety

## Statistics of railway events (as at 23 August 2016)

### Railway events by category

580 accidents (excluding suicides) occurred on the railway line network managed by PKP Polskie Linie Kolejowe S.A. between 1 January and 31 December 2015. In comparison to 2014, the number of events dropped by 43.

Comparison between the numbers of events that took place on the railway lines managed by PKP Polskie Linie Kolejowe S.A. in 2007-2015

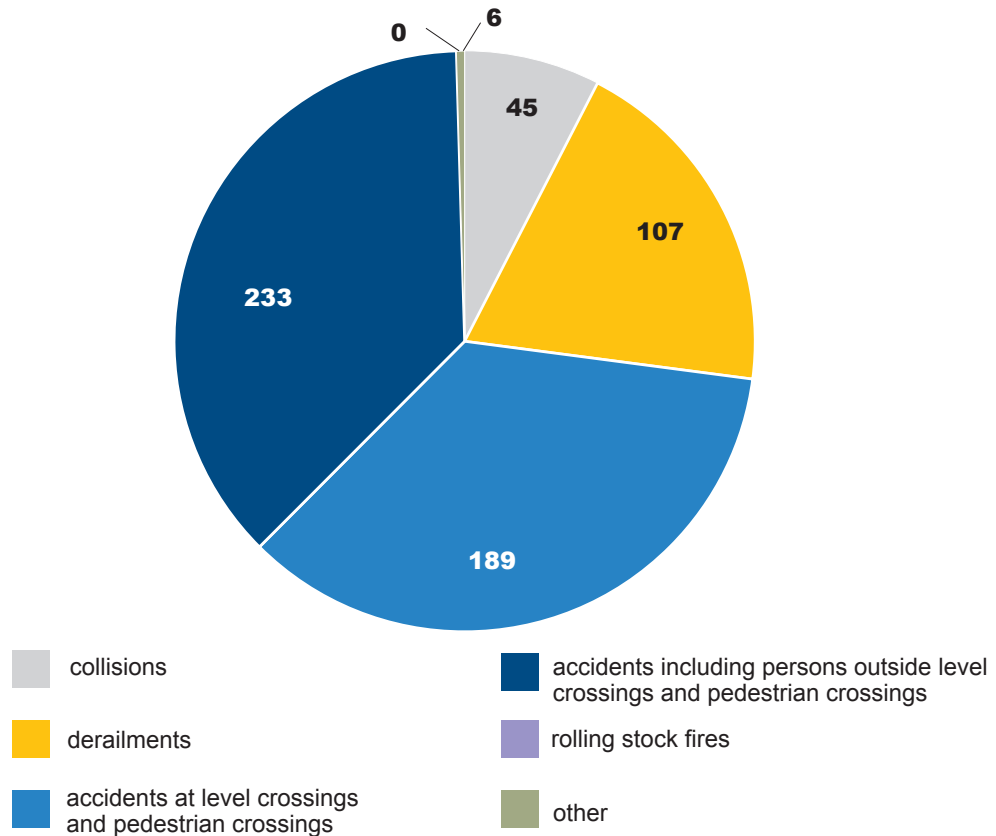


### Accidents and serious accidents by type

The railway accidents classification method used by PKP Polskie Linie Kolejowe S.A. compliant with the requirements of the Office of Rail Transportation (UTK) and the European Railway Agency (ERA) covers:

1. collisions;
2. derailments;
3. accidents at level crossings and pedestrian crossings;
4. accidents including persons outside level crossings and pedestrian crossings (excluding suicides);
5. rolling stock fires;
6. other accidents.

Quantitative structure of accidents on the network managed by PKP Polskie Linie Kolejowe S.A. in 2015, by type



The diagram above shows that the most numerous group of accidents that took place on the network managed by PKP Polskie Linie Kolejowe S.A. were the accidents that involved persons outside level crossings and pedestrian crossings (persons who were on railway premises and were hit by trains, or who attempted to jump on/off trains) as well as accidents on level crossings and pedestrian crossings. Collisions and derailments amounted to 26% of all accidents in 2015. They are the events that usually result from the errors in the entire “railway system”, namely of technical devices, procedures and/or human factor (on the side of the railway operator or infrastructure manager). The possibility to reduce these two types of accidents depends directly on the measures taken by railway market participants (infrastructure managers and railway operators), but also designers, producers, suppliers and contractors providing construction and maintenance services.

### Casualties of railway accidents

The number of casualties that resulted from accidents that occurred on the railway network managed by PKP Polskie Linie Kolejowe S.A. in 2015 was 305, with 219 fatalities and 86 severely injured. In comparison to 2014, the number of fatalities dropped by 23 while the number of severely injured – by 1. The largest group of fatalities that resulted from accidents that occurred in 2015 comprised persons with no authorisation to be present on railway premises (164 fatalities – 10 more than in 2014) as well as users of level crossings and pedestrian crossings (55 fatalities – 13 more than in 2014). As regards persons that were severely injured in railway accidents, the largest group (47 people – fewer by 10 than in 2014) were those with no authorisation to be present on railway premises, while the second largest group were the users of level crossings and pedestrian crossings (40 people – 16 more than in 2014).

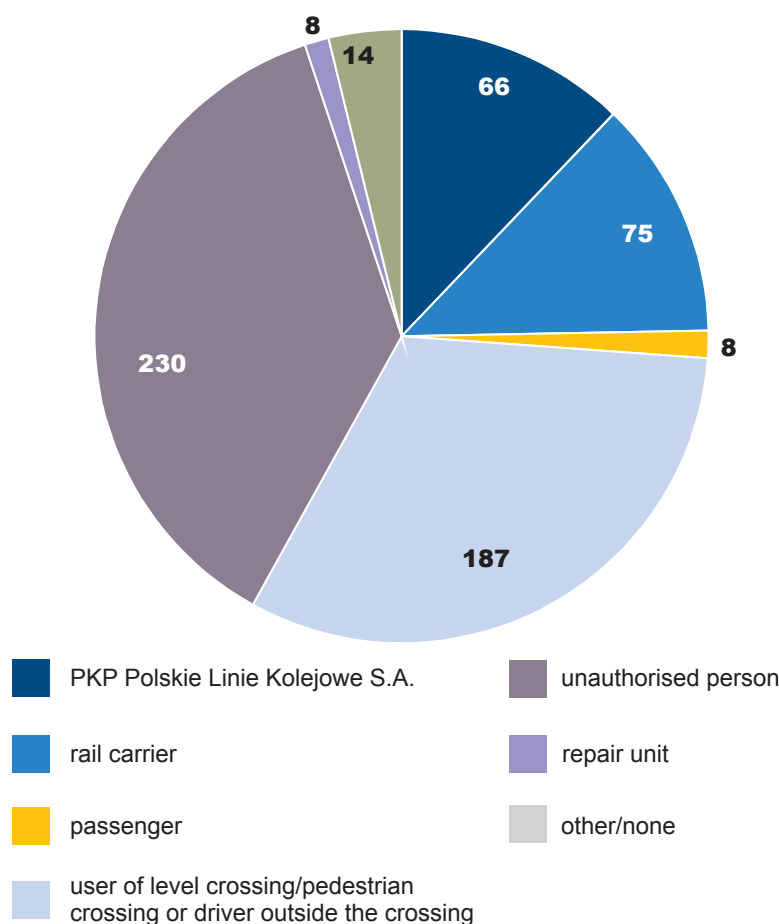
The accidents that caused fatalities in the group of passengers (2) were caused by jumping on/off the train or falling from the railway vehicle.



## Accidents by fault attribution

In most cases, the parties that were responsible for accidents in railway traffic were the users of level crossings and pedestrian crossings, which is evident in the much higher number of accidents at railway crossings and collisions with pedestrians outside level crossings and pedestrian crossings in the general statistical results related to accidents.

Entities responsible for accidents in 2015



In 2015, 65 accidents were attributable to PKP Polskie Linie Kolejowe S.A. (fewer by 15 than in 2014), including: 3 collisions, 57 derailments, 5 accidents on level crossings and pedestrian crossings. The most frequent cause of events attributable to the Company was damaged track superstructure or its inadequate condition as well as poor condition of engineering structures.

## Measures taken to improve the safety of railway traffic

Modernization and revitalisation work covering track superstructure included the replacement of elements that play a crucial role in the prevention of the risk of derailment, including turnouts. 1,271 turnouts on the network managed by PKP Polskie Linie Kolejowe S.A. have been modernized in 2015. The replacement of selected turnouts is the object of a separate investment project – OPI&E 7.1-71 “Improvement of safety through installation of new railway turnouts with a higher design standard”. 697 turnouts have been replaced since the beginning of its implementation (October 2013) until 31 December 2015, which represents 100% of the plan; 329 turnouts have been replaced under the project in 2015 alone. The total value of the project amounted to PLN 474.6 million.

As part of modernization and revitalisation projects currently in progress, PKP Polskie Linie Kolejowe S.A. is modifying level crossings and pedestrian crossings, equipping them with

additional protection/warning solutions; moreover, level crossings and pedestrian crossings are being removed and replaced with viaducts, footbridges and tunnels.

In 2015, a total of 681 crossings on the network managed by PKP Polskie Linie Kolejowe S.A. were modernized, including through the installation of automatic crossing signalling equipment and CCTV equipment. Furthermore, 118 viaducts were built or modernized.

The modernization of selected road-rail crossings is the object of two separate investment projects:

1. OPI&E 7.5-59 "Improvement of safety and elimination of operational risks at railway crossings - stage I" – 107 crossings have been modernized under the project for a total amount of PLN 127 million;
2. OPI&E 7.1-80 "Improvement of safety and elimination of operational risks at railway crossings - stage II" – 159 crossings have been modernized under the project for a total amount of PLN 192.8 million.

Current and planned investments on the railway network managed by PKP Polskie Linie Kolejowe S.A. include the installation of additional defect detectors. By the end of 2017, the number of installed defect detectors should amount to 200. In 2015, the Company installed 5 additional detectors in new locations. Moreover, the installation of additional detectors was consulted as part of documentation being developed for investment projects.

### **Optimising safety procedures used during investment implementation and other track work**

The implementation of investments and other track work requires the closure of track sections. Proper planning and commencement of those operations is crucial from the perspective of railway traffic safety. Track closures result in the necessity to introduce traffic restrictions, while in the case of long-term closures – also changes to train timetables. Under some disadvantageous conditions this may be an additional risk factor. In 2015, there was a total of 38,437 track closures on the network managed by PKP Polskie Linie Kolejowe S.A. (1.7% more than in 2014), including 3,470 closures that lasted the whole day.

The performance of intensive investment work and other track works in the vicinity of active tracks on which train traffic is operated requires the application of very restrictive safety measures. In the recent years, the Company took a number of steps to improve safety during the implementation of investment projects and other works, both for people working in the vicinity of active tracks and train traffic occurring near work sites. Actions implemented in 2015 in this area included, inter alia:

1. increasing personnel at operating control centres during the implementation of investments on the station/line;
2. issuing recommendations for securing closed tracks during the performance of work that requires the disassembly of tracks;
3. performing thematic audits of the Safety Management System (SMS) concerning railway traffic safety during the performance of investment works (12 audits have been carried out in 2015);
4. inspections concerning railway traffic management safety in locations where investment works are performed (inspectors have carried out 58 inspections in 2015);
5. imposing penalties on contractors for omissions and irregularities related to OHS;
6. performing risk assessment for hazards present during the performance of investment work.

### **Purchase and replacement of voice recorders in signal boxes**

In order to strengthen work discipline and develop a safety-oriented attitude among the staff directly involved in traffic management and ensuring traffic safety, the Company has been installing voice recorders and train announcement units with a voice recording function at active signal boxes. In 2015, the programme assuming the purchase and installation of 600 devices has been implemented. The activity referred to above will be continued in subsequent years – until the Company's needs in this area are fully satisfied, but not longer than by 2018. New voice recorders are being installed at Local Control Command and Signalling Centres and operating control centres covered by modernization work related to control command and signalling (CCS) systems, implemented on the network managed by PKP Polskie Linie Kolejowe S.A.

### **Equipment of gatehouses on level crossings in devices with access to the Crossing Keeper Support System (CKSS)**

Investment measures related to the improvement of railway traffic safety, scheduled for 2015, included a project aimed to equip level crossing gatehouses (on approx. 480 crossings) with devices enabling access to the GSS application. The application enables crossing keepers working outside the station to access current information concerning train traffic on the crossing under their management. The project involved the purchase of computer equipment which was provided to selected gatehouses and the development of the GSS app enabling the crossing keeper to access all information necessary to safely operate traffic. In 2015, nearly 400 gatehouses have been given access to the above-mentioned system.

### **Purchase and installation of base transceivers with a Radio-Stop system in crossing gatehouses**

In 2015, PKP Polskie Linie Kolejowe S.A. continued the project commenced in 2014, consisting in the equipment of selected gatehouses on category A road-rail crossings in base transceivers with a Radio-Stop function. These transceivers make it possible for crossing keepers to react to dangerous situations that may occur at crossings by transmitting the "Alarm" signal that will automatically stop the incoming train(s). This allows to avoid potential collisions between railway and road vehicles when a road vehicle becomes stuck at a crossing, between the barriers. In the first stage of the project (initiated and completed in 2014), transceivers have been installed at 78 crossing gatehouses, whereas in the second stage (completed in 2015) – at another 69 gatehouses.

### **Equipment of turnouts on selected stations in universal locking devices for the emergency closure of switch blades and movable crossing vees**

The installation of locking devices at turnouts allows personnel responsible for managing train traffic to secure switches in end positions in the event of CCS equipment malfunction, which reduces the risk of random change in switch position under the rolling stock and minimises the operational disruptions in situations when traffic is operated without the full functionality of CCS equipment at the operating control centre. Prior to the installation of universal locking devices, employees of these operating control centres had to secure switches in end positions locally using locking devices or switch point locks.

The amount of PLN 5 million allocated for 2015 in the plan of investment measures allowed to purchase more than 3 thousand locking devices.

The project was aimed to improve operating safety by reducing the number of events related to setting an improper route or improper handling of CCS equipment by employees and facilitate the railway traffic management process in the event when CCS equipment is not fully functional, which will reduce the risk of potential delays resulting from such situations. Due to the large number of locations, the project will be continued in 2016 and will include additional operating control centre all across the country.

## **Initiatives of the Company aimed at improving staff competencies and shaping safety-oriented attitudes**

PKP Polskie Linie Kolejowe S.A. is implementing a major programme aimed to promote safety-oriented attitudes among its employees, contractors and other people related to the railway system. It should be borne in mind that the formation of the required safety-oriented attitude is a challenging process as it requires changes in the mentality and awareness of the staff. Therefore, it is an evolutionary and thus a long-term process. For this reason, the Company is involved in activities performed on a continuous basis by implementing the following initiatives:

1. constructing a CCS and communications equipment simulator (completed in October 2015);
2. preparing ad-hoc instructions for all crossing keepers (implementation period: October 2014 - June 2015);
3. developing Information Bulletins concerning railway events that have occurred and distributing them to employees responsible for railway traffic safety (46 bulletins were issued in 2015);
4. providing all Company employees with information concerning safety on the railway network under management on a semi-annual and annual basis;
5. organising the second edition of the knowledge contest entitled "Safety First";
6. continuing to provide first psychological aid to employees who were in railway accidents and worked on removing the effects of such accidents;
7. running the Safe Crossing – "Risk Barrier!" social campaign.

## **Optimising the Safety Management System (SMS)**

### **Implementation of the Maintenance Management System (MMS) and its integration with SMS**

PKP Polskie Linie Kolejowe S.A. is an entity in charge of maintenance (ECM) of railway vehicles. The Company is subject to certification by the Office of Rail Transport concerning the maintenance for freight wagons. The obligation to undergo certification in the area of freight cars stems from the provisions laid down in the Commission Regulation (EU) No 445/2011 of 10 May 2011 on a system of certification of entities in charge of maintenance. The certificate of an entity in charge of maintenance is issued based on the acceptance of the Maintenance Management System (MMS). This system allows to ensure that railway vehicles are maintained in accordance with applicable maintenance systems and legal regulations, including maintenance plans and the provisions laid down in the Technical Specification for Interoperability (TSI).

At PKP Polskie Linie Kolejowe S.A., the MMS applies to all railway vehicles put into service, whereas railway vehicles that fall under the definition of a freight wagon in accordance with the above-mentioned EU are subject to certification. In order to meet the requirements laid down in that Regulation, on 27 January 2015, the Management Board of PKP Polskie Linie Kolejowe S.A. adopted a resolution concerning:

1. the acceptance of the instruction implementing the "Maintenance Management System (MMS) taking into consideration the requirements laid down in Commission Regulation (EU) No 445/2011";
2. the granting of a power of attorney to hold supervision over the MMS on behalf of PKP Polskie Linie Kolejowe S.A.

The MMS includes 30 procedures, including 15 procedures integrated with SMS.

## Monitoring the Safety Management System

PKP Polskie Linie Kolejowe S.A. implemented a monitoring process for their “Safety Management System”, laid down in procedure SMS-PD-04 Monitoring and Continuous Development of the Safety Management System, in order to meet the requirements laid down in Commission Regulation (EU) No 1078/2012 of 16 November 2012 on a common safety method for monitoring to be applied by infrastructure managers after receiving a safety authorisation. Moreover, in compliance with the provisions of this Regulation, the Company implements a Monitoring Strategy establishing, among others, the principles for selecting tools and methods of SMS monitoring for problem areas as well as qualitative and quantitative ratios used in SMS monitoring (the Strategy has been updated in 2015). Main areas subject to the monitoring process include:

1. the safety of railway traffic operated on the railway network managed by PKP Polskie Linie Kolejowe S.A.;
2. the correct and effective application of SMS procedures at the Company;
3. the introduction of technical, operational and organisational changes considered as significant in the change management process (procedure SMS-PR-03);
4. cooperation with suppliers and contractors whose products/services have a direct or indirect impact on railway traffic safety;
5. the effectiveness of implementation of preventive and corrective measures, including:
  - the implementation of guidelines and recommendations of National Railway Accident Investigation Board;
  - the implementation of guidelines of railway committees included in the Final Memorandum of Understanding (FMoU);
  - the implementation of post-inspection conclusions from inspections carried out by the Office of Rail Transport or other public administration authorities;
  - the implementation of conclusions and recommendations from SMS audits, SMS controls, SMS inspections;
  - the implementation of recommendations issued by risk analysis teams;
  - the implementation of conclusions from the previous monitoring process application;
  - the implementation of tasks provided for in the Safety Improvement Programme;
  - the organisation of training courses and periodic instructions.
6. the effectiveness of implemented risk management measures and actions implemented as part of constant SMS optimisation.

The basic tools and methods of SMS monitoring at the Company include:

1. maintaining an accidents & events database and performing statistical analyses of data collected therein;
2. running the Operating Performance Registration System (SEPE) application and a performing statistical analyses of data contained therein;
3. analysing common safety indicators (CSI) and how they change over time;
4. assessing compliance with safety targets (CST);

5. SMS audits;
6. SMS controls, taking into consideration all internal regulations concerning the performance of controls at the Company, including decisions of Heads of Railway Lines District Units applicable to controls;
7. SMS inspections.

In accordance with the provisions laid down in procedure SMS-PD-04, together with the annual report from the implementation of the railway traffic safety improvement programme, managers of organisational units provide the Company's Headquarters with information on actions related to SMS monitoring undertaken in the previous year.

### **Risk management measures**

A total of 572 change significance assessments have been conducted in 2015 (271 in 2014), with four changes deemed to be significant – within the meaning of Commission Regulation (EC) No 402/2013 of 30 April 2013. In addition, a risk assessment for railway traffic safety has also been performed as an element of the Safety Management System in force at the Company, so as to determine additional risk management measures in justified cases and minimise the degree of risk (enhance safety) related to the Company's activity.

### **Implementation of the Railway Traffic Safety Improvement Programme**

The primary purpose of developing and implementing the Railway Traffic Safety Improvement Programme in 2015 was to prevent any unacceptable risks and limit the frequency of hazards and their consequences through the application of appropriate risk management measures. Measures stipulated in the Programme are aimed at the implementation of main safety targets for the year 2015, laid down in Resolution No 883/2013 of the Management Board of the Company of 12 November 2014.

Apart from measures allocated to individual initiatives and targets, the Programme also includes indicators that allow to monitor the target achievement progress on an ongoing basis. These indicators have been designed in such a way, so as to enable their comparison in cumulative periods with the state as at the end of the base year. Warning and alarm values have also been determined for each indicator in reference to all periods.

Organisational units of the Company were tasked with submitting quarterly reports from the implementation of the Programme for the year 2015. In these reports, units participating in the implementation of the Programme presented quantitative (expressed in percentages) and qualitative information concerning the performance of tasks stipulated in individual initiatives and provided the values of main safety target achievement indicators in relation to their own activity. Quarterly reports from the implementation of the Programme for the year 2015 were based on the verification and analysis of information provided and subject to approval by the Vice President of the Management Board, Director for Operational Affairs; they were also furnished, among others, to Members of the Management Board of the Company.

In 2015, the Company also implemented a number of additional measures to improve railway traffic safety in all areas of its activity. PKP Polskie Linie Kolejowe S.A. monitored the implementation of undertaken measures by developing the "Schedule of Safety Improvement Measures (...)". The total number of measures included in the schedule that were undertaken in 2015 was 222, including 38 technical measures, 135 organisational and operational measures, and 49 employee-related measures.

## Railway Security Guard

The primary function of the Railway Security Guard (SOK) is to improve safety and ensure public order in railway areas. Another equally important function is to ensure the safety of railway traffic and protect cargo carried by rail.

Measures undertaken by the Railway Security Guard in 2015 have resulted in a nearly 40% drop in the number of freight theft from wagons and a 15% drop in the number of crimes committed on railway premises.

The technological support of Railway Security Guard officers (e.g. mobile monitoring centres, camera traps, drones) provides the possibility of observing a several kilometre long section of a railway line and reacting to cases of breaking the law on an ongoing basis thanks to radio communication.

By analysing the total number of incidents registered by the Railway Security Guard in the years 2014-2015, it is necessary to point out that the number of incidents registered in 2015 has declined by 1,888 incidents.

In 2015, the Railway Security Guard has been implementing intensive measures aimed primarily to improve the safety of passengers in trains as well as at stations and passenger stops, and to prevent the theft and devastation of equipment related to train traffic safety. These were mainly anti-theft and prevention measures supported by the analysis of events, aimed at reducing the number of crimes and offences committed on railway premises.

In 2015, the Railway Security Guard Headquarters implemented a number of tasks related to the protection of passengers' life and health, property protection and enforcement of regulations on railway premises, on trains and other rolling stock by providing protection to:

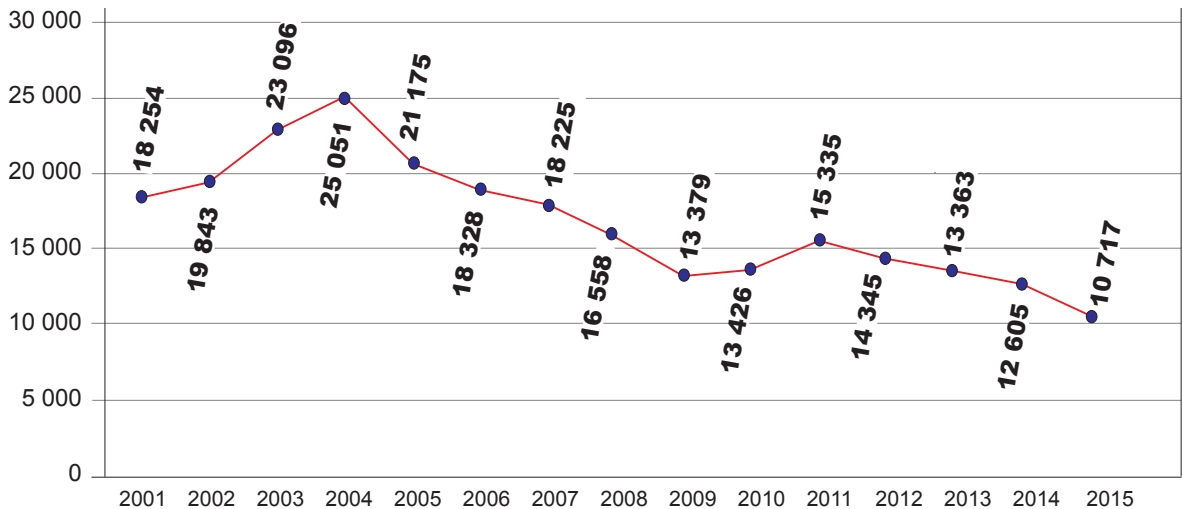
1. 18,510 km of railway lines, comprising tracks of a total length of approx. 36,218 km and over 12,744 level crossings;
2. approx. 1,000 railway station buildings;
3. approx. 5,500 passenger and freight trains launched each day (on average).

Compared to the corresponding period of 2014, the number of registered events looks as follows:

No.	Type of event	Year		Decrease in %
		2014	2015	
1.	Throwing stones or other objects at trains	291	277	4,81
2.	Wagon consignments (thefts, dumps, unauthorised interference with rolling stock)	1 751	1 100	37,18
3.	Theft and devastation of railway infrastructure elements (in total)	4 404	3 517	20,1
4.	Theft and devastation of equipment related to traffic safety on active railway lines	3 224	2 387	25,96
5.	Theft and devastation of equipment on inactive railway lines	386	288	25,39

The presented statistics clearly show that effective security and theft prevention measures undertaken by the Railway Security Guard as well as instruction offered to students of education centres (800 lectures in 2015) significantly contributes to the improvement of safety on railway premises.

Measures undertaken by in 2015 proved to be a good move and have contributed to the achievement of set targets, including to the reduction of the number of events occurring on railway premises, acquisition of new skills by Railway Security Guard officers and technical resources used by them to carry out their duties.



## Railway technical emergency response service

Safety is the absolute priority in railway traffic management. All measures aimed to ensure a high technical standard of the railway network managed by PKP Polskie Linie Kolejowe S.A. take into account the effective and efficient railway emergency response system and fire prevention solutions. PKP Polskie Linie Kolejowe S.A. has a total of 20 technical emergency response units, including 10 Special Technical Emergency Response Trains available 24/7 as well as 10 Technical Emergency Response Trains deployed whenever necessary. These trains are equipped with:

1. EDK 750, EDK 1000 and EDK 2000 train cranes;
2. WZT-2 and WZT-1 multi-purpose crawler tractors on platforms;
3. road-rail vehicles;
4. WM-15A/PRT self-propelled technical emergency response vehicles;
5. hydraulic devices capable of re-railing heavy railway vehicles.

Technical emergency response teams are the only emergency response in the country with appropriate personnel and technical resources to remove the effects of events occurring on railway lines.

The operational capacity of railway technical emergency response teams has been increased through the purchase of 50 indirect couplers, 17 three-phase power generators, 25 emergency pneumatic cushion sets, 20 hydraulic spreaders and hydraulic re-railing equipment made in 2015 in order to better equip the teams. The Special Technical Emergency Response Train in Bydgoszcz has been additionally equipped with a WM-15A/PRT self-propelled technical emergency response vehicle.

The specialist equipment combined with highly competent technical staff guarantees an efficient restoration of proper traffic flow on railway lines and ensures safety by providing protection against the consequences of malfunctions, technological and environmental disasters.

In 2015, railway technical emergency response teams participated in the removal of the effects of 160 event that occurred on railway lines managed by PKP Polskie Linie Kolejowe S.A.



Apart from its primary activity, while maintaining full readiness to undertake emergency response measures, railway technical emergency response teams provided services consisting in re-railing and hauling all types of rail vehicles on 118 occasions in 2015. In addition, they participated in a number of operational exercises on railway premises that involved the participation of rescue and fire-fighting units of the National Fire Service and other emergency response entities.

## Social campaign Safe Crossing – “Risk Barrier!”

Recklessness, haste, routine and willingness to take risks by drivers and pedestrians – these represent the cause of 98% of all accidents that occur at level and pedestrian crossings. Therefore, PKP Polskie Linie Kolejowe S.A. run the Safe Crossing Awareness Campaign under the Railway Traffic Safety Improvement Programme that includes more than 200 initiatives. Another edition of the campaign, in a new form and with a new slogan – “Risk Barrier!” – has been launched in 2015.

Each year, approx. 200 collisions and accidents occur at railway crossings, resulting in dozens of fatalities. Approximately 300 accidents occur annually in restricted access areas, resulting in an average of 200 fatalities. Safety at railway crossings and in the areas where crossing tracks is prohibited is a problem of all the parties that can do something about it: the railway, police, administration authorities, local governments, road managers, social organisations and all people of good will.

The primary goal of PKP Polskie Linie Kolejowe S.A. is to change people’s behaviour, strengthen correct social attitudes, increase the awareness of threats resulting from insufficient alertness during one’s presence at railway crossings and railway areas. Our objective is to reduce the number of accidents. Our actions primarily target all road users: drivers, cyclists and pedestrians – both children and adults.

The campaign was first started in 2015 and has been continued ever since. The first four editions were organised only in the summer. Since 2009, the initiative covers the entire year. In October 2012, the project was expanded to include the accidents related to crossing tracks in restricted areas. The campaign concerned one of the largest campaigns of such kind in Europe. The scale and social awareness of these measures have been recognised on the international arena. On 5 February 2015, in Brussels, PKP Polskie Linie Kolejowe S.A. has been commended for improving the safety at level crossings as part of the European Road Safety Charter (ERSC). It is the largest civic platform on road safety, led by the European Commission.

### New form of the Safe Crossing – “Risk Barrier!” campaign

For the last 10 years, the campaign was focused primarily on providing information on the tragic consequences of collisions with trains. In order to additionally strengthen the message, the 2015 edition of the campaign changed its form. The logo, slogan, visualisations and graphic materials have been re-imagined and a new approach to reaching the public has been adopted. Campaign measures included the production of a film titled “Risk Barrier!”, presenting recordings from industrial cameras that show dangerous behaviours of drivers and pedestrians. The production was featured on the list of best advertisements of the week according to [wirtualmedia.pl](http://wirtualmedia.pl) and had more than 36 thousand views on YouTube. Continuing the safety theme, PKP Polskie Linie Kolejowe S.A. focused on explaining two aspects: taking extreme risk and psychological consequences of accidents – resulting from recklessness, routine and haste.

The campaign was supported by experts in the field of safety. The campaign also made an appearance on social media under the hashtag #SzlabanNaRyzyko (Risk Barrier!). However, the purpose of Poland-wide measures remained unchanged, i.e. to minimise the number of events constituting a hazard to the life and health of persons present on railway premises.

Some of the measures implemented by employees of Polskie Linie Kolejowe S.A. in 2015 as part of the social campaign in question include:

1. 715 educational lectures regarding railway safety;
2. 4 simulations of a locomotive colliding with a motor vehicle at level crossings;
3. 64 open-air events;
4. 10 Poland-wide informational campaigns "Risk Barrier!" at approx. 500 level crossings;
5. 7 press conferences concerning safety at level crossings;
6. 150 thousand leaflets for drivers and pedestrians, distributed during the campaign at level crossings and illegal crossing places;
7. 142 defects reported using the form "Report a defect" available at:  
[www.bezpieczny-przejazd.pl](http://www.bezpieczny-przejazd.pl);
8. 40 broadcasts of the campaign's spot on Polish Radio;
9. campaign evaluation studies.

Additional measures have been implemented under the project titled "October: the Month of Education":

1. 465 educational lectures regarding railway safety, attended by 31,059 children;
2. 20,295 minutes of education, i.e. more than 2 weeks of continuous learning.

# Development prospects

## General strategic framework

The strategic framework of measures undertaken by PKP Polskie Linie Kolejowe S.A. is laid down in government strategic documents on transport and relevant EU regulations.

A key document laying down the Company's strategy at a national level is the "Transport Development Strategy until 2020 (with perspective up to 2030)" – TDS<sup>1</sup> – and the "Implementing Document to the TDS" as well as national, supra-regional and regional Operational Programmes enabling the utilisation of European structural and investment funds for the implementation of investments in railway transport.

The point of reference for the Company in terms of planned railway investments is the "National Railway Programme until 2023"<sup>2</sup> (NRP) adopted in 2015. It includes investment projects implemented using funds administered by the Minister competent for transport and investments co-financed from EU funds under the Operational Programme Infrastructure and Environment (OPI&E) 2014-2020, Operational Programme Development of Eastern Poland (OP DEP) and the Regional Operational Programme (ROP).

The strategic objectives of PKP Polskie Linie Kolejowe S.A. focus on meeting the following targets indicated in the Transport Development Strategy, referring to railway transport:

1. undertaking measures aimed to create a modern and coherent network of railway lines;
2. improving the safety of traffic and transported cargo;
3. improving organisation and management methods;
4. limiting the negative environmental impact of transport,
5. developing a rational model for financing infrastructure investments.

The primary target for the Company<sup>3</sup> is to ensure railway traffic safety and its continuous improvement in operational, maintenance and investment processes.

All tasks for which the Company is responsible are implemented in a way consistent with the principle of sustainable growth and in compliance with the requirements concerning environmental protection, effective resource management, adaptation to climate change, biological diversity and resistance to natural disasters.

## Strategic documents

In 2015, the Company was involved in the following priority measures:

1. work on the programme entitled "Assistance in financing infrastructure management costs, including maintenance and renovations, for the years 2016-2023" and the draft multi-annual contract implementing the provisions of the programme – so as to meet the requirements laid down in Directive 2012/34/EU of 21 November 2012 establishing a single European railway area. The adoption of these documents will provide financing to maintain railway infrastructure in accordance with the required standards, eliminate maintenance arrears and balance expenses and revenues of PKP Polskie Linie Kolejowe S.A.;

<sup>1</sup> document adopted by means of the Resolution of the Council of Ministers of 24 September 2014, amended by means of the Resolution of the Council of Ministers dated 13 October 2014.

<sup>2</sup> document adopted by means of the Resolution No 162/2015 of the Council of Ministers dated 15 September 2015 on the establishment of the National Railway Programme until 2023.

<sup>3</sup> pursuant to the Safety Policy of PKP Polskie Linie Kolejowe S.A., chapter 5 of the Safety Management System Manual (SMS).

2. drafting a document laying down the Company's operating framework and strategic objectives entitled "Operating strategy until 2023 with perspective for future years", which was adopted by the Management Board and submitted for approval to the Supervisory Board of the Company;
3. drafting a document laying down the method for the implementation of interoperability requirements on railway lines managed by the Company, entitled "Strategy for the Implementation of Interoperability on the railway network managed by PKP PLK S.A.";
4. adoption of the Asset Management Policy of PKP Polskie Linie Kolejowe S.A. by the Management Board of the Company.

PKP Polskie Linie Kolejowe S.A. is obligated to act in the public interest, i.e. to expend public funds efficiently and improve the quality of infrastructural services. All measures referred to above are aimed to meet the expectations of railway undertakings and other applicants to the greatest extent possible. In effect, the provisions of strategic documents constitute a foundation for the improvement of the quality of railway infrastructure made available by the Company and serving all railway users in Poland. It fits into a wider context of plans for transport development with a preference for environmentally friendly, safe and energy efficient railway transport.

The Company also participated in social consultations of draft strategic and programme documents, such as the "National Railway Programme until 2023", "Assistance in financing railway infrastructure management costs, including maintenance and renovation, for the years 2016-2023", "National Urban Policy until 2023", "National Programme for the Development of Low-Carbon Economy", "National Programme for the Development of Sea Ports" and "Polish Energy Policy until 2050".

## EU legislation

In reference to tasks related to EU legislation, PKP Polskie Linie Kolejowe S.A. participated in drafting the most advantageous version possible of provisions laid down in legislative proposals concerning legal acts under the 4th Railway Package and implementing acts to Directive 2012/34/EU on establishing a single European railway area concerning: direct costs (regulation 2015/909 was published in June 2015), framework agreements (the document has been agreed and awaits publication in the Official Journal of the European Union) and modifying railway infrastructure access charges. In accordance with the provisions laid down in the Directive referred to above, an implementing act concerning the differentiation of access charges depending on whether trains are equipped with the European Rail Traffic Management System (ERTMS). However, due to the regulation impact analysis performed by the EC, the decision whether this document will be drafted has not yet been made. At present, the draft of this document is still at the "document for consultation" stage.

As regards the above-mentioned area, the Company has cooperated with a number of stakeholders, including such key entities as: PKP S.A., ministry competent for transport, Platform of Rail Infrastructure Managers in Europe (PRIME), Community of European Railway and Infrastructure Companies (CER) and European Rail Infrastructure Managers (EIM).

The involvement in works concerning the implementation of Directive (EU) 2012/34/EU of the European Parliament and of the Council of 21 November 2012 on establishing a single European railway area consisted in providing opinions on individual projects.

## Rail Freight Corridors and TEN-T Core Network Corridors

### Launch of freight corridors

The following rail freight corridors have been launched on 10 November 2015: Rail Freight Corridor Baltic-Adriatic (RFC5) and Rail Freight Corridor North Sea-Baltic (RFC8). The corridors have been launched within a period compliant with the Regulation (EU) No 913/2010 of the European Parliament and of the Council of 22 September 2010 concerning a European rail network for competitive freight (hereinafter referred to as Regulation No 913/2010).

One stop-shops have begun operation on each of above corridors (Corridor One-Stop, Shop-C-OSS) and their offer of reserve capacity and the Corridor Information Document (CID) for 2015/2016 timetable have been published.

The CID constitutes the rules of procedure for the corridor and a basis for the presentation of the rail freight corridor's offer. The CID is divided into five books:

1. general Information;
2. excerpts from national network statements;
3. terminal descriptions;
4. procedures for capacity allocation and traffic management;
5. implementation plan.

CIDs will be updated, inter alia, in accordance with amendments to the rules of network statements and developments of the rail freight corridors' offer.

PKP Polskie Linie Kolejowe S.A., ministries competent for transport, railway infrastructure managers from Slovakia, Hungary and Slovenia, and the Hungarian Allocation Body have begun preparations to launch a new rail freight corridor. The planned rail freight corridor No. 11, called "Amber" corridor, will connect Poland, Slovakia, Hungary and Slovenia, supplementing the European rail freight corridor network. Since the outset, PKP Polskie Linie Kolejowe S.A. has acted to support the establishment of corridor No. 11, which is planned to connect the eastern and western border of the country and supplement the current offer of rail freight corridors passing through Poland. "Amber" rail freight corridor may be launched at the end of 2018, but it depends on the decision of the European Commission (EC).

### Acquisition of EU funding

The EC has granted financial aid for the project implemented on Baltic-Adriatic Rail Freight Corridor (project No. 2014-EU-TM-0335-S entitled "Studies and activities regarding enhancement of Baltic-Adriatic Rail Freight Corridor 5 offer") and for the project implemented on North Sea - Baltic Rail Freight Corridor (project No. 2014-EU-TM-0217-S entitled „Establishment of Rail Freight Corridor „North Sea-Baltic” and its further development aiming at improving conditions for international rail freight transport”) as part of the Connecting Europe Facility. Each of these international projects is implemented by partners from six countries, while PKP Polskie Linie Kolejowe S.A. coordinates both projects. In November 2015, the Company, as the coordinator, signed grant agreements with the Innovation and Networks Executive Agency (INEA) on behalf of all partners in both corridors.

### European Economic Interest Grouping (EEIG)

In 2015, works were underway on the establishment of EEIGs, which are to take over the management of freight corridors. PKP Polskie Linie Kolejowe S.A. and other partners have agreed to the establishment of the EEIG in Poland.

### **Framework for Capacity Allocation (FCA)**

PKP Polskie Linie Kolejowe S.A. continued to cooperate on the development of the common document concerning the allocation of capacity for all rail freight corridors (FCA). The final version of the FCA has been drafted. The Executive Board of RFC8 approved the above-mentioned document for the timetable 2016/2017. The document is scheduled to be approved by the Executive Board of RFC5 at the beginning of 2016.

### **Planned revision of Regulation No 913/2010**

In relation to the revision of Regulation No 913/2010 planned by the EC, PKP Polskie Linie Kolejowe S.A., in cooperation with the representative office of PKP S.A. in Brussels, was involved in agreeing the common sector position with CER, EIM and rail freight corridors, railway undertakings and infrastructure managers.

### **Cooperation within the framework of TEN-T core network corridors**

PKP Polskie Linie Kolejowe S.A. actively participated in works related to the revision of the so-called corridor studies on the Core Network Corridor Baltic–Adriatic and RFC8 Core Network Corridor North Sea-Baltic. Works mainly involved the development of common performance indicators for all corridors and the review of the list of investment projects on each corridor. At the end of 2015, works were also focused on issues papers being drafted by the EC, aimed at extending the scope of the EU transport policy concerning innovation and sustainable transport by non-investment projects.

### **Research and development measures**

Regarding technological research and development measures undertaken in 2015, PKP Polskie Linie Kolejowe S.A. participated in a number of initiatives, both at national and international level.

The international undertakings in which the Company was involved were related to Shift2Rail (S2R). It is an initiative involving cooperation between the public sector represented by the EC and the private sector represented by entrepreneurs or consortia of industry and academia. The basis for the establishment of S2R was Council Regulation (EU) No 642/2014 of 16 June 2014, establishing the Shift2Rail Joint Undertaking. It is envisioned that this cooperation will lead to the development of innovative technologies or solutions with practical applications. The model of participation in the initiative concerned, adopted by the Company, provides for participation via PKP S.A. the European Rail Operating Community Consortium (EUROC) coordinated by the International Union of Railways (UIC). In 2015, the EuRoC Consortium received the status of an associate member of Shift2Rail, which means full membership in this undertaking. PKP S.A. is a direct member of this consortium, whereas PKP Polskie Linie Kolejowe S.A. is involved in works as a sub-contractor of PKP S.A., together with PKP CARGO S.A. and the Railway Sector Institute. In 2015, works were focused primarily on specifying the principles of cooperation between the above-mentioned entities and identifying areas of interest to the Company under the S2R initiative. One of the effects brought about by these works was the establishment of an agreement between PKP S.A., PKP Polskie Linie Kolejowe S.A., PKP CARGO S.A. and the Railway Sector Institute. PKP Polskie Linie Kolejowe S.A., through the EUROC Consortium, submitted several projects to be potentially implemented under the initiative, from which three projects of key importance for the Company have been selected.

At national level, the Company continued actions related to the establishment of cooperation with the National Research and Development Centre (NRDC). In October 2015, a Memorandum of Understanding concerning a joint undertaking regarding the support of scientific research and development works in the field of railway infrastructure, was signed.

Thematic areas have been defined and include:

1. digitizing and processing railway traffic parameters;
2. ensuring lower interference of rail transport with the environment;
3. improving the availability and durability of passenger service facilities;
4. improving the resistance of infrastructure to climatic factors and interference by third parties;
5. optimising railway infrastructure maintenance and modernization.

The rules for financing projects classified into the 5 categories referred to above have also been agreed. As a result of calls for proposals, the winning proposals of solutions will be granted support in the form of a subsidy granted by the NRDC and remuneration paid to PKP Polskie Linie Kolejowe S.A. A total of PLN 50 million will be allocated for the joint undertaking, PLN 25 million of which will constitute the Company's own funds.

Actions aimed in developing automatic railway traffic control on sections characterised by low and medium traffic intensity (mLCS) have been intensified in 2015. The Company commissioned an analysis aimed in indicating the possibilities of applying the Public-Private Partnership (PPP) formula to the construction of small control command and signalling centres (mLCS). As part of the analyses, the contractor:

1. unequivocally confirmed that the Company may act as a public party in the PPP formula;
2. indicated key opportunities and risks for this type of undertakings;
3. presented recommendations concerning the possibilities of financing and the legal model of cooperation;
4. presented the financial model that enables the performance of a simulation of the financial effectiveness of the mLCS investment in any location in Poland.

The performance of the analysis, for the first time in history, ensured a comprehensive verifications of conditions and possibilities for establishing cooperation in the PPP model concerning a given area of activity of PKP Polskie Linie Kolejowe S.A. The developed tool in the form of a financial model will make it possible to carry out further work using the Company's own resources.

All described initiatives will be continued. They are to result in the utilisation of modern technologies in rail transport and point the industry towards innovative solutions that meet the expectations of railway infrastructure managers and may be adapted to the Company's activity.

## International cooperation

In 2015, the Company continued to cooperate with infrastructure managers and other market participants, both under bilateral cooperation and through international railway organisations.

On 2-3 June 2015, the High Level Infrastructure Meeting (HLIM) organised within the framework of CER and EIM by PKP Polskie Linie Kolejowe S.A. in cooperation with PKP S.A. took place in Warsaw. The meeting was attended by representatives of European infrastructure managers of the highest level, EC representatives and European Railway Agency (ERA) representatives. The meeting was also accompanied by statutory meetings of EIM and PRIME.

A high level representative of the Company was appointed to the management board of the ERTMS Stakeholders' Platform established under the auspices of the ERA. The most

important objective of the established platform is to supervise the streamlining of the ERTMS deployment and its development with the participation of decision making bodies from the entire European railway sector and taking into consideration economic matters. The selection of the Polish representative to the assembly making decisions regarding the preparation of such a complicated process as the ERTMS deployment proves that the Company's role in this field is widely recognised.

PKP Polskie Linie Kolejowe S.A. is represented at the Plenary Meeting of PRIME, in the Management Board and at the General Assembly of RailNetEurope (RNE), EIM, in the Steering Board of Rail System Forum of UIC and at the General Assembly and in the Board of the Colpofer - special group of the UIC. The Company also chairs the UIC Working Group "Security – Border Crossings, International Railway Corridors". In addition, the Company's experts participate in the works carried out by the organisation's working groups in technical, operational and political areas, presenting a position consistent with the interests and strategy of the Company.

In terms of bilateral cooperation, in 2015 the top management of our Company organised meetings with:

1. the Chairman and CEO of the German infrastructure manager – DB Netz AG;
2. The Director General of the Czech railway infrastructure manager – Sprava Železniční Dopravní Cesty (SŽDC).

Meetings concerned the assessment of cooperation thus far and involved setting directions for continued cooperation.

The meeting of the Governing Council and the inaugural meeting of RFC5 created an opportunity for Matjaz Kranjc, Director of the Slovenian infrastructure manager – SŽ-Infrastruktura d.o.o. – to visit the Company's head office.

The Company was also involved in works carried out by the ministry competent for transport on:

1. the new Agreement between the Government of the Republic of Poland and the Cabinet of Ministers of Ukraine concerning railway communication through the state border;
2. the draft new intergovernmental agreement concerning the maintenance of railway bridge structures located on the Poland-Belarus border;
3. the assumptions to the international agreement for railway line No. 346, Hradek nad Nisou - Zittau section;
4. drafting the Letter of Intent on the implementation of the project for the modernization of the Zebrzydowice - Petrovice u Karvine cross-border rail section between PKP Polskie Linie Kolejowe S.A. and SŽDC;
5. the new draft Agreement between the Government of the Republic of Poland and the Government of the Czech Republic concerning railway communication through the state border.

The representatives of the Company participated in meetings of the Polish-German working group for railway infrastructure and bilateral meetings on a ministerial level with partners from the Czech Republic, the Netherlands, Lithuania and Ukraine as part of the ministerial delegation.

At the request of the ministry competent for transport, the Company's experts also participated in missions to Ukraine concerning the implementation of a twinning project No. UA-2012-ENP-TP-36 "Institutional support of the Ukrainian Ministry of Infrastructure in improving interoperability and competitiveness of rail transport in Ukraine".

In May 2015, the EC granted the "mandated body" status to PKP Polskie Linie Kolejowe S.A., which entitles the Company to participate in subsequent twinning projects.



Works have also been carried out on updating effective agreements between the Company and railway infrastructure managers (such as DB Netz Ag and SŽDC), and on the draft agreement with the Ukrainian Railways. On 4-5 March 2015, Dresden hosted the 6th Polish-German border conference of infrastructure managers – PKP Polskie Linie Kolejowe S.A. and DB Netz AG – and railway operators.

In addition, the activity of infrastructural groups, the Polish-Czech and Polish-Lithuanian groups modelled after the Polish-German group already in existence, has also been inaugurated.

The Coordination Committee of PKP Polskie Linie Kolejowe S.A. met with OBB Infrastruktur AG and agreed a plan of cooperation with the Austrian railway infrastructure manager for the years 2015-2016.

The Company continued cooperation with the Spanish and Austrian railway infrastructure manager concerning the exchange of experiences and good practices in the form of workshops and technical visits. Cooperation was also maintained with railway infrastructure managers from the Netherlands, Great Britain and Sweden. Closer cooperation was established with the entity responsible for railway and road infrastructure in Portugal. Relations with the French infrastructure manager have intensified in relation to the update of the framework of cooperation following changes introduced to the structure of French railways.

In February 2015, during a business mission led by the former President of the Republic of Poland Bronisław Komorowski, PKP Polskie Linie Kolejowe S.A. discussed the possibility of establishing cooperation with Japan Railways - JR East.

## Representative office of PKP Polskie Linie Kolejowe S.A. in Belarus

In 2015, in relation to the decision of the Management Board of the Company, works have been undertaken with the aim to launch the Representative Office of PKP Polskie Linie Kolejowe S.A. in Belarus, registered in September 2014, located in Minsk and covering Russia, Lithuania and Ukraine. The Representative Office is tasked with representing the Company before authorities, offices, legal and natural persons and international organisations operating in the rail transport sector in countries in which the Office operates.

Its primary functions include:

1. participating in the ongoing operating activity related to the technical condition of cross-border railway infrastructure;
2. reacting to disruptions in railway traffic on cross-border sections in cooperation with the Railway Traffic Management Centre;
3. intervening in the event of disruptions concerning services provided by the Company;
4. coordinating cooperation in the area of entering into bilateral or multi-lateral agreements and memoranda of understanding with foreign railways.

The representative office performs its tasks in cooperation with the Company's organisational units, to the extent falling under their purview.

## Interoperability

The primary document concerning interoperability is Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 (as amended) on the interoperability of the rail system within the Community<sup>4</sup>, which was transposed into the national legislation by way of the Act on Railway Transport<sup>5</sup>.

<sup>4</sup> Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community (OJ L 191, 18.7.2008, p. 1).

<sup>5</sup> Act of 28 March 2003 on Railway Transport (Dz. U. (Polish Journal of Laws) of 2013, No. 86, item 789, as amended).

In accordance with the above-mentioned directive, the obligation to implement the requirements of interoperability laid down in the Technical Specification for Interoperability (TSI), imposed on Member States, has heretofore pertained primarily to Trans-European Network lines. However, the directive provided for the possibility of extending the requirements to cover other railway lines. In 2015, the new TSI has entered into force and its scope no longer applies only to the TEN-T network, but to the entire EU rail system. It is necessary to note that measures aimed to fully implement the requirements of interoperability on the railway network must take into consideration the financial capabilities of the infrastructure manager.

In light of the above, the Company has prepared a list of projects at an advanced stage of implementation at the moment the new TSI entered into force. This action fulfilled the statutory obligation and guaranteed the possibility of continuing investments as before (on terms applicable as at the moment of signing the agreement, for example). Pursuant to the Act on Railway Transport, the list was provided to the EC on 8 September 2015.

PKP Polskie Linie Kolejowe S.A., as the manager of the national railway network, has also developed a plan for the implementation of the requirements of interoperability on the railway network under its management.

On 18 December 2015, the Management Board of PKP Polskie Linie Kolejowe S.A. has adopted Resolution No. 1207/2015 on the adoption of the Strategy for the implementation of interoperability on the railway network managed by the Company. The strategy is a tool supporting the investment planning process that allows to analyse the need for the implementation of interoperability requirements on individual railway lines and its scope.

## Asset Management Programme

The implementation of the Asset Management Programme involved undertaking measures aimed in optimising asset management processes in the field of maintenance operations carried out by the Company. The most important elements related to the implementation of the Asset Management Programme are focused on issues related to:

1. optimising railway line maintenance processes, improving their effectiveness, improving the quality of planning demand for maintenance, cost efficiency;
2. ensuring that all maintenance operations on the railway network are carried out in line with the life cycle of infrastructure components;
3. raising the reliability of railway infrastructure managed by the Company;
4. seeking methods for continuous and noticeable improvement of the quality of infrastructural services;
5. digitizing the maintenance area through the implementation of the Enterprise Asset Management System;
6. passporting and digitizing network data.

In light of the above, in 2015 the Company initiated the Asset Management Programme. The Company also analysed quality standards related to the programme, i.e. PAS55 and ISO 5500X. The best practice concerning asset management in the field of technical maintenance were also identified.

The project team for Asset Management developed the Methodology and Organisational Structure for the project and the Management Policy, which was adopted by the Management Board of the Company in April 2015. A key stage of implementation of Asset Management at the Company will be the “As-Is” and “To-Be” analyses of maintenance processes.

In 2015, the project team for Asset Management prepared an analysis of IT solutions used by European railway infrastructure managers in the field of maintenance. The Company

also performed an internal analysis on the condition of IT support for maintenance areas and the state of registers containing data on infrastructure.

The Company developed a strategic document entitled "Roadmap to professional Asset Management – Vision on the professionalization of Maintenance and Renewal - an approach how to get there" which contains the structure of specific projects and their framework plan for the full and professional implementation of Asset Management. The long-term strategy for the implementation of Asset Management at the Company envisions 3 stages of development in the years 2016-2030.

As regards Asset Management, the Company actively participates in international consultations with the representatives of other railway infrastructure managers within the framework of UIC and EIM.

## Strategic planning

Measures in the area of programming the Company's investment activity in the financial perspective for 2014-2020, initiated in previous years, were continued in 2015.

In the first half of 2015, the Company and the Minister competent for transport carried out works on the development of a key strategic document entitled "National Railway Programme until 2023 – Railway infrastructure managed by PKP Polskie Linie Kolejowe S.A." (NRP). This document established the financial framework and conditions for the implementation of government plans within the scope of railway investments scheduled to be implemented within a six-year time horizon.

Public consultations on the NRP were carried out in July and August 2015. During the consultations, answers and explanations were given to approx. 800 queries. The NRP was adopted by Resolution No 162/2015 of the Council of Ministers dated 15 September 2015. The document includes 196 projects on primary lists, the total value of which amounts to PLN 67.5 billion.

Actions related to programming the investment activity of PKP Polskie Linie Kolejowe S.A. in the EU financial perspective for 2014-2020 that were carried out in 2015 included the continued cooperation with the Marshal's Offices in all voivodeships with the aim to develop a list of projects that, given their regional character, could be implemented using funds obtained under Regional Operational Programmes (ROPs). These actions allowed to determine the lists of priority projects that were included in the NRP.

The cooperation with the Marshal's Office in 2015 included signing the letters of intent confirming the willingness of voivodeships to subsidize railway investments from funds obtained under ROPs with seven voivodeships (Dolnośląskie, Łódzkie, Mazowieckie, Opolskie, Pomorskie, Świętokrzyskie, Wielkopolskie).

The year 2015 also saw the continuation of cooperation with PKP S.A. on the joint implementation of investments consisting in the comprehensive modernization of station, track and platform infrastructure on railway stations. In accordance with the EU financial framework 2007-2013, the joint implementation of three projects consisting in the comprehensive modernization of station, track and platform infrastructure on the following railway stations: Gliwice, Bydgoszcz and Szczecin, was completed.

Under the new EU financial framework 2014-2020, it is planned to implement similar investment on the following stations: Kielce, Toruń Wschodni, Toruń Miasto and Włocławek. The Company also signed three letters of intent confirming the willingness to undertake joint measures as part of undertakings referred to above.

In 2015, the Company drafted applications to be submitted under both the first and second CEF call for applications. 7 applications were submitted under the first CEF call for applications (the application submission deadline passed on 3 March 2015). All proposals were accepted by the EC.

## Support for investment undertakings

Regarding undertakings related to facilitating the investment planning process in 2015, works were continued on the development of a traffic model, i.e. a tool allowing to generate reliable railway traffic forecasts within the entire country and to compare the attractiveness of the rail transport offer with other modes of transport.

In 2015, works on the project were predominantly focused on collecting and processing information necessary for the modelling process. As a result of the above-mentioned actions, PKP Polskie Linie Kolejowe S.A. obtained data from traffic studies, provided by local government authorities, a portion of data on passenger traffic flows from railway undertakings and socio-economic data. Thanks to the support received from the ministry competent for transport and the Chief Statistical Office of Poland (CSO), the Company obtained data from Poland-wide studies on the transport behaviour of the population. The Company also developed a database solution enabling the management of collected data. Regarding work on the demand sub-model, the road and rail networks have been prepared. On the basis of data received from the Company's internal systems – the Network Description Management System (NDMS) and the Railway Line Information System (RLIS), the Company developed a railway network that includes points of operation, lines and sections as well as their parameters. On the other hand, based on traffic model provided by the General Directorate for National Roads and Motorways (GDDKiA), updated and supplemented with foreign sections located within the area covered by the model being developed, the Company prepared the road network. The created road network includes points and sections as well as their parameters. Works related to the input of data on timetables and the implementation of the Timetable Design System (SKRJ) were also completed.

In addition, the Company established cooperation with the Chief Statistical Office of Poland with the aim to develop a uniform, Poland-wide methodology for performing surveys regarding the transport mobility of the populations, which will make it possible to feed the traffic model with consistent and structured data in the future.

In order to define investments in a more accurate way and verify the validity of the planned scope of works at an early stage, PKP Polskie Linie Kolejowe S.A. continued to develop the so-called rail traffic micro-simulation model. This tool will also make it possible to determine the investment scenario that addresses the current and future needs of passengers to the greatest extent. It is possible thanks to a very precise mapping of all railway track elements that affect railway traffic and detailed calculations related to train traffic. The micro-simulation model allows obtaining the very precise map railway line parameters that affect train traffic – for individual tracks, semaphor locations, applied type of points. On such a diverse network, it is possible to analyse different train timetable scenario. As a result, it is possible to:

1. verify the degree to which railway infrastructure is adapted to scheduled train traffic;
2. verify, prior to the commencement of a given investment, whether its scope will meet traffic assumptions for a given area.

Therefore, it creates a type of computer “laboratory” of the railway network that allows to simulate train traffic on a virtually-built network with high accuracy.

PKP Polskie Linie Kolejowe S.A. announced the tendering procedure in 2014. The model is expected to be available and ready for implementation at the turn of 2017. At present, a model of the railway line network in the Mazowieckie voivodeship is being developed.

In accordance with the adopted assumptions, the traffic and micro-simulation models being developed will be compatible with each other at the general railway network level. It will also be possible to exchange train timetable data between models.

In 2015, the Company carried out work related to the preparation of key investment projects consisting in the modernization of the Warsaw Railway Junction, in particular in its central areas, for implementation. These projects will be implemented until 2023. The most notable projects include: modernization of the ring railway (No. 20, 507, 509), suburban cross-town line (line No. 448) and long-distance cross-town lines (lines No. 1 and 2) as well transfer junctions as Warszawa Gdańska, Warszawa Główna and Warszawa Zachodnia. The methodology adopted for the implementation of conceptual works for the Warszawa Zachodnia stations is based on the best European model and has not been previously applied in the country. The conclusion of an agreement with the selected contractor is scheduled for April 2016. One of key tasks related to the preparation of investments consisting in modernization works to be implemented in Warsaw is the micro-simulation of pedestrian traffic on the Warszawa Gdańska station being developed by PKP S.A., with active conceptual support provided by PKP Polskie Linie Kolejowe S.A. The micro-simulation will make it possible to adapt the scope of works on this station to pedestrian traffic during the key challenge consisting in the transfer of long-distance train traffic from the long-distance cross-town line to the Warszawa Gdańska stations in relation to the modernization of the cross-town line.

In 2015, the Company continued to implement measures initiated in 2014 by the document entitled “Analysis of industrial facilities with a view to their inclusion into the railway network”. Industrial facilities indicated in the above-mentioned analysis have been classified and prioritized; possible solutions aimed to provide these facilities with access to rail transport have also been analysed. Parallel actions have been implemented having regard to the provision of access to rail transport to the selected facilities that are key from the perspective of Polish economy.

In addition, support was also provided to the Polish Information and Foreign Investment Agency (PIFIA) by providing the Agency with information facilitating the process of making decisions regarding the location of potential investments of business entities, in the event of interest in commencing business activity in the territory of Poland conditioned upon access to the railway network.

## Development and support works

PKP Polskie Linie Kolejowe S.A. develop, implement and monitor the performance of annual development and support plans in accordance with “Guidelines for planning, implementing and settling development works and work supporting the Company’s activity at PKP Polskie Linie Kolejowe S.A.”. In accordance with these guidelines, development means acquiring, combining, shaping and using of existing knowledge and skills for the purpose of producing plans and arrangements or designs for new, altered or improved or products, processes and services. Support works do not include the performance of scientific research or development work. However, they contribute to development, practical application of science and technology, support innovativeness and optimise processes.

Many undertakings related to development activity have been implemented in 2015. These undertaking include:

1. variable diagnostic cycles in relation to railway line inspections and technological studies on points – a new Manual for railway line supervision Id-7 was developed. The document was adopted and became effective on 22 December 2015;

2. guidelines concerning good operating practices related to the use of tools, equipment, materials at Railway Lines District Unit – Member of the Management Board, Director for Infrastructure Maintenance presented good operating practices in this area for implementation to Heads of Railway Lines District Unit;
3. principles for protection against an electric shock resulting from coming in contact with the traction network, lightning protection and protection against over-voltage of technical railway equipment and associated infrastructure, eliminating hazards to life and the risk of damage to structures – it is planned to implement the developed principles into the Company's activity, including through manuals and amendments to existing internal regulations of the Company;
4. an expert opinion concerning the impact of railway lines on animals and their migration routes, issued for investment projects under the financial framework 2014-2020 in areas with a high natural value – the results of works have been published on the website of PKP Polskie Linie Kolejowe S.A. and are provided to contractors responsible for preparing environmental documentation;
5. a market analysis of the Rail Freight Corridor No. 5 Gdynia - Katowice - Ostrava/Žilina - Bratislava/Vienna - /Klagenfurt - Udine - (Venice - Bologna/Ravenna)/ Trieste/ -/Graz - Maribor - Ljubljana - Koper/Trieste - the results of works have become the basis for drafting the Implementation Plan for the freight corridor No. 5 which was submitted to the Governing Council of that corridor in May 2015.

In addition, a number of support works was carried out in key areas of the Company's activity, such as: environmental protection, railway infrastructure maintenance, railway traffic safety and investment process support. Most undertaken development and support works is strictly related to the Company's operating activity. Thanks to the great commitment of the Company's employees, the implementation of these works has a positive impact on the efficiency of processes, supports their development and innovativeness.

PKP Polskie Linie Kolejowe S.A., as a consortium member, also participates in a number of projects related to research activity, in particular in the field of railway engineering structures. In 2015, works were underway on the following research projects:

1. acoustic emission in the assessment of damage and determination of technical specifications of steel railway bridge elements;
2. module measuring and assessing the dynamic response of railway bridge structures in use;
3. system for monitoring bridge supports and their surroundings.

In 2016, the Company plans to implement additional works, including: "Change of intervals between maintenance and inspections for automatic block signalling equipment and electric point machines" and "Expert opinion concerning the impact of railway lines on selected groups of animals and recommended solutions to minimise that impact".

## Information Technology

### Achievements in the field of technical research and development

#### Digitization

In 2015, the following has been developed with regard to systems supporting the operating activity of PKP Polskie Linie Kolejowe S.A.:

## Software (Development) Division

The following tasks were implemented as part of the “Dynamic Passenger Information Central System” (CSDIP):

1. development of a design, implementation, tests and implementation of an application used for testing communication protocols on equipment;
2. development of a design and implementation of a tool used for performing system tests on the CSDIP system;
3. determination and performance of laboratory tests concerning the use of available Text-To-Speech (TTS) speech synthesizers in the CSDIP system;
4. optimisation of the CSDIP system in terms of handling individual processes and TTS as well as development of an application for the simultaneous launch of several thousand equipment emulators for the purpose of performing tests;
5. development of a design, implementation and submission for acceptance tests of such CSDIP system functionalities as:
  - display, announcement of passenger information concerning trains at stations;
  - implementation of principles applied to announcements made through the system;
  - management of layouts of information presented on display screens;
  - management of presented information on trains;
  - user management;
  - monitoring of system operation (logs) in terms of displayed equipment errors.

The following solutions were developed and implemented as part of the “PLK Web Portal for Passengers” (PDP) system:

1. a “Buy a ticket for KW trains” button has been added to the PDP to redirect users to the ticket purchase form for Koleje Wielkopolskie (KW) trains and a PDP search engine has been added to the website of Koleje Wielkopolskie;
2. a “Buy a ticket for IC trains” button has been added to the PDP to redirect users to the ticket purchase form for PKP Intercity S.A. trains (two-way tests of the redirect button have also been performed);
3. information presented on posters (at platforms, the Company’s website) have been optimised, e.g. direct passenger cars are now presented by connections, departure time provided by railway undertakings, the key has been translated into English, new format of railway undertakings infolines.

## Development of the RINF-PL system and its implementation in the Office for Rail Transport

In 2015, the Company signed an agreement with the Office for Rail Transport (UTK) concerning the development, implementation and maintenance of an IT solution to support the Office’s operations related to the obligations imposed on the President of the Office for Rail Transport by the Act on Rail Transport. The Company’s employees have developed and implemented an application called “RINF-PL”, aimed in introducing a national register of railway infrastructure (RINF). First data has been communicated to the integrated interface at the European Railway Agency (ERA) in September 2015.

## **Development of the “Railway Line Codification” (KLK) system and its implementation at the Company**

1. the KFK system is used to handle, process and provide access to railway line gauge measurement data in the form of a three dimensional cloud containing points, photogrammetric images and 2D cross-sections for the purposes of railway line codification.
2. the KLK system comprises three sub-systems:
  - a mobile measurement system installed on a self-propelled railway vehicle;
  - an IT system used to process collected data;
  - a codification system used to verify whether oversized cargo will be able to pass through.
3. as part of the system, a spatial model of railway corridor infrastructure has also been developed; the model accurately maps structures to an extent that makes it possible to recreate the structure gauge on railway lines according to standards laid down in the International Union of Railways (UIC) and other norms applicable in Poland;
4. the basis for this system is the database of spatial data on railway infrastructure, which is supplied with ground-level photogrammetric measurements performed using laser scanning technology and high resolution digital cameras;
5. the IT system used for the codification of railway lines is a solution aimed to support the management of the railway line gauge codification process. The system stores information describing the geometry and the direct vicinity of a railway track in the database. Using this data, the system generates two dimensional cross-sections used to verify whether specific cargo will be able to pass through.

## **Development of the “Crossing Keeper Support System” (SWDP) and its implementation at the Company**

The Company has developed the SWDP system application that presents the current train timetable for crossing gatehouses. The software has been developed using modern technologies - as a Single Page Application (SPA). Its implementation has been based on the modern Virtual Desktop Infrastructure (VDI) platform which allows to equip crossing gatehouses with just a computer screen (featuring additional accessories enabling the reception of image), thus eliminating the need to provide a classic computer unit. The application has been implemented in more than 300 crossing gatehouses and positively rated by its users.

The following actions have been implemented as part of IT projects related to the Electronic Traffic Log (EDR) and the Operating Performance Registration System II (SEPE II):

1. stage II of the EDR system installation project has been initiated in 2015; it is scheduled to be completed at the end of 2016. This stage involved the development of the “System’s Logical Architecture Design” and the “System’s Physical Architecture Design”. In accordance with the design: the database has been prepared, the integration interface with the Network Description Management database has been completed and the Operating Performance Registration System functionality has been added. Implementation works have begun on EDR functionalities;
2. significant work has been performed on the SEPEII project in 2015, including: the completion of system architecture design. The Company carried out an analysis of user requirements in the area of Train Planning; models were created for this module and its programming has begun. In addition, a module related to logging users to the application has also been developed. The design team implemented the modern AGILE/SCRUM methodology that allowed to use available resources (personnel, software, equipment) in a more efficient way.



**The following actions were implemented as part of developing the Network Description Management (POS) system and the e-POS application:**

1. in accordance with the requirements laid down in the Decision of the European Commission, the scope of attributes describing railway infrastructure that are collected and process has been extended. The RINF module was developed and implemented in the e-POS system with the aim to prepare data on railway infrastructure managed by the Company and provide this data to the Office for Rail Transport;
2. the "Platform Registration" module was developed and implemented in the e-POS system; the module is used to keep records on platforms and selected attributes thereof. This module is used to maintain information on attributes that describe platforms, e.g. for the purposes of the annex "List of Platforms" to the "Rules for the allocation and use of train routes by licensed railway undertakings under the 2015-2016 timetable";
3. the scope of functionalities offered by the "Rules for train route allocation" module in the e-POS system was extended and new annexes concerning hump yards and line sections equipped with the European Train Control System (ETCS) were added. The changes described above make it possible to generate all annexes to chapter 2 of the "Rules for the allocation and use of train routes by licensed railway undertakings under the 2015-2016 timetable" from the e-POS system.

**Development of the Timetable Construction System (SKRJ)**

1. a fully automated module for drafting an individual timetable for independent locomotives as well as maintenance and repair runs was developed and implemented, allowing to lower the burden placed on timetable constructors during rush hours, thus enabling to raise the quality of timetable drafted by them for remaining trains;
2. a test environment for timetable constructors was developed and implemented, enabling them to design test timetables in the test environment with any parameters simulated at will by timetable designers;
3. a module for visualising the SKRJ database parameters relevant to the design of a timetable along the railway line section indicated on the map or constituting a definition of the selected graphic timetable was developed and implemented;
4. a module for testing collisions on stations, to the extent of controlling the number and length of trains that may be accepted at a station at the same time, was developed and implemented;
5. a new version of the module under the name "Internet Train Path Ordering System" (ISZTP) was developed and the efficiency of its operation on mobile devices was improved. The ISZTP was prepared to handle privileged transit. The most important modules were translated into Czech and German. The module for generating graphic train timetables was modified and optimised. A new format of the application form was also introduced, which also supports Czech and German;
6. a new version of the SKRJ's Webservice (v1.3) was developed. The new interface version introduces further integration with the RailNetEurope (RNE) system, Path Coordination System (PCS) and implements the module for commercial data in the form of interface methods.

**Development of the Operating Performance Registration System (SEPE)**

1. information for line dispatchers were extended to include data imported from the SKRJ system concerning connections between trains and train switching;
2. a new, modified version of the "Pendulum" module was developed for PKP CARGO S.A.;
3. a new report was drafted for the purposes of railway undertakings, allowing them to analyse the causes of delays;

4. changes were introduced to settlements for granting access to railway infrastructure to railway undertakings and for stops near the edge of the platform, in accordance with new principles applicable to the Timetable (Timetable 2015/2016);
5. the solution processing GPS readings received from railway undertakings was migrated to a new databases server and optimised, resulting in much faster processing of readings.

### **The following actions were implemented in relation to the Crossing Keeper Support System (SWDR) application:**

1. in 2015, the SWDR app was improved through the addition of information on the train connections and information on platform and tracks on which they stop, requested by users. A function enabling train dispatchers to download the Internal Timetable was introduced. The interface and functionalities of the application were modified according to recommendations made by users; moreover, the option to quickly approve train passage with just “one click of a button” was added.
2. as part of the concluded agreement, a dedicated version of the SWDR app was developed for Pomorska Kolej Metropolitalna. Apart from basic functions, the app contains a graphic timetable and reports dedicated for this particular manager.

### **Development of the Interactive Map of the Crisis Management Centre app (CMC Map)**

The CMC map developed for the purposes of the Crisis Management Centre (the so-called Crisis Room Map) was being further improved in 2015 – through the introduction of additional improvements, in particular improvements related to the presentation of Pendolino, Dart and Flirt trains.

### **Development of the Information System for Railway Lines (SILK)**

1. assumptions were developed works have commenced on migrating the system to virtual servers (completion: 1 quarter of 2016). Benefits resulting from these actions include:
  - improved reliability and security of the system through the replacement of run-down physical servers with the modern virtual server technology;
  - simplified procedures for managing equipment, operating systems and databases as well as lower system maintenance costs (by approx. 25% compared to 2014);
  - more optimal use of Oracle database technologies by making database license type independent from the quantity of used processors and, in consequence, improved efficiency of the system without the need to incur additional costs related to the purchase and maintenance of Oracle licenses;
2. matrix resources were increased and the project consisting in the digitization of technical documentation (by scanning documentation and land survey maps from the territory of the entire country) was completed, which allowed to make several TBs of scanned documentation available to the Company’s employees.

### **Standardization of design documentation maintenance and flow**

PKP Polskie Linie Kolejowe S.A. developed templates of design documentation used in the performance of projects managed by the Company. These are templates of documents related to:

1. project management – “Initiative Registration Form”, “Project Sheet”;
2. technical products of an IT project – “Business Specification”, “System Specification”;

3. tendering documentation – “Description of the Subject Matter of the Contract”, “Total Cost Ownership” (TCO).

Templates are updated on an “as needed” basis. For 2016, it is planned to develop a solution to automatically generate “Project Sheets” and “Business Specifications” directly from the SPARX Enterprise Architect architecture repository and make them available through an internal SharePoint site and Intranet.

### **International cooperation**

Employees of PKP Polskie Linie Kolejowe S.A. actively participated in meetings aimed to develop assumptions and build systems to facility the exchange of data between EU Member States. During meetings organised at the ERA concerning the RINF, remarks were submitted with regard to both the data model and specifications of individual registry parameters. The Company developed software for the Office of Rail Transport which connects national infrastructure registries with the central database of the RINF Interface at the ERA. Thanks to the commitment of the Company’s employees, Poland was one of the first countries which compiled and provided data to the RINF serviced by the ERA in a timely manner.

In addition, PKP Polskie Linie Kolejowe S.A. was also actively participating in the project to standardize the exchange of data, arrange data and improve the quality of data in the Common Reference Files databases (CRD) maintained by RNE within the framework of Telematic Applications for Freight Service (TAF), Telematic Applications for Passanger Service (TAP) Technical Specyfications for Interoperability (TSI) projects.

### **Infrastructure Division**

The following actions were implemented:

1. a centralised backup and electronic data archiving system was introduced to secure the Company’s data;
2. as regards data processing centres, in response to growing business demands, data storage space and servers’ processing power were expanded;
3. the wireless network at the Company’s Head office was modernized;
4. as regards IT solutions used in group work, a central file server featuring an appropriate system for managing privileges and requests for privileges was installed;
5. as regards wide area networks, a new generation network equipment replaced the run-down equipment used by field units to connect to the corporate network;
6. solutions detecting attempts to breach the Company’s corporate network were introduced;
7. an IT system supporting the employee annual assessment process was introduced;
8. a system for monitoring the continuity of operation and IT service parameters was introduced.

### **ICT Security Team**

The team implemented the following actions:

1. security tests using the FIRE EYE platform;
2. introduced NESSUS susceptibility testing solutions;
3. introduced the AirWatch mobile device management system;
4. encrypted laptops and external media using Microsoft BitLocker Administration and Monitoring (MBAM, BitLocker);
5. introduced the Fortigate anti-span solution;
6. implemented the Intrusion Prevention System (IPS).

## Implementation Team

Upgrade of the SAP Enterprise Resource Planning (SAP ERP) environment and migration to the SAP HANA platform:

1. the project involved the implementation of the following tasks:
  - upgrade of the SAP ERP 6.0 IT environment to version 6.0 EHP7;
  - migration of the SAP solution currently in place to the SAP HANA platform, in accordance with the best SAP methodologies and practices;
  - analysis of new functionalities available in EHP7 and determination of recommendations for their implementation in future projects;
  - analysis of non-standard solutions in the SAP ERP environment and preparation of recommendations on which of those solutions must be or may be set as standard in future projects;
  - implementation of the Single Sign On (it is not required to once again log in to the system after logging onto the workstation using an AD account);
  - implementation of HANA Live - full support for the exchange of data between the SAP Business Workhouse (SAP BW) system – data warehouse – and the SAP ERP system, including the functionality of direct reporting from SAP ERP;
2. the implementation of the project resulted in the following benefits:
  - improved operating efficiency of the Company – higher operating speed of applications, business processes and analytical capabilities thanks to the “in-memory” technology;
  - a standardized solution support model – both the app and the database layer come from the same developer;
  - shift towards real-time analytics (data loading time was reduced, time required to compile individual reports was reduced from minutes to seconds);
  - new business functionalities were made available as standard;
3. SAP system solutions currently in use at PKP Polskie Linie Kolejowe S.A. are some of the latest solutions in Europe. In addition, due to the scale and complexity of the solution and the adopted project implementation approach, it can be stated that its implementation is a pioneering undertaking on a national scale.

## Launch of the 2nd SAP ERP support line

1. In 2015, the Company launched the 2nd professional support line for the SAP system. Having own qualified personnel allowed to improve the safety of SAP system maintenance and reduce response time to the internal needs of the Company, as there is no dependence on services provided by external companies;
2. In addition, employing own personnel allowed to reduce the costs of external services.

## Implementation of the HERMES system

In 2015, the Hermes system supporting PKP Polskie Linie Kolejowe S.A. in performing employee evaluations, setting targets for employees and evaluating their performance and in determining the annual bonus for achieving those targets has been deployed at the Company.

## Preparation for the functional expansion of the Human Capital management system – SAP Human Capital Management (SAP HCM)

1. in 2015, preparations were made to launch the project involving the functional expansion of the SAP HCM system at the Company;
2. the project team prepared a detailed Description of the Subject Matter of the Contract and the Tender Committee conducted a two-stage tender procedure pursuant to the Act

- Public Procurement Law, as a result of which a contractor was selected, with whom an implementation contract was signed on December 2015;
3. the project provides for launching the following modules (by the end of 2016):
    - HR-PA and HR-OM – Personnel and Organisational Structure Management (re-implementation of current functionalities);
    - HR-PT – Work Time Management;
    - HR-PY – Payroll Settlement;
    - ESS – Employee Self-Service portal;
    - MSS – Manager Self-Service portal;
    - HR-PD - Competence and Training Management (re-implementation of current functionalities);
    - ZFŚS – Company Social Benefits Fund;
    - reporting based on the transaction system and BusinessObjects using HANA Live;
    - whereas by the middle of 2017:
      - HR-TV - Business Trip Management;
      - ESS – Employee Self-Service portal development;
  4. the implementation of functionalities referred to above will optimise and standardize human capital management and payroll processes at the Company. It will result in abandoning the Payroll and Personnel Management (P-K) system currently in use at the Company, which is coded in a technology which currently is not supported. It will also place sensitive data in a single environment without the need for transfers, thus securing access to data.

#### **Electronic Invoice Flow (EOF) - system development and maintenance**

1. a project providing for the expansion of the system by additional processes was prepared in 2015. The additional processes include:
  - payment flow;
  - fixed assets flow;
  - external and internal posting order flow;
2. the introduction of additional flows (processes) to the Electronic Invoice Flow system resulted in the following benefits for the Company:
  - full information on document status (date received/created, date sent to Workflow);
  - control over the correct acceptance of documents – based on the reporting structure from the SAP HCM system;
  - minimising or completely removing the need for paper documentation from the process.

#### **Business Planning and Consolidation (SAP BPC) – Consolidation of Financial Statements in SAP**

1. in 2015, a contract was signed and the deployment of the system for consolidating financial statements on the basis of a SAP solution (SAP BPC) began;
2. the deployment of this solution resulted in the following benefits for the Company:
  - reduced time required to prepare consolidated financial statements;
  - streamlined process of obtaining financial data from subsidiaries;
  - automated consolidation process;
  - repeatability of processes;
  - improved quality of obtained data necessary for the consolidation process.

## Geoinformation

In 2015, PKP Polskie Linie Kolejowe S.A. continued to implement two projects, i.e. the Railway Line Information System (SILK) and the Railway Line Codification (KLK) system. Furthermore, the Company launched and completed a project entitled “Digitization of geodetic operating documentation for railway lines with the aim to improve the efficiency and safety of the transport system in Poland and the efficiency of railway infrastructure management”.

As regards the Railway Line Information System, the year 2015 was a time of implementing functionalities developed under the successfully completed Project SILK 3. Apart from being provided with new functionalities in applications used, the Company’s employees were given access to more precise (geographical locations) spatial data concerning the railway line network which directly contributed to the improved quality of information generation by the system. In addition, in order to address the expectations of users, the Interactive Map of Railway Lines (MILK) was expanded by the option to load the OpenStreetMap background map (applies to the Intranet application). This functionality allows users to have greater analytical capabilities, facilitates the location of structures on the map and creates a visually attractive background for work maps generated from the system. The Company managed to develop assumptions for further development of new Railway Line Information System functionalities, which are to include:

- integration with the Enterprise Project Management (EPM) system in order to ensure the visualisation of data concerning investments implemented by the Company on MILK;
- integration with the Railway Line Codification system to ensure more accurate geographical locations and data collected in the system;
- expanded integration with regard to Network Description Management (POS).

In 2015, PKP Polskie Linie Kolejowe S.A. implemented the second stage of the project entitled “Development of innovative methodology and IT system for railway line codification management”. The project involved the development of a system enabling the codification of railway lines based on the interactive railway line gauge measurements on the spatial model of railway infrastructure. This measurement will constitute basis for the codification of railway lines according to standards laid down in the UIC leaflet. The compliance of this code with the code assigned to the wagon used and the code assigned to cargo exceeding the gauge will be one of the conditions for its admission for carriage. This project will be subsidized by the European Union under the Operational Programme Innovative Economy from funds allocated for measures 1.4 - 4.1 Support for targeted projects and support for the implementation of results of research and development works Project deliverables are currently being implemented at the Company.

In 2015, the Company also implemented the project entitled “Digitization of geodetic operating documentation for railway lines with the aim to improve the efficiency and safety of the transport system in Poland and the efficiency of railway infrastructure management”. The purpose of the project was to reduce the time necessary to obtain data and introduce standards for the collection and update of geodetic operating documentation used for the purposes of investments implemented by the Company and to maintain railway lines.

The subject matter of the project was the digitization (scanning, calibration, transformation) of geodetic operating documentation in the form of:

1. topographical maps;
2. longitudinal profiles of railway lines;
3. handover and acceptance certificates for track axle regulation signs.

Documents subject to digitization were located in registered offices of Railway Lines District Units or at the Railway Geodetic and Cartographic Documentation Center (KODGiK).

As part of the project, a data sample (documents concerning the pilot railway line section) was used to trace maps/profiles and generate a model of spatial data concerning the Utility Infrastructure on lines managed by PKP Polskie Linie Kolejowe S.A. The project constituted a component of the investment task No. OPI&E 7.1-103 Works on selected railway lines within the framework of the EU framework 2014-2020 - Preparatory works.

At present, project deliverables are being deployed at the Company and will be made available in 2016 through the Documentation Module in the Railway Line Information System (SILK) to employees of PKP Polskie Linie Kolejowe S.A. in order to give them direct access to the central repository of geodetic operating documentation of railway lines and support the Company's organisational units in implementing their primary tasks.

## Environmental protection

One of the most important nuisances occurring along railway lines is noise. In order to address the needs related to the performance of acoustic measurements, both for the purposes of investment implementation and to monitor the impact of railway lines in use, PKP Polskie Linie Kolejowe S.A. filed an application for accreditation for the Acoustic Laboratory established within the Company's structure. Obtaining an accreditation in the field of performing environmental noise measurements will make it possible to perform independent measurements the result of which will be recognised by all institutions. Having an own laboratory will bring the Company significant financial benefits by reducing the costs of commissioning the performance of measurements to external companies and ensure public trust in the reliability of actions that are relevant from the point of view of environmental impact. In 2015, the Acoustic Laboratory successfully passed the accreditation process and is scheduled to receive the certificate at the beginning 2016.

PKP Polskie Linie Kolejowe S.A. carries out wildlife inventory and wildlife surveys along 2,300 km of railway lines covered by investment plans in the current financial framework (2014-2020). In 2015, the wildlife inventory has been carried out as part of two stages of the project entitled "Wildlife inventory and surveys on selected sections of railway lines planned for implementation in the years 2014-2020". The first stage of the project financed under the Operational Programme Infrastructure and Environment (OPI&E) was completed in 2015. The completion of the second stage is scheduled for Q3 2016. Knowledge regarding the environment along planned investments will allow to facilitate the process of drafting environmental documentation and, therefore, obtaining decisions on environmental conditions for the purposes of planned projects. The total cost of the project amounts to over PLN 4,300 thousand.

In November 2015, the Company signed a framework agreement for the provision of services consisting in the development of documentation necessary to obtain decisions on environmental conditions or once again carry out environmental impact assessments for railway investment projects implemented by PKP Polskie Linie Kolejowe S.A. in the financial framework 2014-2020.

In 2015, the Company implemented the project entitled "Expert opinion concerning the method of implementation of Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for community action in the field of water policy in railway project planned to be implemented by PKP Polskie Linie Kolejowe S.A. in the years 2014-2020". The purpose of this project was to indicate areas within the Company that may have a negative impact on the achievement of environmental targets, develop methods for assessing the impact on those targets and prepare recommendations

concerning the operation and stages of modification of railway lines to ensure the proper fulfillment of tasks set out in the Directive.

The Company also attempted to examine the environmental impact of railway lines by implementing the project entitled “Expert opinion concerning the impact of railway lines on animals and their migration routes for projects under the financial perspective 2014-2020”, which covers the following groups of animals: mammals, amphibians, reptiles and birds. The results of analyses carried out as part of the project will allow to facilitate investment processes through the application of solutions suitable to the impact of railway lines. In 2015, the project was completed in the part concerning mammals – the effect was the “Expert opinion concerning the impact of railway lines on animals and migration routes for investment projects under the financial framework 2014-2020 - mammals”. Based on studies carried out under the above-mentioned project, it was found that tracks do not constitute a physical barrier for large and medium-sized wild animals. This documentation will be made available to contractors responsible for drafting environmental documentation. Furthermore, guidelines concerning for the reduction of animal mortality on railway lines were also developed.

In 2015, the Company began to implement the project entitled “Expert opinion concerning the impact of railway lines on bats”. The project is scheduled to be completed in Q4 2016. Furthermore, the company began to implement the project entitled “Expert opinion concerning guidelines for designing rainwater and snowmelt drainage”, aimed to determine factors affecting the drainage of rainwater and snowmelt from railway lines and develop guidelines to calculate the amount of rainwater and snowmelt drained from railway lines, taking into consideration the need to adapt to climatic changes, which constitute basis for designing, constructing and proper operation of drainage equipment on railway lines.

In 2015, PKP Polskie Linie Kolejowe S.A. also obtained 13 decisions on environmental conditions and 3 decisions amending decision on environmental conditions, as well as 41 decisions of the Regional Director for Environmental Protection laying down conditions for the implementation of investments, at the stage of repeating the performance of the environmental impact assessment. By obtaining these decisions the Company was able to undertake further administrative steps aimed to obtain necessary building permits.

Standard Requirements for Environmental Documentation adopted by Resolution No. 836/2013 of the Management Board of PKP Polskie Linie Kolejowe S.A. of 3 October 2013 were updated in 2015. The amendments were adopted by way of a Decision No. 67/2015 of the Member of the Management Board – Director for Investment Implementation – of 16 December 2016 and included, among others:

1. further specification of requirements for the Project Information Sheet and other annexes to applications for the decision on environmental conditions, in accordance with amendments to the legal framework;
2. significant modification of provisions concerning wildlife inventory;
3. supplementation of requirements for the project’s environmental impact assessment, in accordance with amendments to the legal framework;
4. further specification of provisions and requirements concerning acoustic measurements and calculations;
5. extension of requirements concerning climate impact assessments and adaptation to climate change;
6. further specification of provisions concerning the extent of the assessment of the project’s impact on Surface Water Bodies, in accordance with the “Expert opinion concerning the method of implementation of Directive 2000/60/EC of the European Parliament and



of the Council of 23 October 2000 establishing a framework for community action in the field of water policy in railway project planned to be implemented by PKP Polskie Linie Kolejowe S.A. in the years 2014-2020”;

7. further specification of requirements for the environmental impact report concerning mitigation measures.

Development measures taken by the Company include the issuing of opinions on local spatial development plans and studies of conditions and directions of spatial development of communes in order to reduce the number of residential buildings erected in the close vicinity of railway lines. In 2015, a total of 536 planning documents were analysed.

## Investments

The investment activity of PKP Polskie Linie Kolejowe S.A. as the manager of the national railway network is aimed at improving the efficiency and performance of the Polish transport system through the modernization of railway lines.

The year 2015 was another period in which the Company continued investment projects included in the Multi-Annual Railway Investment Programme (WPIK) which was replaced with the National Railway Programme until 2023 (KPK)<sup>6</sup> in September 2015.

The main objective of the KPK is to strengthen the role of rail transport in the country's integrated transport system by creating a cohesive and modern railway network and stems directly from the provisions of the "Transport Development Strategy until 2020 (with a perspective until 2030)". The detailed objectives of the National Railway Programme include: to improve the efficiency of rail transport, enhance rail transport safety and improve quality of passenger and freight transport.

Beginning from September 2015, the KPK specifies the financial framework and the conditions for the implementation of government plans within the scope of railway investments scheduled for implementation in years 2014-2023 and constitutes the main document on which investment projects implemented by the Company are based.

The year 2015 was a crucial time due to the highest value of investment expenditures made by the Company in its entire history, but also due to the critical point of transition between two financial frameworks – the financial framework 2007-2013 and the financial framework 2014-2020.

Due to the fact that expenditures under the Operational Programme Infrastructure and Environment (OPI&E 2007-2013) are eligible until 31 December 2015, the primary task of PKP Polskie Linie Kolejowe S.A. in 2015 was to utilise the EU funds available under the financial framework 2007-2013 to the greatest possible extent. At the same time, the Company continued to prepare for the implementation of projects and announcement of tender procedures for projects that will be financed under the financial framework 2014-2020.

The basis for the investment activity carried out by PKP Polskie Linie Kolejowe S.A. in 2015, as in previous years, was the Company's Investment Plan (IP 2015) which assumed the implementation of projects financed using funds from the state budget, the European Regional Development Fund, the Cohesion Fund, the Railway Fund (RF) and the Company's own resources.

IP 2015 provided for outlays on projects implemented under Regional Operational Programmes (ROPs), the Operational Programme Infrastructure and Environment (OPI&E), the Work and Expenditure Programme of Railway Fund support utilisation – part A Investments, and from state budget funds.

IP 2015 was adopted at the by the Extraordinary General Meeting on 26 March 2015 and covered investment projects with a total value of PLN 8,541.2 million, which represented a 13% increase compared to IP 2014.

The largest projects, representing more than 49% of the entire IP 2015, included the following investments:

1. modernization of the E 30/C-E 30 railway line, Kraków - Rzeszów section, stage 3 (OPI&E 7.1-30);

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<sup>6</sup> The National Railway Programme was adopted by Resolution No 162/2015 of the Council of Ministers dated 15 September 2015 on the establishment of the National Railway Programme until 2023. A reference to the NRP from 2015 is made further on in the report.

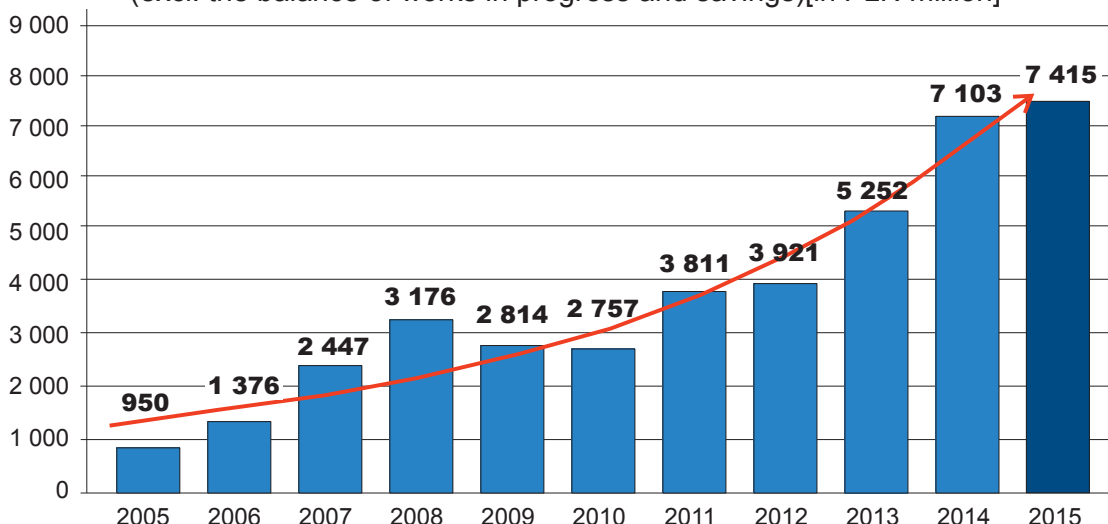
2. modernization of the E 75 Rail Baltica line, Warszawa – Białystok – Lithuanian border, stage I, Warszawa Rembertów – Zielonka – Tłuszcz (Sadowne) section (OPI&E 7.1-22.1);
3. improvement of traffic flow on the Łódź Railway Junction (TEN-T), stage I, Łódź Widzew - Łódź Fabryczna section;
4. modernization of the Warszawa - Łódź railway line, Stage II, Lot A, Warszawa Zachodnia - Miedniewice (Skierniewice) section (OPI&E 7.1-24.1);
5. modernization of the E 65/C–E 65 railway line on the Warszawa – Gdynia section to the extent of the top layer of LCS, ERTMS, ETCS, GSM-R, defect detectors and traction network power supply systems (OPI&E 7.1-1.4);
6. modernization of railway line No. 8, Warszawa Okęcie – Radom section (LOT A, B, F) (OPI&E 7.1-19.1a);
7. modernization of the E 59 railway line on the Wrocław – Poznań section, Stage III, Czemi- piń – Poznań section” (OPI&E 7.1-5.1);
8. improvement of safety through installation of new railway points with a higher design standard (OPI&E 7.1-71);
9. modernization of the Warszawa - Łódź railway line, Stage II, Lot C – remaining work (OPI&E 7.1-24.3);
10. construction of the GSM-R infrastructure in conformity with NPW ERTMS, on the E 20/C-E 20 railway line, corridor F, Kunowice - Terespol section (OPI&E 7.1-25).

### Investment expenditures and sources of financing

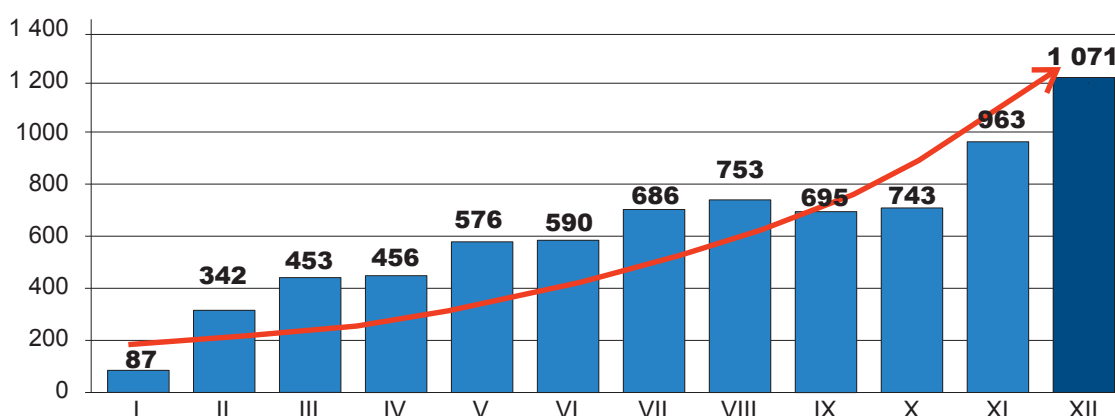
The year 2015 was a record year for PKP Polskie Linie Kolejowe S.A., both in terms of the total value of projects accepted for implementation in the annual investment plan and the value of investment expenditures. Investment expenditures made under IP 2015 amounted to PLN 7,415 million (PLN 8,135 million after taking into consideration the balance of works in progress and savings, which represents 95% of expenditures planned in IP 2015). The implementation of the investment plan to such a degree carried many risks that were identified and managed by the Company on an ongoing basis in individual projects carried out throughout 2015. It is necessary to point out that the end of the year was particularly important in terms of expenditures, as apart from standard risks connected with the implementation of investment processes, it was necessary to coordinate all final and operational acceptances as well as to manage the process of obtaining documents from contractors, necessary to make payments for stages of works that completed projects under OPI&E 2007-2013.

#### Investment expenditures in the years 2005-2015

(excl. the balance of works in progress and savings)[in PLN million]



Investment expenditures in 2015 - by month  
(excl. the balance of works in progress and savings) [in PLN million]



Investment plan performance by programmes [in PLN million]

No.	Programmes	Performance in 2015
1.	State budget	1 185
2.	CEF	38
3.	FK	33
4.	Other	8
5.	POIiŚ	5 584
6.	RPO	203
7.	Own resources	363
8.	TEN-T	1
9.	<b>In Total</b>	<b>7 415</b>

### Investment expenditures by work

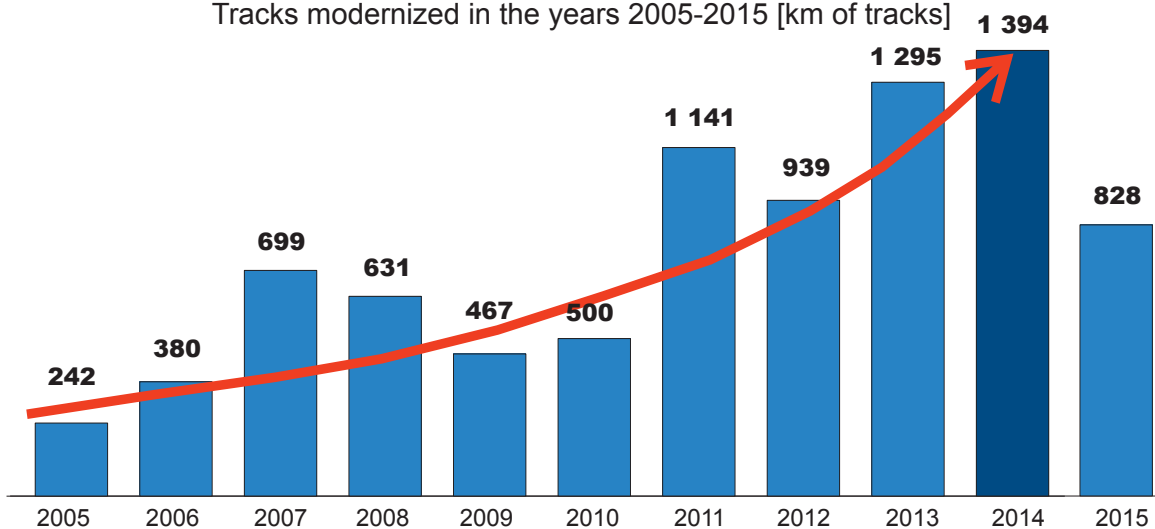
PKP Polskie Linie Kolejowe S.A. implement a wide-scale programme for the modernization and revitalisation of railway lines. The scope of works under individual investment projects usually involves the comprehensive replacement of railway tracks, local control command and signalling equipment and electric power equipment (both traction and non-traction) as well as the modernization of level crossings and their removal and replacement with grade-separated junctions. The replacement of old, run-down and degraded railway infrastructure and technical equipment with new infrastructure and equipment made using modern technologies allows to significantly improve the operating parameters of railway lines (mainly maximum permissible speeds) while maintaining the same level of railway traffic security or even improving it. Modernization and revitalisation work carried out on railway lines allows to lower the risk of accidents or service difficulties caused by bad technical condition and/or infrastructure malfunctions. Furthermore, the number of accidents that occur on level crossings is reduced by equipping crossings in additional safety and user warning equipment (i.e. re-classifying a crossing into a higher category).

## Performance of the work plan in 2015

No.	Item	Unit of measure	Plan for 2015	Performance in 2015	% performance in 2015
1.	Railway track modernization (including: repair of permanent way, subgrade, OC rails)	track km	823,39	828,25	101
2.	Installation of turnouts	items	1 320	1 271	96
3.	Engineering structures, including:	items	694	500	72
	- bridges	items	88	87	98
	- viaducts	items	130	118	90
	- culverts	items	474	295	62
4.	Platforms	items	156	144	92
5.	Traction network	tkm	618,59	607,44	98
6.	Acoustic screens	km	93,54	89,31	95
7.	Railway crossings (superstructure)	items	729	681	93

The implementation of the IP 2015 for the total amount of PLN 7,415 million on the railway network managed by PKP Polskie Linie Kolejowe S.A. included the performance of investment work involving, in particular, the modernization of 828 km of tracks, 1,271 turnouts and 681 level crossings. Furthermore, 76 grade-separated junctions have been constructed.

Tracks modernized in the years 2005-2015 [km of tracks]



### Utilisation of EU funds

As mentioned in the introduction to this chapter, year 2015 was crucial for the Company also due to the end of support under the EU financial framework 2007-2013. The end of the year was the cut-off date for the eligibility of expenditures under EU funds, which meant the need to make payments to contractors by that date and affected the utilisation of the EU allocation by the Company.

Within the framework of the entire OPI&E 2007-2013 programme, the Company implemented 62 projects for which grant agreements (GAs) have been concluded with the Centre for

EU Transport Projects. The total value of allocations<sup>7</sup> under concluded GAs (after taking into consideration concluded annexes) will amount to PLN 13.4 billion.

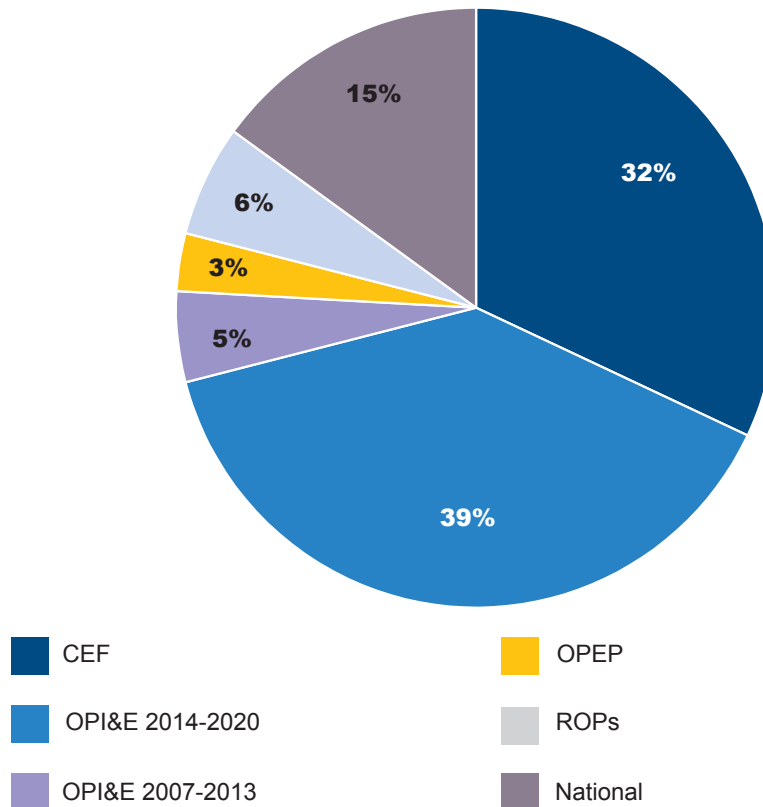
## EU Financial Framework 2014-2020

The KPK specifies investment projects involving railway infrastructure managed by PKP Polskie Linie Kolejowe S.A. The Company assumes the maximum utilisation of EU funds for financing projects under:

1. Operational Programme Infrastructure & Environment (OPI&E) for the years 2014-2020;
2. Connecting Europe Facility (CEF);
3. Operational Programme Eastern Poland (OPEP) for the years 2014-2020;
4. Regional Operational Programmes (ROPs) for the years 2014-2020.

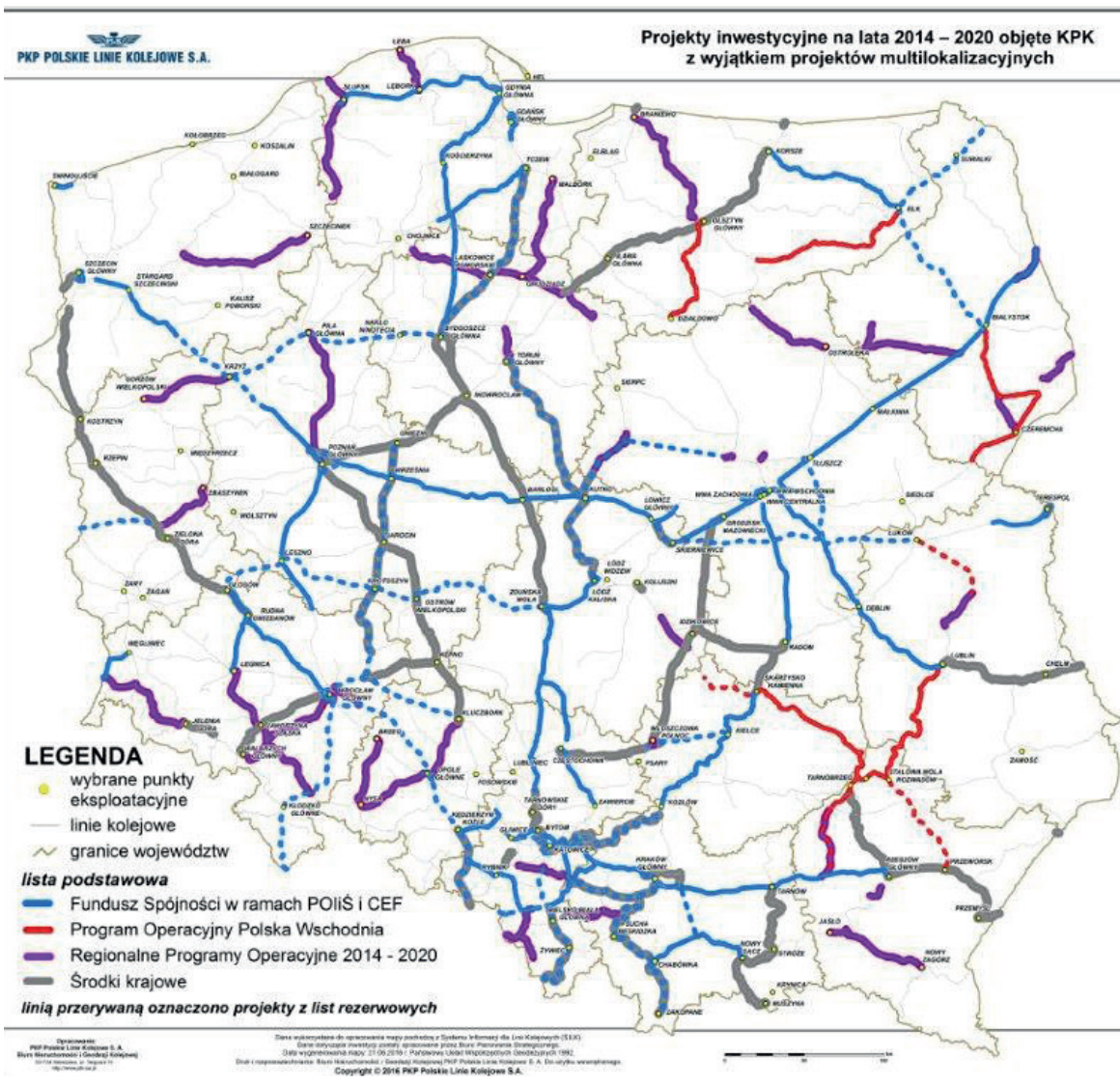
The programme also provides for continuing works under projects included in the Multi-Annual Railway Investment Programme that were not implemented by the end of 2015.

Expected volume of funds available under the EU financial framework 2014-2020 by programmes



Apart from EU funds, the implementation of the National Railway Programme is also to be financed using national public funds (state budget, Railway Fund), the Company's own resources and funds obtained from the issue of bonds. An important source of financing for the investment expenditures of PKP Polskie Linie Kolejowe S.A. are funds obtained from loans granted by the European Investment Bank (EIB) to cover the national share of non-eligible expenditures and partially pre-finance eligible expenditures. Total expenditures planned to be incurred under the KPK on projects from the primary list amount to PLN 67.5 billion.

<sup>7</sup> Final allocation amount is subject to change due to the ongoing verification of Final Payment Claims by the Centre for EU Transport Projects.



The period of implementation and settlement of investments under the KPK coincides with the EU financial perspective for the years 2014-2020 and takes into consideration the n+3 rule, which means that the period of eligibility of expenditures ends on 31 December 2023. Investments planned in the KPK were divided into four basic categories covering projects from the primary and reserve lists, including projects under: the Cohesion Fund (CF), Operational Programme Eastern Poland, Regional Operational Programmes and national projects. First projects to be implemented are those from the primary list (194 projects), whereas in the case of savings – from the reserve list (72 projects).

It is assumed that the performance of objectives indicated in the KPK will raise parameters of the network managed by PKP Polskie Linie Kolejowe S.A. in such a way, so as to satisfy the needs of passengers and railway undertakings as well as consignors and consignees of cargo carried by rail. It will also lead to shorter travel times, raise the safety of rail transport, improve the comfort of travel and remove barriers to freight transport.

**Projects under OPI&E 2014-2020**

In 2015, the Company concluded 8 GAs for the total value of approx. PLN 3.5 billion in relation to projects co-financed from EU funds under OPI&E 2014-2020 and included in the KPK.

Concluded GAs for projects under OPI&E 2014-2020 (in PLN thousand)

No.	Project name	Date of execution of grant agreement	Total cost, net
1.	Modernization of the E 65/C–E 65 railway line on the Warszawa – Gdynia section to the extent of top layer of LCS, ERTMS/ETCS/ GSM-R, defect detection and traction network power supply systems - PHASE II	05-10-2015	206 244,9
2.	Modernization of the E 59 railway line on the Wrocław – Poznań section, Stage III, Czempin – Poznań section - Phase II	30-09-2015	461 341,8
3.	Modernization of railway line No. 8, Warszawa Okęcie – Radom section (LOT A, B, F) - PHASE II	30-10-2015	1 071 100,8
4.	Modernization of the E 75 Rail Baltica line, Warszawa – Białystok – Lithuanian border section, stage I,	05-10-2015	561 407,9
5.	Modernization of the Warszawa - Łódź railway line, Stage II, Lot A, Warszawa Zachodnia - Miedniewice (Skierniewice) section - Phase II	05-10-2015	100 854,9
6.	Modernization of the Warszawa - Łódź railway line, Stage II, Lot C – remaining work - PHASE II	05-10-2015	192 097,3
7.	Modernization of the E 30/C-E 30 railway line on the Kraków - Rzeszów section, stage III, PHASE II	30-10-2015	659 662,8
8.	Improvement of railway access to the Port of Gdańsk (bridge + double-track railway line) – PHASE II	27-10-2015	233 999,7
<b>In Total</b>			<b>3 486 710,1</b>

### Major changes in investments in 2015

In 2015, the Company took some intensive actions with the aim to better utilise the funds earmarked for the modernization of railway lines as well as to accelerate ongoing investments and complete them on time. In order to utilise the allocation under the EU financial framework 2007-2013 to the greatest possible extent, effectively monitor works in progress on an ongoing basis and commence the implementation of projects under the financial framework 2014-2020, the Company took a number of measures to optimise and facilitate the investment process:

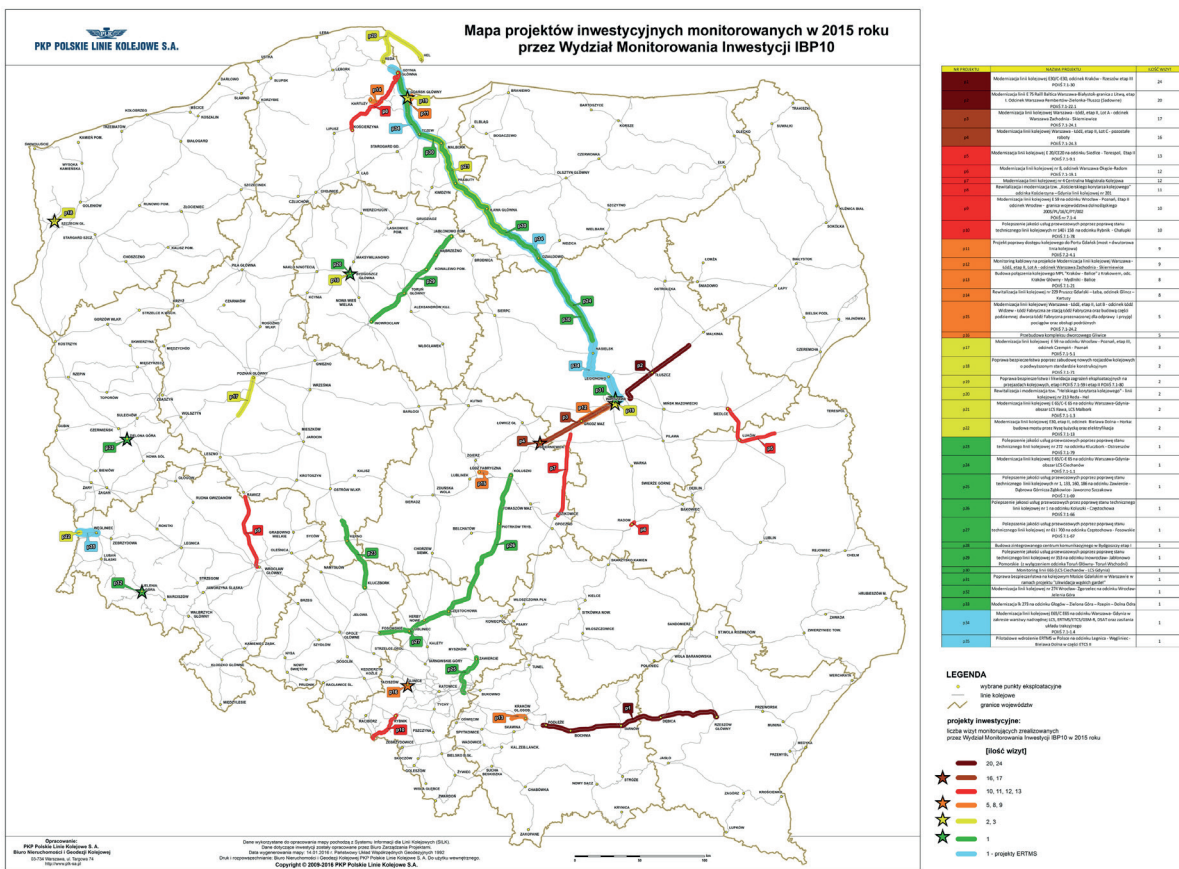
- actions aimed to better utilise the allocation under the EU financial framework 2007-2013 – from June to December 2015, the Company organised monthly Allocation Committee meetings at the ministry competent for transport and involving the participation of the Centre for EU Transport Projects; the meetings were devoted to monitoring the utilisation of the EU allocation (through allocation utilisation simulations and discussions concerning project risks) in relation to OPI&E 2007-2013 projects implemented by the Company, examining the progress of works on dividing projects into phases, eligibility of expenditures and the discussion of the status of annexes to Co-Financing Agreements.
- risk management – for each investment project implemented under IP 2015, risks were registered and plans of actions to mitigate risk were monitored in the Enterprise Project Management (EPM) system. In addition, from October to December 2015, all risks and issues submitted to the EPM by project teams were closely monitored in terms of their impact on investment expenditures under IP 2015 and the utilisation of funds allocated under the EU financial framework 2007-2013. Videoconferences with the representatives



of individual organisational units of the Company responsible for the implementation of infrastructural investments were held on a weekly basis, so as to verify and exchange information on the progress of works, potential risks and existing issues on an ongoing basis. All investment projects financed under OPI&E 2007-2013 were analysed in terms of risks to their implementation, i.e. delays in the completion of investments (beyond the cut-off date for the eligibility of expenditures), changes to project value (savings, if any) or the loss of co-funding from EU funds. The material presented at the meetings was used as basis for discussions and taking preventive and remedial action. The performance of actions referred to above allowed to signal the emergence of a risk/problem well in advance, attempt to counteract its effects and limit their impact on project implementation.

- regular field monitoring of projects under implementation - the monitoring team carried out 215 monitoring visits at construction sites of 35 key projects in 2015. This represents a significant increase in the intensity of actions compared to 2014, when 175 monitoring visits were carried out. In addition to verifying the compliance of work with the schedule, the tasks of field inspectors included: analysis of previously confirmed risks and identification of new risks, functioning of the project team and accuracy of declared work completion dates. Based on each visit, a report containing information on project implementation, progress of works commissioned to the contractor, risks and recommended actions was prepared. These reports were submitted to the unit responsible for implementing the investment and to the Management Board of PKP Polskie Linie Kolejowe S.A. Frequent and regular monitoring visits made it possible to identify hazards and risks to the project early and react promptly.

Map presenting the location of investment projects monitored in 2015



4. integrated reporting and investment monitoring system – each projects included in the IP 2015 and in the KPK (on the primary list) has its own schedule in the EPM system. In 2015, all key system functionalities have been implemented, including in particular:
  - since the middle of 2015, the reporting of financial (expenditures) and physical execution of projects was possible only through the EPM system. The direct acquisition of data from the system replace manual reporting in the form of Excel files. This allowed to reduce manual data input and report generation, reduce the number of calculation errors, relieve the burden placed on project teams by removing the need to generate reports and accelerate report generation by even 80%;
  - in 2015, for the first time in history, the Preliminary Investment Plan of the Company (for the year 2016) was fully prepared using EPM systems – financial data concerning investment expenditures as well as information concerning planned work progress indicators, risks, tenders, etc. was generated by the system. It represents a significant change compared to the previous year when information was collected in the form of numerous tables and reports presented in Excel or Word files;
  - the implementation of the EPM system included the introduction of electronic reports from the implementation of investments, project websites and their portfolios, allowing to provide much faster access to current information (data is available online). As at the end of 2015, more than 100 reports adapted to the Company's needs were available in the EPM system, including reports adapted to different users and containing current data. Training in EPM system operation was also carried out - more than 1,000 system users from different organisational units of the Company where trained in 2015. The key stakeholders of PKP Polskie Linie Kolejowe S.A., including the ministry competent for transport, ministry competent for development and the Centre for EU Transport Projects, also have access to the EPM system.
5. In 2015, the Company continued actions aimed to modify base documents. It is foreseen that these actions will comprehensively harmonise and standardize documents concerning the implementation of investment projects used by PKP Polskie Linie Kolejowe S.A. in relations with contracts.

# Sources of financing

## Financial framework 2000-2006

In 2015, PKP Polskie Linie Kolejowe S.A. continued the process of closing projects from the financial perspective 2000-2006, i.e.:

1. Instrument for Structural Policies for Pre-Accession (ISPA)/Cohesion Fund (CF) and CF;
2. Transeuropean Network - Transport (TEN-T).

## ISPA/CF and CF

PKP Polskie Linie Kolejowe S.A. implemented 17 projects under the financial framework 2000-2006. The total co-funding granted by the European Commission (EC) under decisions issued for ISPA/CF and CF projects amounted to EUR 1,126.29 million.

## Utilisation of CF co-funding as at 31 December 2015

PKP Polskie Linie Kolejowe S.A. received Closure Lists for 16 out of 17 implemented projects from the EC. The Closure List was not received for the infrastructural projects 2005/PL/16/001 entitled „Modernization of the E65 railway line, Warsaw - Gdynia section, Stage II”. In the Closure Lists presented by the Polish side, the EC confirmed that the contribution due from the Cohesion Fund amounts to EUR 991.35 million. The calculation of the contribution due from the Cohesion Fund carried out by the EC was based on eligible expenditures declared by the Beneficiary in indirect and final payment claims. In addition, by way of a decision of the European Commission, final payments for individual project were reduced by 2%<sup>8</sup> and 5%<sup>9</sup> systemic adjustments in the total amount of EUR 21.17 million. The total balance of settlements with the EC in relation to projects implemented under ISPA/CF and CF amounted to EUR 970.18 million<sup>10</sup>.

Utilisation of EU funds under the financial perspective 2000-2006 as at 31 December 2015

Fund	Grant amount as stated in concluded agreements	Contribution due from ISPA/CF and CF approved by the EC	% utilisation of grant according to EC Decision	2% systemic adjustment	5% systemic adjustment	Contribution due from CF after taking into account 2% and 5% systemic adjustments approved by EC	% utilisation of contribution due from CF after taking into account systemic adjustments
	in EUR	in EUR	in %	in EUR	in EUR	in EUR	in %
ISPA/FS	657 510 685	652 634 209,72	99,26	13 052 684,18	302 967,12	639 278 558,42	97,95
FS	468 777 750	338 712 483,98	72,25	6 774 249,68	1 036 881,26	330 901 353,04	97,69
Total	1 126 288 435	991 346 693,7	88,02	19 826 933,86	1 339 848,38	970 179 911,46	97,86

<sup>8</sup> The 2% systemic adjustment was imposed by the European Commission due to violations related to the awarding of public procurement resulting from failure to ensure the compliance of the provisions laid down in the Act – Public Procurement Law with EU law; a part of this amount was financed from the special-purpose state budget reserve. The total value of the adjustment amounted to EUR 19.83 million, EUR 19.36 of which was financed by the State Treasury.

<sup>9</sup> The 5% systemic adjustment was imposed in relation to the failure to utilise the effects of studies financed as part of technical assistance projects

<sup>10</sup> Calculations include the EC Decision No. C(2012)5257 of 24 July 2012, issued for the CF project No. 2005/16/c/PT/001, pursuant to which the allocated grant amount was reduced by EUR 100.6 million.

## TEN-T

Utilisation of co-fundings from TEN-T funds as at 31 December 2015:

1. amount of the awarded co-funding from the TEN-T fund as part of signed decisions of the European Commission – EUR 26,391,000;
2. amount of co-funding from the TEN-T fund to be used by PKP Polskie Linie Kolejowe S.A., including settled agreements with contractors – EUR 14,636,700;
3. received final payments - EUR 14,636,700 (the EC provided all final payments to PKP Polskie Linie Kolejowe S.A.).

The degree of use of co-funding granted by the EC from the TEN-T fund in relation to the amount of co-funding available to PKP Polskie Linie Kolejowe S.A., including contracts with contractors, amounted to 55%.

## Financial framework 2007-2013

### Regional Operational Programmes (ROPs) for the years 2007-2013.

PKP Polskie Linie Kolejowe S.A. implemented 39 projects under Regional Operating Programmes in the financial perspective 2007-2013; the total value of projects amounted to PLN 1,629.7 million; the breakdown of these investments by voivodeships presents as follows:

1. Dolnośląskie Voivodeship – 3 projects amounting to PLN 98.2 million;
2. Kujawsko-Pomorskie Voivodeship – 1 project amounting to PLN 78.9 million;
3. Lubelskie Voivodeship – 6 projects amounting to PLN 161.9 million;
4. Lubuskie Voivodeship – 3 projects amounting to PLN 106.5 million;
5. Łódzkie Voivodeship – 3 projects amounting to PLN 116.4 million;
6. Małopolskie Voivodeship – 2 projects amounting to PLN 62.6 million;
7. Podkarpackie Voivodeship – 3 projects amounting to PLN 226 million;
8. Pomorskie Voivodeship – 5 projects amounting to PLN 309 million;
9. Podlaskie Voivodeship – 3 projects amounting to PLN 0.9 million;
10. Warmińsko-Mazurskie Voivodeship – 2 projects amounting to PLN 145.9 million;
11. Wielkopolskie Voivodeship – 4 projects amounting to PLN 246.2 million;
12. Zachodniopomorskie Voivodeship – 4 projects amounting to PLN 77.2 million.

### Operational Programme Infrastructure & Environment (OPI&E) for the years 2007-2013

PKP Polskie Linie Kolejowe S.A. implemented 62 projects under OPI&E 2007-2013, including:

1. 29 infrastructural projects;
2. 25 documentation projects;

3. 8 projects implemented in phases;
4. 3 railway station projects implemented jointly with PKP S.A.

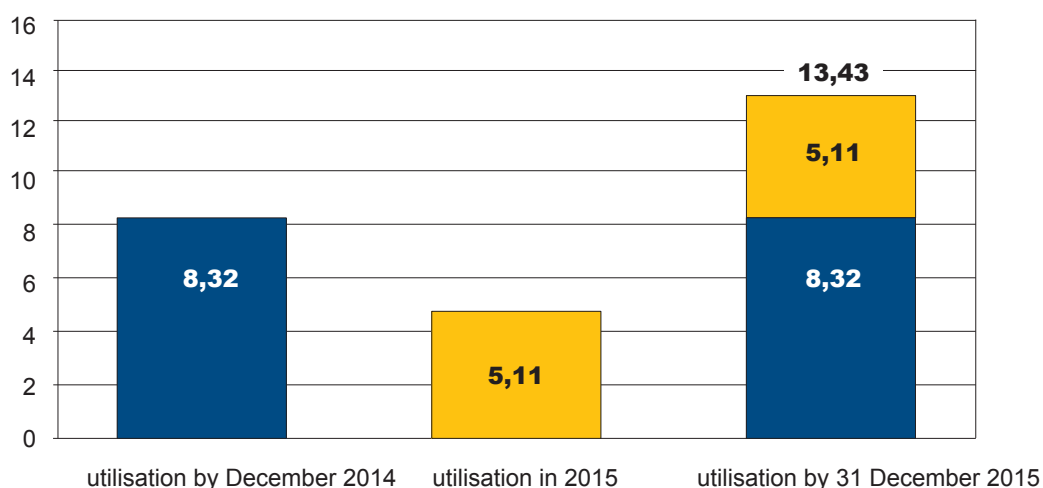
Grant agreements were concluded with the Centre for EU Transport Projects for all 62 projects implemented by PKP Polskie Linie Kolejowe S.A. All required EC Decisions were obtained as well.

#### Grant agreements in the years 2010-2015

No.	Year of agreement conclusion	Number of concluded GAs	Value of co-funding as stated in GAs (in PLN thousand)
1.	2010	7	2 384 136,4
2.	2011	5	2 657 101,9
3.	2012	9	2 407 542,3
4.	2013	14	3 118 656,5
5.	2014	20	1 426 527,4
6.	2015	7	1 430 314,4
<b>In Total</b>		<b>62</b>	<b>13 424 278,9</b>

Total funds allocated under concluded GAs (after taking into consideration signed annexes – 75 annexes to GAs were concluded in 2015) amounted to PLN 13,424,278.9 thousand<sup>11</sup>.

Value of allocations for projects of PKP Polskie Linie Kolejowe S.A. co-funded under OPI&E 2007-2013 (excl. railway station projects) as at 31 December 2015 (in PLN billion).



In relation to the implementation of projects under OPI&E 2007-2013, in the years 2010-2015 PKP Polskie Linie Kolejowe S.A. filed more than 700 claims for the payment of eligible expenditures amounting to PLN 14,272,522.2 thousand to the Centre for EU Transport Projects, as a consequence of which the Company was granted co-funding in the form of refunds and advances in the amount of PLN 13,450,675.8 thousand.

<sup>11</sup> The final allocation amount is subject to change due to the ongoing verification of Final Payment Claims by the Centre for EU Transport Projects.

Value of submitted payment claims (indicated amounts include EU co-funding and State Budget funding) and co-funding received in the years 2010-2015 under OPI&E.

No.	Year	Value of submitted Payment Claims (in PLN thousand)	Value of co-funding received (in PLN thousand)
1.	2010	282 659,3	147 035,1
2.	2011	429 957,5	257 407,6
3.	2012	2 408 170,4	2 468 183,5
4.	2013	1 504 795,6	1 362 048,7
5.	2014	3 829 654,3	3 670 541,1
6.	2015	5 817 285,1	5 545 459,8
<b>In Total</b>		<b>14 272 522,2</b>	<b>13 450 675,8</b>

**Breakdown of projects into phases - division of projects into two financial frameworks (Phase I to be implemented in the financial framework 2007-2013 and Phase II to be implemented in the financial framework 2014-2020).**

In the case of projects that could not be completed by the end of 2015 due to low level of progress made, in order to secure a smooth continuation of projects in the new financial framework, PKP Polskie Linie Kolejowe S.A. undertook measures to implement these projects in phases. In light of the above, in 2015 PKP Polskie Linie Kolejowe S.A. initiated consultations with the ministry competent for transport and JASPERS to define the optimum extent of works to be financed under both project phases. In the end, it was decided that 8 investment projects will be implemented in phases:

1. modernization of the E 75 Rail Baltica line, Warszawa – Białystok – Lithuanian border section, stage I, Warszawa Rembertów – Zielonka – Tłuszcz (Sadowne) section (OPI&E 7.1-22.1);
2. modernization of the Warszawa - Łódź railway line, Stage II, Lot A, Warszawa Zachodnia - Miedniewice (Skierniewice) section (OPI&E 7.1-24.1);
3. modernization of the Warszawa- Łódź railway line, Stage II, Lot C – remaining work (OPI&E 7.1-24.3);
4. modernization of the E 65/C–E 65 railway line on the Warszawa – Gdynia section in the scope of top layer of LCS, ERTMS/ETCS/ GSM-R, defect detection and traction network power supply systems, OPI&E 7.1-1.4;
5. modernization of the E 59 railway line on the Wrocław – Poznań section, stage III, Czempień – Poznań section (OPI&E 7.1-5.1);
6. modernization of the E 30/C-E 30 railway line on the Kraków - Rzeszów section, stage III (OPI&E 7.1-30);
7. modernization of railway line No. 8, Warszawa Okęcie – Radom section (OPI&E 7.1-19.1a);
8. improvement of railway access to the Port of Gdańsk (bridge + double-track railway line) (OPI&E 7.2-4.1).

On the national level, the implementation of projects in phases was sanctioned through the conclusion of annexes to GAs for Phase I, i.e. covering the financial framework 2007-2013, and the conclusion of new GAs for Phase II, i.e. works implemented in the financial perspective 2014-2020. In 2015, the EC issued appropriate decisions concerning the implementation of projects in phases for 7 out of 8 projects. The decision for the project titled "Modernization of the E 30/C-E 30 railway line on the Krakow - Rzeszów section, stage III" (OPI&E 7.1-30) will be issued in the 1st quarter of 2016.

## Financial framework 2014-2020

### Connecting Europe Facility (CEF)

#### 1st CEF Call for Applications

In the first CEF call for applications, settled in 2015, EU support was granted to all 7 projects submitted by PKP Polskie Linie Kolejowe S.A. within the so-called national envelope. In 2015, Grant Agreements (GAs) with the Innovation and Networks Executive Agency (INEA) were concluded for all projects. The total value of the CEF allocation utilised as part of the first call for applications amounted to approx. EUR 1.5 billion.

Projects under the 1st CEF call for applications according to data from Grant Agreements

No.	Project name	Total cost net (in EUR) as stated in the Grant Agreement	Value of CEF co-funding (in EUR) as stated in the Grant Agreement	Project implementation period as stated in the Grant Agreement
1.	Work on the E59 railway line on the Wrocław - Poznań section, stage IV, border of Dolnośląskie Voivodeship - Czempirń section	364 831 476,63	280 081 124,61	2014-2020
2.	Work on the Warsaw Ring Railway (Warszawa Gołębki / Warszawa Zachodnia - Warszawa Gdańska section)	80 639 336,48	68 543 436,01	2015-2019
3.	Work on the E75 railway line on the Sadowne - Białystok section, along with the remaining work on the Warszawa Rembertów - Sadowne section	244 018 223	185 941 885,93	2016-2020
4.	Work on the E20 railway line on the Warszawa - Poznań section along with the remaining work on the Sochaczew - Swarzędz section	614 308 666,47	461 775 824,59	2015-2020
5.	Work on Warszawa Włochy - Grodzisk Mazowiecki railway line (line No. 447)	82 694 851,41	61 599 394,82	2015-2020
6.	Work on the E 59 railway line, Poznań Główny - Szczecin Dąbie section	531 613 269,06	437 411 397,79	2015-2020
7.	Improvement of safety on the Central Trunk Line through the elimination of level crossings at km 127 and km 147, and construction of grade-separated junctions	4 137 510	3 516 883,5	2014-2015
<b>In Total</b>		<b>1 922 243 333,05</b>	<b>1 498 869 947,25</b>	

## 2nd CEF Call for Applications

As part of the 2nd CEF call for applications announced on 5 November 2015, PKP Polskie Linie Kolejowe S.A. submitted 10 applications to INEA within the national envelope, providing for co-funding in the total amount of EUR 1.6 billion.

Projects under the 2nd CEF call for applications according to data from applications

No.	Project name	Project value (in EUR million)	CEF grant value (in EUR)	Project implementation period
1.	Work on the E75 railway line, Czyżew – Białystok section	397,4	302,8	2016-2020
2.	Modernization of the E30 railway line, stage II, Zabrze – Katowice – Kraków section, stage 2b	538,7	410,1	2015-2018
3.	Work on the E 30 railway line, Kraków Główny Towarowy – Rudzice section, along with the addition of metropolitan line tracks	395,9	320,3	2017-2020
4.	Work on railway lines No. 14, 811 on the Łódź Kaliska - Zduńska Wola- Ostrów Wielkopolski section, stage I: Łódź Kaliska - Zduńska Wola	113,1	73,1	2017-2020
5.	Improvement of railway access to the port of Gdynia	190,8	162,2	2017-2021
6.	Improvement of railway access to sea ports in Szczecin and Świnoujście	143,6	122,1	2016-2020
7.	Improvement of railway access to the Port of Gdańsk	141,5	115,7	2017-2020
8.	Work on the E 20 railway line, Siedlce - Terespol section, stage III – LCCSC Terespol	131	109,5	2016-2020
9.	Electrification of railway lines No. 274 and 278, Węgliniec - Zgorzelec section	22,5	19,1	2016-2017
10.	Work on primary passenger lines (E 30 and E 65) within the Śląskie Voivodeship, stage I: the E 65 railway line, Będzin – Katowice – Tychy – Czechowice Dziedzice/ Zebrzydowice section	8,9	7,6	2015-2023
<b>In Total</b>		<b>2 083,4</b>	<b>1 642,5</b>	

## 3rd CEF Call for Applications

In 2015, PKP Polskie Linie Kolejowe S.A. carried out preparatory works related to the 3rd CEF call for applications. These works included the performance of studies in relation to projects that meet the requirements laid down in the CEF Regulation (Regulation (EU) No. 1316/2013 of the



European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility) and are included in the National Railway Programme (KPK) on primary and reserve lists.

The EC/INEA confirmed that a 3rd CEF call for applications will be announced for cohesion countries in September - October 2015, therefore there will be a possibility of utilising the remaining as part of the so-called national envelope. Furthermore, 10 tendering procedures for works under projects from the 1st and 2nd call for applications are scheduled to be settled by that time, making it possible to include savings, if there are any. The target list of projects which PKP Polskie Linie Kolejowe S.A. will submit under the 3rd call for applications will be defined after the announcement of the results of the 2nd call for applications and learning the final value of funds available under the 3rd CEF call for applications and the conditions for participation related to time limits for project completion, taking into account additional amounts that will be included in the budget as a result of failure to utilise the allocation by other cohesion countries.

### **CEF Manual**

In October 2015, PKP Polskie Linie Kolejowe S.A. commenced work on putting the "Manual of procedures for implementing railway projects under the Connecting Europe Facility (CEF)" into practice. The essence of the Manual are procedures that comprise the CEF Project implementation process in force at the Company. These procedures described the rules of procedure for the implementation of individual actions and ensure the proper documentation of performed actions by specifying:

1. how tasks are to be performed, including a description of individual activities necessary for the successful completion of these tasks;
  2. document drafted at each step of the process of performing a given tasks;
  3. contractors responsible for individual activities falling under a given task;
  4. maximum time that may be expended on the performance of a given task;
- as well as the verification and acceptance of documents by competent persons.

Maintaining detailed documentation on the progress and/or method of completion of a task pursuant to the provisions of the Manual makes it possible to quickly identify these tasks and ensures an appropriate audit path.

### **Operational Programme Eastern Poland (OPEP) for the years 2014-2020**

Operational Programme Eastern Poland 2014-2020 is an additional instrument supporting the economic and social development of 5 voivodeships in Eastern Poland. OPEP investments under the Supra-regional Railway Infrastructure measure have been planned in such a way, so as to support undertakings co-funded as part of OPI&E 2014-2020 and ensure that they are complementary to measures related to railway infrastructure, implemented through Regional Operational Programmes of voivodeship located in Eastern Poland.

OPEP will provide support to railway line comprising the so-called Eastern Trunk Line. In accordance with the Implementing Document to the Transport Development Strategy until 2020, it is a transport route that connects voivodeship capitals in the macro-region and runs through: Olsztyn - Korsze - Kętrzyn - Giżycko - Ełk - Białystok - Czeremcha - Siedlce - Łuków - Dęblin - Lublin - Kraśnik - Tarnobrzeg - Kolbuszowa - Rzeszów, with a branch line to Kielce through: Tarnobrzeg - Ostrowiec Świętokrzyski - Skarżysko Kamienna.

Investments will serve to improve railway access to Eastern Poland by improving the quality of infrastructure on existing lines (raising technical parameters, replacing obsolete components, introducing modern solutions and electrifying certain sections). OP EP will provide co-funding

to railway line infrastructure projects as well as investments in nodal infrastructure, i.e. passenger service facilities (stops, shelters, pedestrian overpasses adapted to the needs of persons with reduced mobility), level crossings and other engineering structures.

PKP Polskie Linie Kolejowe S.A. envisages to obtain co-funding for 8 projects to be implemented under measure 3.1. Railway infrastructure.

### **Operational Programme Eastern Poland Projects - primary list:**

1. work on railway lines No. 68 and 565, Lublin - Stalowa Wola Rozwadów section, along with its electrification;
2. work on railway lines No. 25, 74 and 708, Stalowa Wola - Tarnobrzeg/Sandomierz - Ocice/Padew;
3. work on railway line No. 25, Skarżysko Kamienna - Sandomierz section;
4. work on railway line No. 32, Białystok - Bielsk Podlaski (Lewki) section;
5. work on railway line No. 31, Voivodeship border – Czeremcha – Hajnówka section;
6. work on railway line No. 52, Lewki - Hajnówka section;
7. work on railway line No. 216, Działdowo - Olsztyn section;
8. work on railway line No. 219, Szczytno - Ełk section.

6 agreements were concluded in 2015 within the scope of the Operational Programme Eastern Poland for the development of pre-design documentation for:

1. project titled "Work on railway lines No. 68 and 565, Lublin - Stalowa Wola Rozwadów section, along with its electrification";
2. project titled "Work on railway lines No. 25, 74 and 78, Stalowa Wola - Tarnobrzeg/Sandomierz - Ocice/Padew";
3. project titled "Work on railway line No. 25, Skarżysko Kamienna - Sandomierz section";
4. project titled "Work on railway line No. 216, Działdowo - Olsztyn section";
5. project titled "Work on railway line No. 219, Szczytno - Ełk section";
6. projects involving work on railway lines No. 31, 32 and 52 within Podlaskie Voivodeship.

In addition, in 2015 PKP Polskie Linie Kolejowe S.A. submitted project preparation declarations, along with the schedule of actions planned for each OPEP project, to the Centre for EU Transport Projects for each project referred to above.

### **Operational Programme Infrastructure & Environment (OPI&E) for the years 2014-2020**

The National Railway Programme (KPK) provides for financing the following projects from OPI&E funds:

1. 28 (reserve: 3) railway line projects;
2. 2 (reserve: 0) maritime projects;
3. 7 (reserve: 1) multi-location projects.

The value of projects from the primary list will amount to PLN 26.3 billion, whereas the value of projects from the reserve list will amount to PLN 19.3 billion. In addition, the amount of PLN 1.1 billion has been earmarked for agglomeration projects (the joint project titled "Infrastructural agglomeration projects financed from the CF"). Funds will be allocated on the basis of a call for application that is scheduled to be announced by the ministry competent for development in the second half of 2016.

## Regional Operational Programme (ROP) to be implemented in the financial framework 2014-2020

The KPK provides for the implementation of 40 projects from the primary list as part of ROPs in 16 voivodeships.

In 2015, as part of the Regional Operational Programme 2014-2020, PKP Polskie Linie Kolejowe S.A. announced a tender procedure for the design and performance of construction works for the project titled "Modernization of railway line No. 354, Poznań Główny POD - Chodzież - Piła Główna" under the Wielkopolskie Regional Operational Programme.

Furthermore, 2015 saw the completion of work on the pre-design documentation for the following projects:

1. revitalisation of railway line No. 106, Boguchwała - Czudec section (Podkarpackie ROP);
2. revitalisation of railway line No. 210, Szczecinek - Runowo Pomorskie section (Zachodniopomorskie ROP);
3. revitalisation of railway line No. 405, voivodeship border - Słupsk - Ustka section (Pomorskie ROP).

In December 2015, the Company submitted an application for co-funding for the project based in Pomorskie Voivodeship titled "Revitalisation of railway line No. 207, voivodeship border - Kwidzyn - Malbork".

Furthermore, PKP Polskie Linie Kolejowe S.A. concluded 8 agreements with contractors for the development of pre-design documentation for the following projects in Podlaskie voivodeship:

1. work on railway line No. 32, Lewki - Czeremcha section;
2. revitalisation of railway line No. 49 on the Śniadowo - Łomża section;
3. revitalisation of railway line No. 36 on the Łapy - Śniadowo - voivodeship border section;
4. revitalisation of railway line No. 923, Bułowo Wschód - Bułowo (S);
5. revitalisation of railway line No. 57, Kuźnica Białostocka - Gieniusze (S);
6. revitalisation of railway line No. 59, state border - Chryzanów (S) in Podkarpackie voivodeship;
7. revitalisation of railway line No. 108, Jasło - Nowy Zagórz section;
8. construction of the Jedlicze - Szebnie railway siding.

In 2016, the Company envisions to work on updating the KPK, which may result in changes to the list of projects to be implemented in individual voivodeships and a modification to the scope of planned investments.

## Investment Forum

The Investment Forum (IF) has been functioning for three years. It was established on the initiative of PKP Polskie Linie Kolejowe S.A. The inaugural meeting of the IF was held on 12 December 2012.

The Forum serves as a communication platform between the managing authority, the intermediate body, the implementing body as well as enterprises and the beneficiary. The IF enables effective cooperation, exchange of experiences and the introduction of changes with respect to a faster implementation of railway investments. The primary purpose of works carried out as part of the IF is to streamline the investment preparation and implementation process through the identification of problems and formulation of solutions based

on the experience and knowledge of participants as well as the formulation of good practices. During the meetings, as part of an active dialogue with the market of contractors, the Company also communicates information concerning:

1. investment programmes and rules for their implementation;
2. the schedule of tender procedures;
3. planned expenditures on investment and maintenance activity;
4. current and planned amendments to the provisions of law that have or may have an impact on the implementation of investments.

The Forum also formulates recommendations concerning necessary legislative amendments based on findings.

As part of the Investment Forum, the Forum Board comprising a representative of the Company, Contractors and a representative of the ministry competent for transport was established. Work is carried out in the form of meetings held by 6 Working Groups;

1. Designer and Service Provider;
2. Engineer;
3. Selection Criteria;
4. Contractual Provisions;
5. Institutional Technology;
6. Legislation (this group has not yet commenced activity).

Work carried out by the IF involves the participation of: the ministry competent for transport, the Office of Rail Transport, the Centre for EU Transport Projects, the Public Procurement Office, JASPERS, the Ministry of Environment, Notified Bodies, representatives of the Management Board of PKP Polskie Linie Kolejowe S.A., contractors as well as representatives of Investment Implementation Centres and individual units at the Company's Head Office, in accordance with their competencies.

The road to develop and, in particular, implement satisfying provisions is difficult and requires undertaking numerous initiatives. In 2015, 14 meetings of all Working Groups were held. An important aspect of the IF's work is cooperation aimed to further shape contractual conditions through the agreement of the so-called "base documents". Issues discussed at meetings included base documents adopted by PKP Polskie Linie Kolejowe S.A. as well as postulates of contractors that may, in their opinion, have a positive impact on accelerating the performance of railway investments and proper distribution of risk between the investor and the contractor. A number of these postulates has already been implemented, but many still require in-depth analysis and compromises in terms of their provisions.

Works undertaken as part of the IF indicate that contractors find it important to be consulted with regard to provisions laid down in base documents, but also to have their remarks taken into consideration and/or to be given an explanation as to why changes cannot be introduced. Numerous discussions have been held regarding provisions concerning introduction of a conditional amount (along with the development of a catalogue of cases where this amount may be applied) and an advance payment (with the specification of methods for establishing collateral for this payment and conditions in which it may be used). Topics discussed also included the base Functional and Utility Programme.

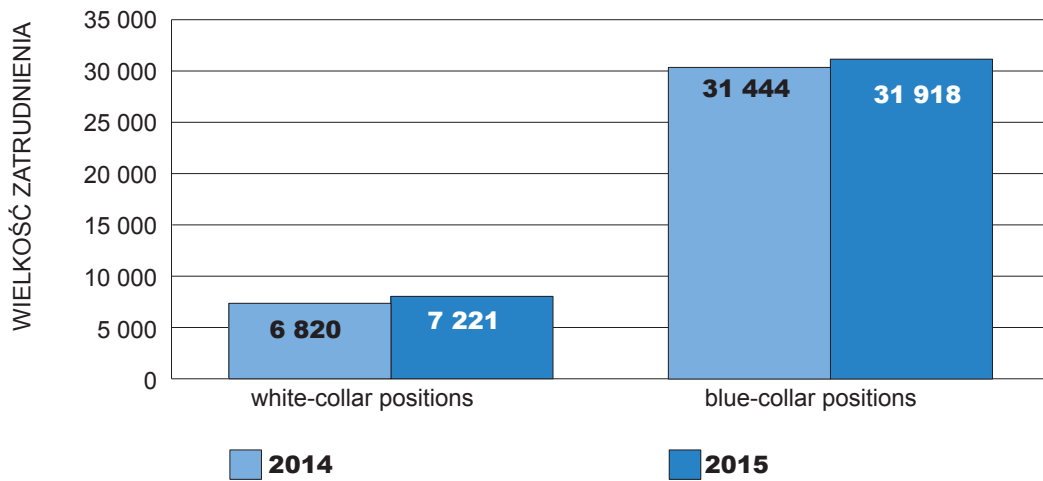
Due to the constantly changing market environment and new legal regulations, it is necessary to respond to occurring changes on an ongoing basis. There are still many more topics that should be discussed and settled as part of the Investment Forum, therefore further dialogue is a condition necessary to achieve set goals.

# Human Resources

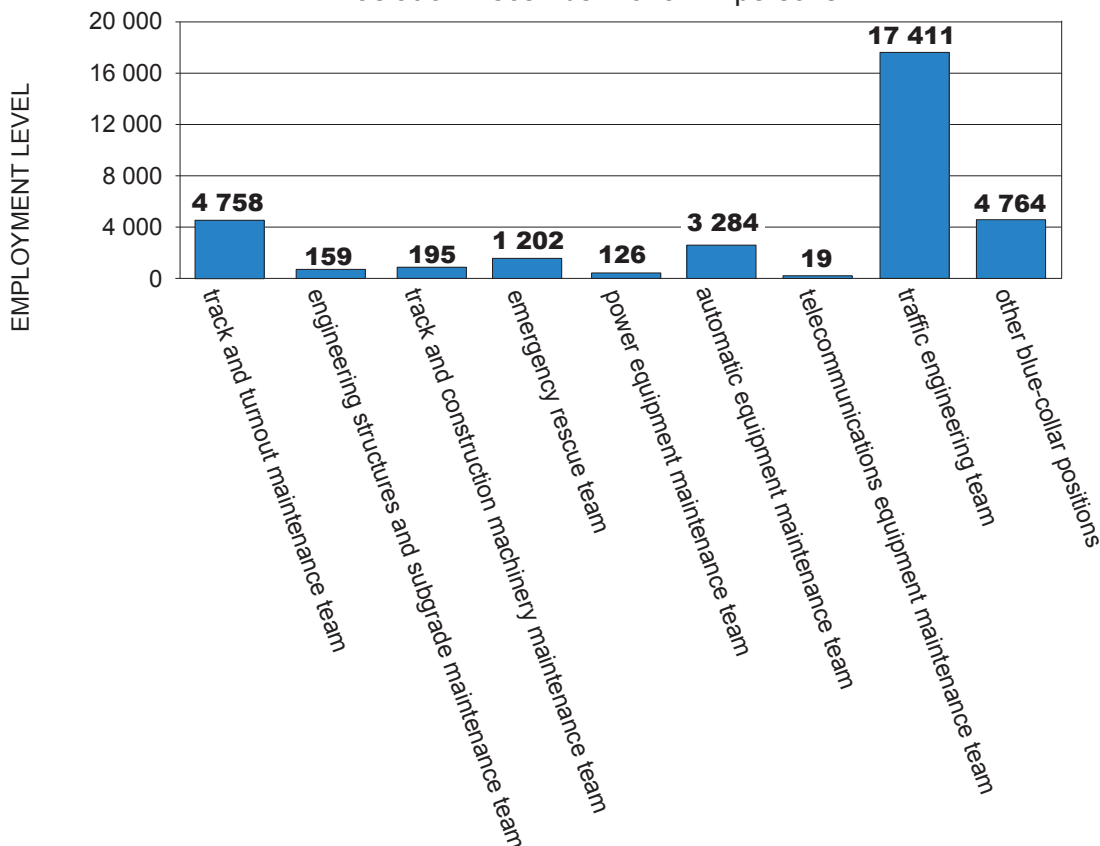
## Employment analysis

In 2015, the employment level at the Company increased by 875 compared of 2014 and amounted to 39,139 people. As regards the blue-collar positions, the employment level increased from 31,444 employees (as of December 31, 2014) to 31,918 employees (as of December 31, 2015), i.e. the employment level went up by 474 people (1.51%). As regards the white-collar positions (including administrative), the employment level increased from 6,820 to 7,221 employees (as of December 31, 2015) i.e. the employment level went up by 401 people (5.88%).

Employment by occupational groups as of December 31, 2015 - in persons

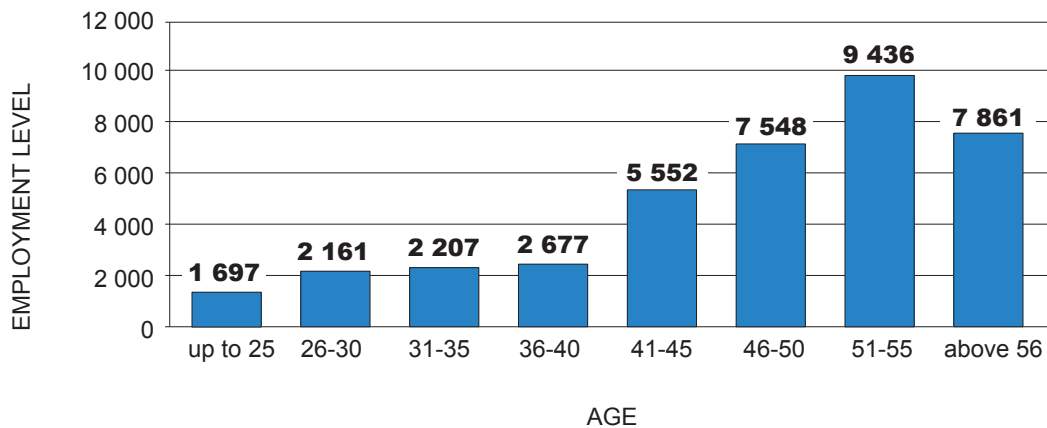


Employment at blue-collar positions as at 31 December 2015 - in persons



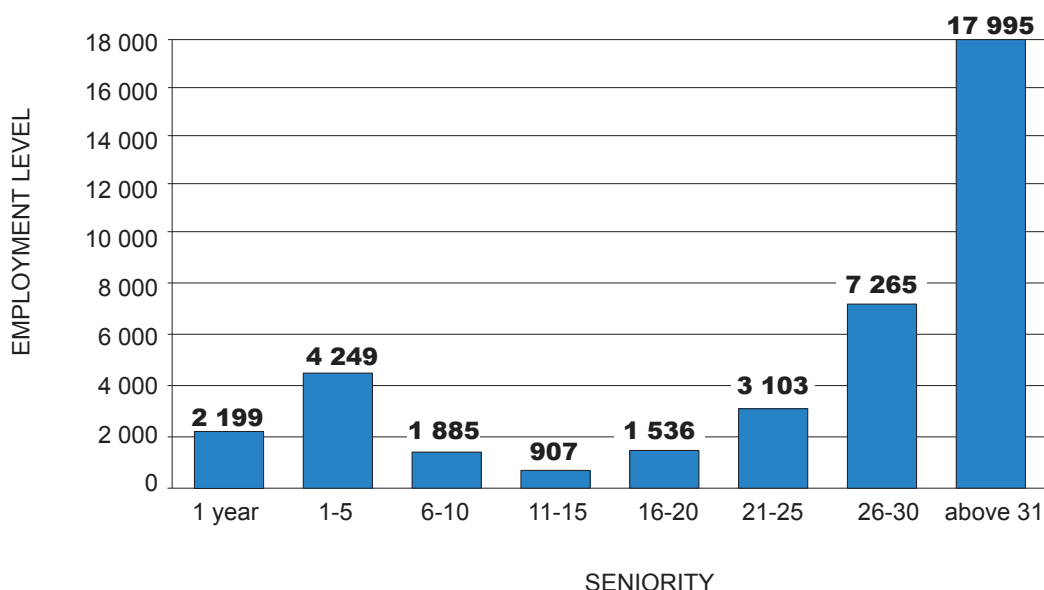
In 2015, the employment structure by age also changed. The employees aged 25 and less comprised 4.34% of the entire workforce (1,697 employees) – in this category, the number of employees decreased by 448 people, namely 35.87%. The employees aged 26-50 are the largest group in the Company (who are people in the period of their most intensive professional activity). They comprised 51.47% of the entire staff (20,145 employees) in 2015. In this category, there was a decrease in the employment level by 6 employees, i.e. 0.03%. The third category are persons aged 51 and more. In 2015, they comprised 44.19% of the entire staff (17,297 employees). In this group, the employment level grew by 433 employees, i.e. by 2.57%.

Employment structure by age as at 31 December 2015 – in persons

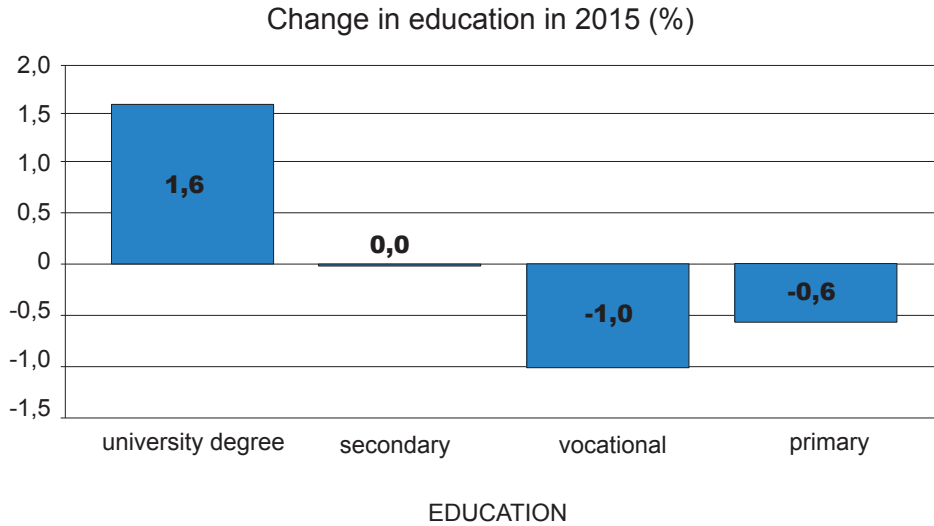


Employees with up to 10 years of seniority at the Company comprised 21.29% of the staff (8,333 persons) – this group recorded an increase by 2,047 employees, i.e. by 32.56%. Employees with 11 to 20 years of seniority comprised 6.24% of the entire staff (2,443 persons), which means a decrease by 308 employees, i.e. 11.20% (compared to 31 December 2014). The most numerous group at the Company were with more than 21 years of seniority, who comprise 72.47% of the total number of employees (28,363 persons). In comparison to 31 December 2014, this group recorded a decrease by 864 employees, namely by about 2.96%.

Employment structure broken down by seniority as at 31 December 2015 – in persons



In 2015, we observed further positive developments in terms of the employment structure by education. The most important factor in this case was the increase in the number of employees with an academic degree with the simultaneous decrease in the number of people with secondary, basic vocational, or primary education. This results from the Company's policy which aims at recruiting highly-qualified employees and implementing continuous education programmes for the staff.

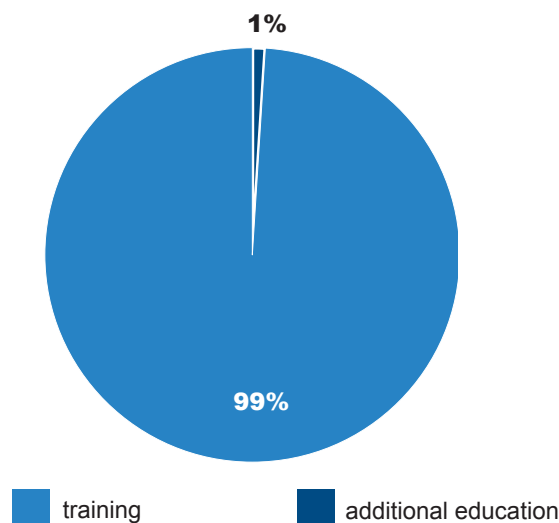


## Staff development

Each year, PKP Polskie Linie Kolejowe S.A. invests in developing the competencies of its employees, considering it one of the priorities in striving to achieve the sustainable growth of the Company. A qualified staff that improves its qualifications constitutes a great potential and a guarantees dynamic growth of the Company.

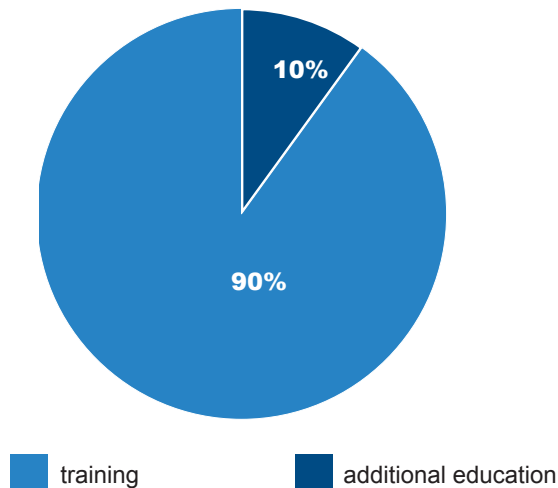
PKP Polskie Linie Kolejowe S.A. provides employees with various opportunities for development, from participating in seminars and conferences, through raising their level of education by enrolling employees at the university or post-graduate studies, to improving their foreign language skills. In 2015, a total of 141,705 employees\* took part in personnel development programmes, of whom 134,827 participated in training courses, while 619 improved their level of education (including 17 persons who enrolled in language courses).

Share of employees in individual forms of development in 2015



\* Each employee may attend one or more training course.

Share of costs by individual forms of development in 2015



For PKP Polskie Linie Kolejowe S.A., the development of its personnel is of particular importance due to the necessity to ensure safety of railway traffic, operation, maintenance and modernization of railway lines as well as performance of other key tasks. In light of the above, the Company organised numerous training courses in 2015 and adapted the training programme to tasks implemented by employees.

### Vocational training

In 2015, PKP Polskie Linie Kolejowe S.A. implemented a project to prepare employees to hold positions related to railway traffic management on the in-house system.

Since March 2015, the Company organises its own theoretical training courses, on the basis of approved training programmes, for candidates for the following positions: train dispatcher, signalman, points operators, crossing keeper, track supervisor, lineman, railway traffic control automation specialist as well as maintenance and work train conductor. Lectures during training courses are given by adequately qualified employees of Railway Lines District Units.

As part of the project, 61 qualification courses were organised in 2015; the courses were attended by 1,514 participants.

Qualification vocational course in 2015

Name of qualification course	Number of participants	Number of training groups
Train dispatcher	177	8
Signalman	672	27
Points operator	181	8
Crossing keeper	257	8
Track supervisor	25	1
Lineman	96	5
Automation specialist	81	3
Maintenance train conductor	25	1
<b>In Total</b>	<b>1 514</b>	<b>61</b>



### **Training of engineering structure diagnosticians on new rules for performing diagnostic inspection of railway engineering structures, including modern research methods and techniques.**

In 2015, in order to raise vocational qualification of engineering structure diagnosticians and improve their knowledge regarding the assessment of the technical condition of railway engineering structures, the Company carried out training for the above-mentioned diagnosticians across the entire Company. 66 employees underwent training during three ten-day editions that ended with an exam. The training was carried out by employees of the Faculty of Bridges and Railroad at the Department of Civil and Water Engineering of the Wrocław University of Technology.

In 2015, the Company also held a cycle of training courses for diagnosticians specialising in permanent way and track bed, which continued previous training concerning the determination of maximum train speeds depending on the condition of permanent way, carried out in 2011. 69 employees were trained as part of this cycle.

### **Training courses concerning EEA-4 and EEA-5 point machines along with the EFA-1 blade position controller**

At the turn of 2015, the Company carried out a series of training courses concerning technical maintenance of EEA-4 and EEA-5 point machines along with the EFA-1 blade position controller. 120 employees of PKP Polskie Linie Kolejowe S.A. - instructors and experts in the field of automation from Railway Lines District Units were also trained.

### **Investment Training**

In 2015, the project of computer training was continued and completed. Training courses covered the operation of the following software:

1. Microsoft Office - 235 persons;
2. AutoCAD - 4 group of 39 persons;
3. NormaPRO - 10 persons.

### **E-learning training (pilot project)**

In March 2015, the implementation of the pilot e-learning programme titled "Main issues related to railway infrastructure - e-Manual". Training courses were developed by selected representatives of substantive units at the Company's Head quarters. E-learning training has been created with new employees in mind, as becoming familiar with railway infrastructure will help them to perform tasks on the entrusted workstation.

### **Leaders of Change Academy**

In 2015, project titled "Leaders of Change Academy", initiated in 2014 and aimed to improve the efficiency of tasks implemented at the Company, was continued in 2015. A total of 1,941 persons attended 145 training groups as part of the cycle of training courses held in 2015, including: 360 persons in 27 "Time Management" training groups and 1,581 persons in 118 "Effective Time Management" training groups. Training courses were attended by 1,270 line-men, 79 deputy department heads, 459 stationmasters and 61 persons holding other positions.

Another project implemented in 2015 was the "Change Management" project initiated in April for a group of 627 employees of PKP Polskie Linie Kolejowe S.A. from the road and automation sector. In June 2015, the Company started a cycle of training courses concerning cooperation with internal clients for 213 members of management staff. The project was completed in September 2015.

### **Preparation of instructors to carry out the soft component of periodic instructions**

18 instructors from the Development Centre have been selected to carry out the soft component of periodic instructions (2 hours long) which will be mandatorily provided to employees holding the following positions: signalman, gatekeeper, driver of multi-function and heavy machinery for railway construction work and traction network work, gang-car and bogie operator, and operator of a 300 horsepower diesel locomotive, i.e. approx. 9 thousand employees.

### **Talent Identification and Development Programme**

In 2014, PKP Polskie Linie Kolejowe S.A. selected a group of 71 employees showing above-average commitment through a pilot project under the 1st edition of the Talent Identification and Development Programme. The 1st edition of the programmes was held under the slogan "let's appreciate commitment". In December 2014, the selected group of Talents held its inaugural meeting during which the Company's values were selected. Actions implemented as part of the programme in 2015 include:

1. a training course titled "Personal Efficiency", aimed to improve own time management skills;
2. a training course titled "Agents of Change", aimed to prepare the group of Talents to participate in the implementation of new projects at the Company (e.g. how to carry out a Strengths, Weaknesses, Opportunities and Threats analysis) and how to communicate and promote it within the organisation;
3. a training course titled "Project Management", aimed to transfer knowledge concerning a basis for project management and internal project communication;
4. a summary workshop titled "Workshops and Solutions", aimed to summarise the 1st edition of the Talent Identification and Development Programme during which non-investment project management solutions have been developed.

### **Assessment of competence**

In 2015, the Company carried out the assessment of competence of all employees working at the Head Office and the Investment Implementation Centre. The process covered over 2,000 employees. Prior to the assessment, managers of above-mentioned organisational units have been trained on how to effectively carry out an employee evaluation. For this purpose, the Company organised training for 477 persons in 46 training groups. As part of preparations for the implementation of phase II of the assessment of competence, which will also apply to remaining organisational units, the Company organised training for remaining management staff of the Company. 693 persons in 49 training groups have received training.

### **Additional education**

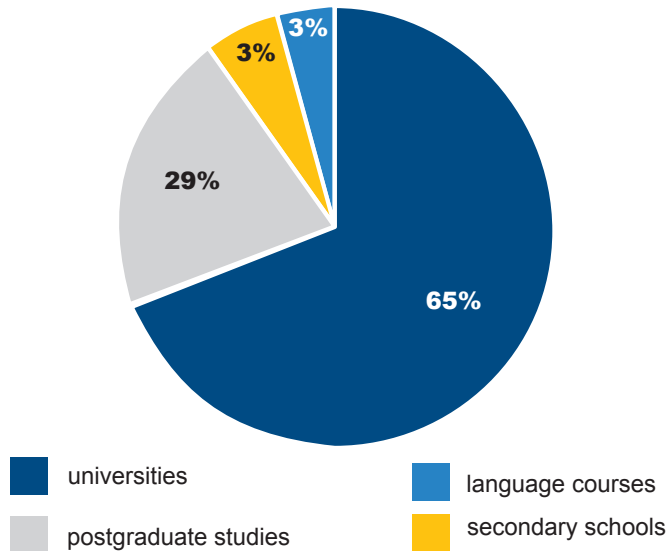
In 2015, 619 staff members participated in the process of gaining additional education (including 17 taking part in language courses).

In 2015, the 7th edition of MBA post-graduate studies for employees of PKP Polskie Linie Kolejowe S.A., held in cooperation with the Association of Railway Employers (ZPK) by the Gdańsk Management Training Foundation. Five employee of the Company are currently participating in this initiative and are scheduled to graduate in 2017.

In 2017, as part of membership in the Association of Railway Employers, employees of the Company had the opportunity to take advantage of post-graduate programmes in Finance Management, Management Studies and Project Management offered by the Gdańsk Management Training Foundation and CS Szkolenie i Doradztwo Sp. z o.o. 47 persons have chosen the above-mentioned programmes. Classess will end in January 2016.

Within the scope of cooperation with the Warsaw University of Technology, a second edition of post-graduate studies at the Civic Engineering Department in the field of “Management of infrastructural projects in railway engineering” was launched in October 2015. 10 employees choose the above-mentioned programme; classes will end in 2016.

Share of participants in different forms of additional education



### Cooperation with upper-secondary schools

As part of cooperation with schools, the Company continued to implement the scholarship programme for students in upper secondary schools. PKP Polskie Linie Kolejowe S.A. cooperates with upper secondary schools with respect to education focused on railway competencies to ensure staff for the positions directly related the Company’s core activity. Schools which cooperate with PKP Polskie Linie Kolejowe S.A. offer education in the following areas:

1. railway transport technician;
2. railway road and bridge technician;
3. railway traffic control automation specialist;
4. electrical power technician for rail transport.

At the end of 2015, the Company carried out a preliminary analysis of the efficiency of the scholarship programme, which indicate a need to amend the conditions and criteria for selecting recipients of scholarships and to change the scholarship amount. The analysis also included a study of the Company’s needs related to the employment of graduate from the years 2016-2020.

The result of this analysis will be a shift in the approach used to establish cooperation with companies towards focusing on actual needs of the Company.

List of schools offering railway-related programme as part of cooperation with PKP Polskie Linie Kolejowe S.A.



## External communication

### Celebration of the 170th anniversary of opening the first section of the Iron Route Warsaw-Vienna

PKP Polskie Linie Kolejowe S.A. actively participates in the celebration of the 170th anniversary of opening the first section of the Iron Route Warsaw-Vienna, also known as the “Viennese”.

The Iron Route Warsaw - Vienna was the first railway line in operation on the territory of the then Kingdom of Poland. It was to connect Warsaw with the Austrian Partition border. Its construction began on the initiative of Henryk Łubieński, Vice-President of the Bank of Poland and Piotr Steinkeller, a banker and industrialist. Its design and implementation rested with Stanisław Wysocki, a pioneer of the Polish railway industry and a renowned engineer. The official opening of the line connecting Warszawa and Grodzisk on 14 June 1845 was made grand by a pair of locomotives.

PKP Polskie Linie Kolejowe S.A., as the manager of the national railway network, became a natural initiator of official celebrations. A rich schedule of attractions began in April and lasted until December 2015.

On 14 June 2015, on the “Viennese” route, it was possible to hear special megaphone announcements and the passengers of Szybka Kolej Miejska, PKP Intercity and Przewozy Regionalne received commemorative tickets.

### 11th TRAKO International Railway Fair

On 22-25 September 2015, the representatives of PKP Polskie Linie Kolejowe S.A. took part in the 11th edition of the TRAKO International Railway Fair in Gdańsk. The Fair is the most prestigious meeting place for the representatives of rail transport industry in Poland.

The visitors can admire the latest models of rolling stock used in passenger and freight transport as well as innovative solutions applied in railway infrastructure and technological innovations. PKP Polskie Linie Kolejowe S.A. was present at the TRAKO Fair as part of the PKP Group stand. The Company presented information about planned and implemented modernization work on particular railway lines, about the latest technological solutions being deployed in ongoing projects. Throughout the event, our stand attracted many visitors of this important industry expo.

It is worth to note that during the fair representative of the Company participated in debates: “Better utilisation of EU funds as a catalyst for the Polish railway” (23 September 2015) and “Are we well-prepared to spend 67 billion in the financial perspective 2014-2020?” (24 September 2015).

The Company also receive the “Railway Market Locomotive” award given out by the editor of rynek-kolejowy.pl, in the “For the passenger” category for introducing the option to track passenger trains in real time.

## New functionality of the Passenger Portal

PKP Polskie Linie Kolejowe S.A. initiated the monitoring of all railway connections in real time and made it available to users on its website. The system shows the current position of the train on the map and provides information on any disruptions. The Passenger Portal has been expanded with new tools which now also include a connection search engine and the timetable.

Passengers of long-distance and regional trains can find all information concerning train travel on a single website: <http://rozkład.plk-sa.pl>. By going to the "Timetable" tab in the new section called "My train", anyone is able to check whether their connection will arrive as schedule and track it on the map. In the case of changes, it specifies the delay and its causes as well as an estimated time of arrival at other stations. The website also offers additional information on alternative means of transport.

All of more than 4 thousand passenger trains launched each day can be seen on the map, broken down into individual voivodeship. Information concerning trains is collected from their GPS transmitter and from the control command and signalling system of the infrastructure manager.

The Passenger Portal still offers the option to find the best possible connection that meets the selected criteria. It is possible to search for a direct connection or a connection that require changing trains and to find more information on services offered on the train, such as business class, dining car or bicycle transport. When the user plans a trip, they are also given the option to easily plan the return trip.

## Contact details

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# Map of railway lines

**PKP POLSKIE LINIE KOLEJOWE S.A.**

The map of polish railway lines  
administered by PKP Polish Railway Lines  
and other administrators

Mapa linii kolejowych w Polsce  
zarządzanych przez PKP Polskie Linie Kolejowe S.A.  
oraz innych zarządców

